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University of Southampton

Faculty of Environmental and Life Sciences

School of Psychology

**Examining the role of women's self-pleasure in relationships: Individual and  
dyadic analyses**

by

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Thesis for the degree of PhD Psychology

April 2024



University of Southampton

**Abstract**

Faculty of Environmental and Life Sciences

School of Psychology

Doctor of Philosophy

Examining the role of women's self-pleasure in relationships: Individual and dyadic analyses

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Masturbation is a sexual activity resulting in sexual pleasure and a therapeutic tool for women's orgasm difficulties. However, stigma around women's masturbation persists, especially for partnered women. Although research attention on women's masturbation has increased in recent years, it is understudied within a relationship context due to the traditional sexual norms prioritising partnered penetration in relationships. The current thesis examined partner and relationship influences on women's understanding, meanings, perceptions, and behaviours related to women's self-pleasure (solitary and/or mutual; with or without vibrators), and how recency of solo and mutual masturbation might be associated with their sexual satisfaction and sexual self-esteem. First, in a systematic review of the qualitative literature on women's masturbation (Paper 1), I reviewed and synthesised findings from 11 articles. Second (Paper 2), I conducted an online survey of 105 mixed-sex couples ( $M_{age} = 27.62$  years) and explored the following questions using dyadic analysis: how (dis)similar are partners in their attitudes and beliefs about women's self-pleasure, and is solo masturbation associated with sexual satisfaction and sexual self-esteem among women and their partners? Third (Paper 3), using individual-level data from the online survey ( $N = 117$  women and 151 men,  $M_{age} = 29.7$  years), I explored the recency of mutual masturbation, associated emotions, and associations with sexual satisfaction and sexual self-esteem when in relationships. Notably, findings from the systematic review demonstrated that little is known about: women's masturbation in the relationship context, their partners' actual feelings and attitudes about women's masturbation, and their communication strategies for disclosing and sharing masturbation experiences. Partners reported similar and positive attitudes about women's solo masturbation in Paper 2, and positive feelings about mutual masturbation in Paper 3. Among women and their partners in Paper 2 and women and men in relationships in Paper 3, solo masturbation recency had no association with sexual satisfaction. However, in Paper 3, a positive link between mutual masturbation recency and sexual satisfaction was found. Although the sexual script around masturbation expects that this is a behaviour that will happen *alone* and considers it to be more *normal* for single individuals than for those in relationships, the collective findings from this research challenge these two common misconceptions. The findings also suggest that feelings about and attitudes toward masturbation are more positive than previously believed. The results provide insight into how the association between masturbation and sexual satisfaction might differ depending on the context (solo vs. mutual). Sex and couple therapists can recommend mutual masturbation to enhance sexual satisfaction after exploring personal feelings and values about solo and partnered masturbation. Normalising solo and mutual masturbation, and including types of self-pleasure in the sexual scripts while in relationships, may help increase couples' mutual pleasure.



## Table of Contents

<i>Abstract</i> .....	5
<i>Table of Contents</i> .....	7
<i>Table of Tables</i> .....	13
<i>Table of Figures</i> .....	15
<i>List of Accompanying Materials</i> .....	17
<i>Research Thesis: Declaration of Authorship</i> .....	19
<i>Acknowledgements</i> .....	21
<i>Abbreviations</i> .....	23
<b>1 Chapter 1 General Introduction</b> .....	<b>25</b>
<b>1.1 Introduction</b> .....	<b>25</b>
1.1.1 Structure of the Thesis.....	25
1.1.2 The Topic and The Rationale for the Thesis.....	26
1.1.3 Theoretical Frameworks.....	30
1.1.4 Summarising Convergence and Divergence among the Concepts and Theories .....	44
1.1.5 Gender Differences in Prevalence of Masturbation .....	46
1.1.6 Women’s Self-Pleasure.....	49
1.1.7 The Sexual Context and Women’s Pleasure: Inequalities in the Bedroom .....	51
1.1.8 Partners’ Reactions to Women’s Self-Pleasure .....	55
1.1.9 Sexual Satisfaction and Masturbation .....	56
1.1.10 Sexual Self-esteem .....	58
1.1.11 Why is it Important to Study Women’s Self-Pleasure? .....	59
1.1.12 Gaps in Knowledge about Women’s Self-Pleasure.....	62
1.1.13 The Aim and Research Questions .....	64
<b>1.2 Methodology</b> .....	<b>65</b>
1.2.1 Researcher’s Position: Epistemological Stance.....	65
1.2.2 Mixed Methods Approach .....	66
1.2.3 Paper 1: Secondary Thematic Analysis.....	68
1.2.4 Reflexivity - Feminism and Sex Positivity .....	69
1.2.5 Papers 2 & 3: Online Questionnaire Use .....	69

1.2.6	Paper 2: Correlational and Dyadic Analyses.....	70
1.2.7	Paper 3: Correlational Analysis .....	71
1.2.8	Challenges of Conducting Research with Couples.....	72
1.2.9	Re-Visiting Variables After Data Collection .....	73
<b>2</b>	<b><i>Chapter 2 What does research tell us about women’s experiences, motives and perceptions of masturbation within a relationship context?: A systematic review of qualitative studies .....</i></b>	<b>75</b>
<b>2.1</b>	<b>Abstract.....</b>	<b>75</b>
<b>2.2</b>	<b>Introduction .....</b>	<b>76</b>
2.2.1	The Prevalence of Women’s Masturbation and Sex Toy Use .....	76
2.2.2	Reasons for Masturbating.....	77
2.2.3	Justification for This Review .....	78
2.2.4	Why is this Review Important?.....	81
2.2.5	Objectives of Review.....	82
<b>2.3</b>	<b>Method .....</b>	<b>83</b>
2.3.1	Selection Criteria.....	83
2.3.2	Search Strategies.....	83
2.3.3	Selection of Studies.....	84
2.3.4	Quality Assessment.....	85
2.3.5	Synthesis of the Findings.....	86
<b>2.4</b>	<b>Results .....</b>	<b>87</b>
2.4.1	Quality Assessment.....	95
2.4.2	Secondary Thematic Analysis.....	97
<b>2.5</b>	<b>Discussion .....</b>	<b>112</b>
2.5.1	Partner-Related Perceptions .....	112
2.5.2	Partner-Related Motives.....	114
2.5.3	Experiences when in a Relationship and Reactions from Partners.....	116
2.5.4	Cultural Differences.....	119
2.5.5	Quality Assessment.....	120
2.5.6	Strengths and Limitations of the Review .....	122
2.5.7	Conclusions .....	123



<b>3</b>	<b><i>Chapter 3 (Dis)Similarities in attitudes between partners about women's solo masturbation: A dyadic approach to solo masturbation and its associations with sexual satisfaction and sexual self-esteem.....</i></b>	<b>125</b>
<b>3.1</b>	<b>Abstract .....</b>	<b>125</b>
<b>3.2</b>	<b>Introduction .....</b>	<b>126</b>
3.2.1	Sexual Double Standard and Sexual Script Theory .....	126
3.2.2	Attitudes Towards Masturbation .....	128
3.2.3	Self-Pleasure within Relationships.....	130
3.2.4	Masturbation and Sexual Self-esteem.....	131
3.2.5	Masturbation and Sexual Satisfaction .....	132
3.2.6	Couple Interdependence Theory.....	132
3.2.7	Justification for the Current Study .....	133
3.2.8	Why is this topic important?.....	135
3.2.9	Aims and Research Questions .....	136
<b>3.3</b>	<b>Method.....</b>	<b>136</b>
3.3.1	Participants.....	136
3.3.2	Procedure .....	137
3.3.3	Measures .....	138
3.3.4	Data Analysis.....	140
<b>3.4</b>	<b>Results .....</b>	<b>144</b>
3.4.1	(Dis)Similarities Between Partners in Attitudes About Women's Solo Masturbation .....	148
3.4.2	Associations Between Men's Attitudes and Their Partner's Masturbation Recency	149
3.4.3	Associations Between (Dis)Similarity in Attitudes and Women's Solo Masturbation .....	149
3.4.4	Associations Between Solo Masturbation and Sexual Satisfaction .....	150
3.4.5	Associations Between Solo Masturbation and Sexual Self-Esteem.....	151
<b>3.5</b>	<b>Discussion .....</b>	<b>151</b>
3.5.1	Self-Pleasure Experience .....	153
3.5.2	Solo Masturbation and Sexual Satisfaction .....	154
3.5.3	Solo Masturbation and Sexual Self-esteem.....	155
3.5.4	Theoretical Implications.....	155

3.5.5	Clinical Implications.....	156
3.5.6	Strengths and Limitations.....	156
3.5.7	Conclusions .....	157
<b>4</b>	<b><i>Chapter 4 The Role of Mutual Masturbation within Relationships: Associations with Sexual Satisfaction and Sexual Self-Esteem.....</i></b>	<b>159</b>
<b>4.1</b>	<b>Abstract .....</b>	<b>159</b>
<b>4.2</b>	<b>Introduction .....</b>	<b>160</b>
4.2.1	Sexual Script Theory .....	161
4.2.2	Mutual Masturbation.....	162
4.2.3	Sexual Satisfaction and Self-Pleasure.....	163
4.2.4	Sexual Self-Esteem and Self-Pleasure.....	164
4.2.5	Why is it Important to Study Self-pleasure within Relationships?.....	165
4.2.6	Aims and Research Questions.....	168
<b>4.3</b>	<b>Method .....</b>	<b>168</b>
4.3.1	Participants .....	168
4.3.2	Procedure.....	169
4.3.3	Measures.....	170
4.3.4	Data Analysis .....	173
<b>4.4</b>	<b>Results .....</b>	<b>175</b>
4.4.1	Participant Characteristics .....	175
4.4.2	Mutual Masturbation Experiences .....	176
4.4.3	Feelings About Mutual Masturbation.....	178
4.4.4	Associations Between Mutual Masturbation Recency and Sexual Satisfaction .....	180
4.4.5	Associations Between Mutual Masturbation Recency and Sexual Self-Esteem .....	180
<b>4.5</b>	<b>Discussion .....</b>	<b>181</b>
4.5.1	Prevalence of Mutual Masturbation.....	181
4.5.2	Feelings about Mutual Masturbation .....	183
4.5.3	Mutual Masturbation and Sexual Satisfaction .....	184
4.5.4	Sexual Self-Esteem.....	185
4.5.5	Implications of Findings.....	186
4.5.6	Strengths and Limitations.....	187
4.5.7	Conclusion.....	188

<b>5</b>	<b><i>Chapter 5: General Discussion</i></b> .....	<b>191</b>
<b>5.1</b>	<b>Discussion</b> .....	<b>191</b>
5.1.1	Gaps in the Literature on Women’s Masturbation .....	193
5.1.2	Synthesising Key Contributions Across Three Studies .....	195
5.1.3	Terminology: Framing Types of Masturbation .....	201
5.1.4	Implications.....	204
5.1.5	Future Directions .....	208
5.1.6	Strengths and Limitations .....	213
5.1.7	Conclusions.....	216
<b>6</b>	<b><i>Appendix A: Online Supplementary File Used in Paper 1 (Systematic Review)</i></b> ..	<b>217</b>
<b>7</b>	<b><i>Appendix B: Participant Information Sheet and Consent Form for Screening</i></b> <b><i>(Papers 2 and 3)</i></b> .....	<b>234</b>
<b>8</b>	<b><i>Appendix C Participant Information Sheet and Consent Form for Main Survey</i></b> <b><i>(Papers 2 and 3)</i></b> .....	<b>237</b>
<b>9</b>	<b><i>Appendix D: Example Recruitment Materials (Papers 2 and 3)</i></b> .....	<b>242</b>
<b>10</b>	<b><i>Appendix E: Debriefing Form (Papers 2 and 3)</i></b> .....	<b>243</b>
<b>11</b>	<b><i>Appendix F: Questionnaire Used in Papers 2 and 3</i></b> .....	<b>245</b>
<b>12</b>	<b><i>Appendix G: Online Supplementary File Used in Paper 2</i></b> .....	<b>273</b>
<b>13</b>	<b><i>Appendix H: Online Supplementary File Used in Paper 3</i></b> .....	<b>277</b>
<b>14</b>	<b><i>Appendix I: Sample Size and Power Estimates for Paper 2</i></b> .....	<b>282</b>
<b>15</b>	<b><i>Appendix J: Sample Size and Power Estimates for Paper 3</i></b> .....	<b>283</b>
<b>16</b>	<b><i>References</i></b> .....	<b>285</b>



### Table of Tables

Table 2.1 <i>The Key Terms Which Were Searched Under the Default Field, Which Searches Abstracts, Authors, Subject Headings, Titles and Keywords</i> .....	84
Table 2.2 <i>Characteristics of the Qualitative Research on Women's Experiences and Perceptions of Masturbation</i> .....	89
Table 2.3 <i>Quality Scores of Articles (N = 11) for Each Item on NICE Quality Assessment</i> .....	95
Table 2.4 <i>Sources of Themes</i> .....	98
Table 3.1 <i>Demographic Characteristics of the Study Participants (N = 210)</i> .....	144
Table 3.2 <i>Descriptive and Bivariate Statistics for Key Variables and Corresponding Gender Differences</i> .....	147
Table 3.3 <i>Bivariate Correlations for Key Variables among Women and Their Partners (N = 105 Couples)</i> .....	148
Table 3.4 <i>The (Dis)Similarity Groups for the R-AWMI (n = 104 Couples)</i> .....	150
Table 4.1 <i>Characteristics of the Study Participants (N = 268)</i> .....	175
Table 4.2 <i>Sexual History Background Details (N = 268)</i> .....	177
Table 4.3 <i>Descriptive Statistics for Key Variables in Regression Models by Gender (N = 268)</i> .....	177
Table 4.4 <i>Results of the Multiple Regression Model for Positive Feelings About Mutual Masturbation (Satisfaction Subscale) among Men and Women (n = 262)</i> .....	178
Table 4.5 <i>Results of the Multiple Regression Model for Sexual Satisfaction among Men and Women (n = 267)</i> .....	180



**Table of Figures**

Figure 2.1 <i>The Selection Process Flow Chart</i> .....	88
Figure 3.1 <i>Actor Effect and Partner Effect in the Couple Interdependence Model</i> .....	133
Figure 3.2 <i>Actor-Partner Interdependence Model with Indistinguishable Dyads for Sexual Satisfaction</i> .....	150
Figure 3.3 <i>Actor-Partner Interdependence Model with Distinguishable Dyads for Sexual Self-Esteem</i> .....	151





**List of Accompanying Materials**

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**Research Thesis: Declaration of Authorship**

Print name: Dilan Kılıç Onar

Title of thesis: Examining the role of women's self-pleasure in relationships:  
Individual and dyadic analyses

I declare that this thesis and the work presented in it are my own and has been generated by me as the result of my own original research.

I confirm that:

1. This work was done wholly or mainly while in candidature for a research degree at this University;
2. Where any part of this thesis has previously been submitted for a degree or any other qualification at this University or any other institution, this has been clearly stated;
3. Where I have consulted the published work of others, this is always clearly attributed;
4. Where I have quoted from the work of others, the source is always given. With the exception of such quotations, this thesis is entirely my own work;
5. I have acknowledged all main sources of help;
6. Where the thesis is based on work done by myself jointly with others, I have made clear exactly what was done by others and what I have contributed myself;
7. Parts of this work have been published as:-

Kılıç Onar, D., Armstrong, H., & Graham, C. A. (2020). What does research tell us about women's experiences, motives and perceptions of masturbation within a relationship context?: A systematic review of qualitative studies. *Journal of Sex & Marital Therapy*, 46(7), 683-716. <https://doi.org/10.1080/0092623X.2020.1781722>

Kılıç, D., Armstrong, H. L., & Graham, C. A. (2023). The Role of Mutual Masturbation within Relationships: Associations with Sexual Satisfaction and Sexual Self-Esteem. *International Journal of Sexual Health*, 35(4), 495-514.  
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**Abbreviations**

CINAHL	Cumulative Index to Nursing and Allied Health Literature
CSHS	U.S. Campus Sexual Health Survey
F-ATMS	Feelings about Masturbation Subscale from the Attitudes Towards Masturbation Scale (F-ATMS)
NATSAL	British National Surveys of Sexual Attitudes and Lifestyles
NICE	National Institute for Health and Care Excellence
NSSHB	U.S. National Survey of Sexual Health and Behavior
NSSS-S	The New Sexual Satisfaction Scale – Short Form
PRISMA	Preferred Reporting Items for Systematic Reviews
PVI	Penile Vaginal Intercourse
R-AWMI	The Revised Attitudes Toward Women’s Solo Masturbation Inventory
SDS	Sexual Double Standard
SSEI-S	The Sexual Self-Esteem Inventory - Short Form
STIs	Sexually Transmitted Infections
VSS	Visual Sexual Stimulation
WAS	The World Association for Sexual Health
WEIRD	Western, Educated, Industrialised, Rich, and Democratic
WHO	World Health Organization





## Chapter 1

### 1 Chapter 1 General Introduction

#### 1.1 Introduction

##### 1.1.1 Structure of the Thesis

Chapter 1 presents an overview of the thesis, including an introduction to all key topics, and a rationale in the first and second sections. Within this chapter, and primarily in the third section, I present the theoretical and empirical underpinnings which inform our current knowledge of women's masturbation and pleasure. In the following sections, I present prevalence estimates and cultural differences in self-pleasure experience, and I review existing knowledge about functions of women's self-pleasure. In subsequent sections, I discuss research on women's pleasure in different sexual contexts and highlight pleasure inequalities, and partners' reactions to women's self-pleasure in relationships. Next, I discuss the link between masturbation and sexual satisfaction and sexual self-esteem. This is followed by highlighting the importance of studying women's self-pleasure and the gaps in our current knowledge of women's masturbation. Then, I present the aims and research questions of the thesis. This chapter also outlines the methodology used in this thesis and the rationale behind choosing the research methods used to address the research objectives.

Chapter 2 (Paper 1) presents a systematic review of qualitative studies on the main topic of my thesis to understand the current knowledge and identify gaps in the existing literature. The aim of Paper 1 was to understand women's masturbation in a relationship context and partner and/or relationship-related factors that may influence women's masturbation experiences. This review has been published in *Journal of Sex & Marital Therapy*, a peer reviewed journal:

Kılıç Onar, D., Armstrong, H., & Graham, C. A. (2020). What does research tell us about women's experiences, motives and perceptions of masturbation within a

relationship context?: A systematic review of qualitative studies. *Journal of Sex & Marital Therapy*, 46(7), 683-716. <https://doi.org/10.1080/0092623X.2020.1781722>

Chapter 3 (Paper 2) presents a quantitative cross-sectional online survey study that used dyadic data and analysis. The aim of Paper 2 was to explore (dis)similarities in attitudes between partners about women's solo masturbation and investigate partners' solo masturbation recency and associations with women's and their partners' sexual satisfaction and sexual self-esteem. Parts of this study has been submitted for publication and is under review in the peer reviewed journal: *The Journal of Sex Research*.

Chapter 4 (Paper 3) presents a quantitative cross-sectional online survey study. The aim of Paper 3 was to explore experiences with, and feelings about, mutual masturbation and investigate associations between mutual masturbation recency and sexual satisfaction and sexual self-esteem. This study has been published in in the peer reviewed journal: *International Journal of Sexual Health*.

Chapter 5 presents a general discussion and begins with a summary of the key findings of the three papers. This is followed by the contributions, implications, and overall strengths and limitations of the research, as well as suggestions for future research. Drawing from the findings, I discuss potential implications for sexual science researchers, clinicians, and educators.

### **1.1.2 The Topic and The Rationale for the Thesis**

Sexuality is a multidimensional phenomenon that is influenced by biological, psychological, and social factors and their interactions (World Health Organization (WHO), 2006). Sexuality encompasses well-being, extends beyond the “the absence of disease”, and includes “pleasurable and safe sexual experiences, free of coercion, discrimination and violence” (WHO, 2006). Sexual pleasure has been defined as “the physical and/or psychological satisfaction and enjoyment derived from solitary or shared erotic experiences, including thoughts, dreams and autoeroticism” by the Global Advisory Board for Sexual Health and Wellbeing (GAB, 2016). Sexual pleasure includes the

positive feelings that arise from a variety of activities involving genital stimulation, intercourse, masturbation, oral sex, sexual arousal, and/or orgasm (Ford et al., 2021; Reis et al., 2021; Rye & Meaney, 2007). Sexual pleasure is a multifaceted construct (Ford et al., 2021; Werner et al., 2023), but in this thesis (with masturbation), I am focusing on pleasure that is associated with sexual arousal and orgasm. Sexual health is important throughout an individual's lifespan and can be "expressed through diverse sexualities and forms of sexual expression" (WHO, 2006). The WHO's call for a sex positive framework for sexual health led to an increase in sex-positive research, including research on women's masturbation (Bohmer et al., 2022).

The World Association for Sexual Health's (WAS) recent declaration on pleasure also highlighted the importance of sexual pleasure as an essential part of sexual health, wellbeing and sexual rights (Ford et al., 2021). Accordingly, a positive sexual rights framework was employed in the current research by focusing on a positive rights context (beyond the absence of illness, risks, pain, and harm), and emphasising the experience of pleasure.

Pleasure inequality refers to the lack of opportunities for women's sexual pleasure (Laan et al., 2021), but self-pleasure can be a tool to break the cycle of pleasure inequalities. Because the most common motivation to engage in masturbation is pleasure, sexual pleasure also has relevance for masturbation (Carvalho & Leal, 2013; Coleman, 2003; Ford et al., 2021; Herbenick, Fu et al., 2022; Rowland, Kolba, et al., 2020). In fact, by definition (see Self-Pleasure section), masturbation is done for the purpose of orgasm and/or pleasure (Bowman, 2017; Kirschbaum & Peterson, 2018). It is also a more reliable route to pleasure and orgasm among women than sexual activities without clitoral stimulation (Brewer & Hendrie, 2011; Kontula & Miettinen, 2016; Laumann et al., 1994; Rowland et al., 2018; Philippssohn & Hartmann, 2009; Wade et al., 2005). Indeed, masturbation is used in sex and couple therapy to address orgasm and ejaculation difficulties (Heiman & Meston, 1997; Marchand, 2021; Shirai et al., 2023; Stravynski et

al., 1997). However, the role of women's masturbation and its function in the context of romantic relationships have been understudied and need further exploration.

### *1.1.2.1 Self-Pleasure*

Masturbation is a conscious physical act of stimulating one's genitals or any parts of one's body with the purpose of orgasm and/or pleasure; it may or may not include the use of sex toys (American Psychological Association (APA), 2023; Bowman, 2017; Carvalheira & Leal, 2013; Kirschbaum & Peterson, 2018). Solo masturbation refers to self-stimulation when individuals are physically alone, and mutual masturbation refers to when two or more people self-stimulate (APA, 2023; Bowman, 2017). However, masturbation is not clearly defined in most sex research although usually a solo context is implied (Bridges et al., 2004; Fischer et al., 2022; Regnerus et al., 2017; Rowland, Kolba, et al., 2020). Similarly, mutual masturbation is often not well-defined in past research (see Paper 3). In this thesis, mutual masturbation refers to the presence or involvement of a partner(s) during self-stimulation, which may occur before, during, after, or without intercourse.

Where individual study findings are reported, the original term used has been retained (e.g., "masturbation", "vibrator use", "sex toy"). When reporting collective findings from masturbation and vibrator research, or when indicating both masturbation and vibrator (and/or dildo) use during masturbation, the term self-pleasure is used throughout this thesis.

Masturbation is a commonly practiced sexual behaviour that can be experienced through the life span (Bullough, 2003; Coleman, 2003; Kayiran & Sönmez, 2020; Kaestle & Allen, 2011). Masturbation is an important part of sexual development and self-discovery as it is considered critical to learn about one's body and sexual responses (Bowman, 2014; Coleman, 2003; Ford et al., 2021; Kaestle & Allen, 2011). It can also contribute to control and autonomy over one's body and feelings of freedom (Coleman, 2003; Goldey et al., 2016). Without boundaries, one can be selfish and can focus on their own sexual pleasure (Goldey et al., 2016). Masturbation can also help improve

communication with a partner for healthy and satisfying relationships (Heiman & LoPiccolo, 2009; Kaestle & Allen, 2011; Mintz, 2017). However, depending on the interaction between the dominant societal attitudes and one's own personal attitudes and behaviours, masturbation can be either negative or rewarding (Ford et al., 2021).

There is no evidence that supports the idea that masturbation is harmful as was once believed (Zachar & Kendler, 2023). In fact, research has debunked such myths and highlights numerous psychological and physical health benefits of masturbation, both on a personal level and in the context of sexual relationships (Carvalheira & Leal, 2013; Gianotten et al., 2021; Reis et al., 2021). Masturbating can improve physical health (immune system function) by releasing hormones, including oxytocin (also reducing stress along with its influence on cortisol), and oxytocin along with endorphins may also reduce pain and thus, can improve well-being (Alley et al., 2019; Alley & Diamond, 2020; Gianotten et al., 2021; Ito et al., 2019; Wise, 2020). Masturbating, if it "ends with orgasm" (Kirschbaum & Peterson, 2018), is also associated with improved sleep quality by muscle relaxation, elevated prolactin (regulate stress levels), and lowered cortisol (relevant in stress and immunity) (Exton et al., 1999; Gianotten et al., 2021; Lastella et al., 2019; Torner, 2016). Additionally, masturbation is a therapeutic tool used in sex therapy to improve sexual function (Heiman & Meston, 1997; Marchand, 2021; Stravynski et al., 1997). Some women also report motivation to masturbate to improve their psychological and emotional states, especially anxiety and to cope with stress (Bowman, 2014; Carvalheira & Leal, 2013; Rowland, Kolba et al., 2020). Some of the health benefits of masturbation are unique to women. During menstruation, masturbated can relieve cramps and backaches by increasing blood flow and can help reduce menstrual pain (Ellison, 2000). Also, among women, but not for men, sexual pleasure was positively associated with safer sex intentions, communicating about sexually transmitted infections (STIs) and condom use, and actual condom use (Klein et al., 2022).

### 1.1.3 Theoretical Frameworks

The overall project was informed by the following six concepts and theories: the biopsychosocial model, the ecological systems model, couple interdependence theory, sexual script theory, the sexual double standard hypothesis, and complementary and compensatory models of masturbation.

#### 1.1.3.1 *Biopsychosocial Model*

The biopsychosocial model is a way of understanding health and illness by multiple aspects, from the molecular to the societal factors (Borrell-Carrió et al., 2004; Engel, 1977). In the context of human sexuality research, the biopsychosocial approach posits that the biological, psychological, and social domains and their interactions influence the origins of a sexual experience (sexual difficulty or well-being) and sexual behaviour, such as self-pleasure (Berry & Berry, 2013; Samenow, 2010). The biopsychosocial model fosters a comprehensive understanding of women's self-pleasure. Examples of biological domains include the physical components of masturbation such as the increase in vaginal blood flow, and the concentration of nerve endings and the physical sensations it produces (Levin & Wagner, 1985; Pauls, 2015), as well as interaction between the nervous system and physiological function (Komisaruk & Cerro, 2021). Anatomical differences may help to understand gender differences in masturbation experience. For example, for men, masturbating might be seen easier as the penis is more visible compared to clitoris (O'Connell et al., 2005; Salières et al., 2017). Examples of psychological domains include beliefs, cognitions, and feelings toward women's sexual pleasure and self-pleasure (e.g., feelings of guilt or tension or satisfaction). Examples of social domains include family, environment, attitudes, and ideologies of one's culture regarding women's pleasure (e.g., women's education about their anatomy and clitoris, overvaluing PVI, accepting men's masturbation more than women's, stigmatising masturbation while in a relationship, not having a script for mutual masturbation (Fields, 2008; Waskul et al., 2007)). Psychological and social domains of masturbation are discussed in detail in the following sections.

The biopsychosocial model may be particularly relevant to help explain some of the observed “pleasure gap”. The pleasure inequalities between men and women, the “pleasure gap”, refers to neglect of women’s sexual pleasure, and is not purely biological or psychological as “*the way individuals express their sexuality depends on the environment and is therefore socially constructed.*” (Ford et al., 2021; Klein & Conley, 2022; Laan et al., 2021, p. 528; Reis et al., 2021; Simon & Gagnon, 2003). Because some of the greatest reported “pleasure gaps” are between heterosexual women and heterosexual men (Laan et al., 2021; more on this is discussed in The Sexual Context and Women’s Pleasure section below), much of this thesis addressed gender similarities and differences between heterosexual women and men.

Biological perspectives propose some explanations for the pleasure inequalities, including a partly shared biological origin but different functions of the female and male anatomy. The clitoris is analogous to the penis (Laan et al., 2021; Mintz, 2017; Nagoski, 2021; O’Connell et al., 1998, 2005). It is partly external and equivalently located to the penis but is smaller and less obvious. The penis and the clitoris function in different ways: the penis has sensation/pleasure, reproductive, and urination functions while the only known function of the clitoris is sensation/pleasure (Fields, 2008; Nagoski, 2021; Pauls, 2015; Waskul et al., 2007). During penile-vaginal intercourse (PVI), while the penis is stimulated directly, the external and more sensitive region of the clitoris is usually not, though it may be stimulated indirectly (Laan et al., 2021; Mintz, 2017; Nagoski, 2021). PVI is a reliable way to experience orgasm for men, but not for women (see Conley & Klein, 2022; Herbenick, Fu et al., 2023; Laan et al., 2021; Mahar et al., 2020). During masturbation, however, women often report stimulating their clitoris by hand for orgasm and/or sexual pleasure (Carvalheira & Leal, 2013; de Lima et al., 2022; Rowland, Kolba et al., 2020). As discussed throughout this thesis, in addition to biological perspectives, psychological and sociocultural factors can help to explain the gendered pleasure gap (for a review, see Laan et al., 2021).

**Sex Differences in Reward Related Brain Activity for Sexual Behaviour and Pleasure.**

According to the incentive motivation model (Agmo & Laan, 2023; Berridge, 2018; Singer & Toates, 1987), in combination with Robinson and Berridge's reward-behavior framework (*wanting* and *liking*; Robinson & Berridge, 1993), sexual response can be conceptualised as an “‘emo(tiva)tional’ affective state” (Werner et al., 2023).

Neuroimaging studies utilise different sensory modalities to investigate the “sexual arousal network” but most studies have used visual sexual stimuli (Georgiadis & Kringelbach, 2012). Neurofunctional sex differences during *visual* sexual stimulation (VSS) can account for sex differences in sexual behaviours (Poepl et al., 2016; Poepl et al., 2020). Reports on gender disparities consistently appear, suggesting the higher-presumed importance of visual stimuli in male sexual behaviour (Georgiadis & Kringelbach, 2012). However, compared to men, women's sexual responses are usually more difficult to assess and may be elicited by a far greater range of stimuli (Chivers et al., 2007). Overall, the evidence points to the lack of clear-cut distinctions between men's and women's brain functioning associated with sexual arousal and VSS (Georgiadis & Kringelbach, 2012; Mitricheva et al., 2019).

As a cognitive experience, sexual pleasure is predicated on the reciprocal interaction between the nervous system and physiological function (Komisaruk & Cerro, 2021). A thorough analysis of relevant brain imaging research revealed that, within the larger framework of the human sexual pleasure cycle, the functional neuroanatomy of sexual behaviour is similar to that involved in processing other rewarding stimuli such as food (Georgiadis & Kringelbach, 2012). Sexual arousal leading up to and during orgasm is considered a primary reward for sexual behaviour in humans (Borrow & Cameron, 2012; Kringelbach, 2005; Prause, 2011; Wise et al., 2017). Some of the most noticeable orgasm-related activity has been reported in the prefrontal cortex, including the mid-anterior portion of the left OFC (the orbitofrontal cortex) and medial OFC (ventromedial prefrontal cortex, vmPFC) (Georgiadis & Kringelbach, 2012; Kringelbach, 2005). Women and men



show similarities in peripheral OT (oxytocin) during sexual arousal (Borrow & Cameron, 2012). During sexual pleasure (sexual arousal leading up to and during orgasm), both men and women show highly similar brain activation, although men show greater activation of the PAG (the periaqueductal -or central- gray) than women during orgasm (Georgiadis et al., 2009). However, compared to penile stimulation in men, clitoral stimulation in women has been found to produce greater activity in the left posterior parietal cortex, premotor cortex, and left dorsal MI (Georgiadis et al., 2009; Georgiadis & Kringelbach, 2012).

Some researchers have argued that *it is still unclear whether* there is even strong evidence that orgasm in women is rewarding and proposed that for women, orgasm might be a secondary reinforcer whilst “*sexual arousal is the primary reward for sexual behaviour in women and orgasm associates sexual arousal with the partner*” (Levin et al., 2016; Prause, 2011, p. 315). However, among women (by self- and partner-induced genital stimulation), a recent study found the strongest brain activity during orgasm compared to early stimulation and early recovery ( $N = 10$ ; Wise et al., 2017;). The differences between types of stimulation (to orgasm) and their associations with women’s orgasm show variability; for example, women are more likely to report orgasm when experiencing clitoral stimulation compared to vaginal stimulation alone (Herbenick et al., 2018). Also, other methodological differences in brain imaging studies may have resulted in inconsistent findings on women’s orgasm (Levin et al., 2016; Prause, 2011). Overall, it is challenging to reach empirically supported conclusions on the potential psychological effects of, and gender differences in, pleasure given the paucity of data on women's orgasm and its neural mechanisms (Prause, 2011).

***How do Psychological, Social, And Cultural Factors Shape Neural Responses to Sexual Stimuli?*** Psychological factors shape neural responses to sexual stimuli and sexual response. Learning paradigms (e.g., conditioned learning; Georgiadis & Kringelbach, 2012; Levin et al., 2016), cognitions, emotions and personality characteristics such as sexual excitation, inhibition, body image, and self-schemas are significantly associated

with sexual response (Levin et al., 2016). Also, sexual difficulties are associated with anxiety, depression, sexual trauma and persistent/daily stressors; physiologic and subjective sexual arousal is also considerably influenced by more general negative and positive mood states (Levin et al., 2016). The use of SSRIs for anxiety and depression also influences arousal and orgasm (Sramek et al., 2016).

Only a few researchers examined how socioeconomic factors shape sexual wellbeing, including sexual pleasure, satisfaction and self-esteem (Higgins et al., 2022). Those with more restricted socioeconomic circumstances, particularly in terms of income, education, and employment, also report poorer sexual wellness indices, especially in terms of overall functioning and satisfaction (Higgins et al., 2022). Access to housing and sexual spaces, and a lack of private space for intimate and sexual activities influence sexual wellbeing, including pleasure (Higgins et al., 2022). Financial difficulties may limit access to sexual health care and the acquisition of sexual health materials for sexual stimulation and/or pleasure (e.g., condoms, lubes, sex toys, ethical porn subscription). Also, people from countries with economic and/or political instability may also experience greater daily financial-associated stress and this may influence *attention vs distraction* to sexual stimuli in daily interactions and/or during sexual activity (Higgins et al., 2022; Levin et al., 2016). Alternatively, because masturbation is free, sexual pleasure may become a coping strategy to reduce stress (Carvalho & Leal, 2013; Meston & Buss, 2007). All together, these factors (financial difficulties/poverty, housing and sexual spaces, and financial-associated stress) can create *erotic inequity* in relation to socioeconomics (Higgins et al., 2022).

The way that sexuality is framed is greatly influenced by cultural factors, including family, peers, media, and religiosity (Collins, 2003; Suleiman et al., 2017). For instance, less frequent attendance at religious services was found to be a significant mediator in the link between first sexual experience and testosterone (Halpern et al., 1997), though the link is ambiguous and not consistent across studies because studying this association is methodologically highly challenging (Suleiman et al., 2016). Most neuroimaging studies

are conducted in Western higher-income countries and there have been no studies on sexual response and brain in most countries. In some cultures, political situations may hinder sexual cues when access to erotic materials (e.g., pornography, vibrators) is limited or even banned (The LGBT Sentinel, 2020; Tongco, 2016; Wikipedia, 2021). Culturally shaped moral values may influence sexual arousal and cultures' sexual scripts (Georgiadis & Kringelbach, 2012). We know that women who experience sexual stimulation that is not only focused on penetrative sex are more likely to report adequate arousal and orgasm/pleasure (Herbenick et al., 2018; Mahar et al., 2020; Mintz, 2017) but how common are non-penetrative sexual behaviours? For example, kissing on the lips is not a universal behaviour (Jankowiak et al., 2015). Because of different methodological designs, and lack of research from developing countries, no clear and specific conclusions can be made regarding how cultural factors might shape neural responses to sexual stimuli and pleasure.

### ***1.1.3.2 The Ecological Systems Model***

Bronfenbrenner's ecological systems model (1979) posits that neither an individual's cognitive processes nor social setting alone is the sole contributor to an individual's behaviours. Each level of the environment and an individual's mental processing interact and can influence an individual's sexual behaviours (Bronfenbrenner, 1979). Levels of the environment include an individual's characteristics, the microsystem (family, sexual partner), the mesosystem (the interaction among the environment), the exosystem (neighbours, media, social services), the macrosystem (attitudes and ideologies of one's culture, such as gender roles), and the chronosystem (timeline/historical period, such as second wave feminism, the "sexual liberation" from the 1960s (Fahs, 2020), or the COVID-19 pandemic) (Bronfenbrenner, 1979, 1986).

The model can and has been applied to a variety of sexual contexts and sexual behaviours, including sexual satisfaction (e.g., Calvillo et al., 2020; Sanchez-Fuentes et al., 2016; Henderson et al., 2009). In the research presented here, individual characteristics

(sexual orientation, age, individual's attitudes and emotions), the chronosystem (relationship length), and the microsystem (sexual partner and the relationship between the individual and their partner) were all recognized as important.

### ***1.1.3.3 Couple Interdependence Theory***

Another framework used in the research presented was the couple interdependence theory (Cook & Kenny, 2005; Kenny et al., 2006; Lewis et al., 2006). In particular, the analysis of Paper 2 drew from couple interdependence theory to understand the associations between women's and their partners' solo masturbation recency and both partners' sexual outcomes (sexual satisfaction and sexual self-esteem).

The couple interdependence theory, which was developed to understand health behaviour change among couples, holds that as each individual's experiences can influence the behaviors and attitudes of both themselves (actor effect) and their partner (partner effect), to best understand relationship- and health-related outcomes, examining individual-level data is not sufficient (Cook & Kenny, 2005; Kenny et al., 2006; Lewis et al., 2006). The model suggests that both relational and interpersonal factors influence motivation and behavior change. For example, if only one member of the couple masturbates in the relationship (Person A), the other partner (Person B) may take that as a rejection (if Person A did not disclose or invite Person B for mutual pleasure), and Person B may assume that Person A is not satisfied with partnered sex and may question their own sexual performance. This may result in Person B's lower sexual self-esteem. And if Person B communicates this with their partner, this may result in changes in Person A's masturbation behaviour. For example, Person A may stop masturbating to avoid upsetting the partner or Person A may challenge Person B's assumptions and invite Person B to engage in mutual masturbation. If a partner is involved during mutual masturbation, this may influence sexual confidence and self-esteem positively as it may be an educational experience regarding both partners' sexual pleasure and anatomy.

#### *1.1.3.4 Sexual Script Theory*

Sexual scripts provide sexual cues and socially available messages for how one should act or feel in a particular sexual scenario (Gagnon & Simon, 1973; Simon & Gagnon, 1984; Wiederman, 2005). Sexual script theory suggests that individuals' sexuality is determined by culture and regulated by individual (the intrapsychic level; e.g., to avoid fear, shame, guilt, or embarrassment), relational (the interpersonal level; e.g., to protect a partner from negative emotions, the partner's assumptions about masturbation), and societal norms (cultural scenarios; e.g., heterosexual performance scripts, ambivalent discourses surrounding women's masturbation) (Mosher, 1979; Simon & Gagnon, 1984; Simon & Gagnon, 1986; Simon & Gagnon, 2003).

The usual sexual script for heterosexual sex includes kissing, partner touching, oral genital contact, PVI, women's orgasm (real or "faked"), and men's orgasm (real) which indicates sex is over (Braun et al., 2003; Gagnon & Simon, 1987; Gusakova et al., 2020; McCormick, 2010; Muehlenhard & Shippee, 2010). Chadwick and van Anders (2017) noted that although sexual expectations have changed and now include women's orgasm (see Braun et al., 2003), men's interests regarding women's pleasure may align with societal expectations that prioritise men's masculinity. Their study, involving young, predominantly heterosexual men, supported the traditional notions of women's orgasms being in the service of men; if men experienced or perceived the absence of a woman's orgasm, some reported a feeling of personal failure (lower sexual-self-esteem) or a threat to their masculinity (Chadwick & van Anders, 2017). This may result in women feeling "pressure to orgasm" during partnered penetration in order to protect a male partner's feelings (Chadwick et al., 2019; Mosher, 1979). Yet, historically, neither women nor men are educated about female anatomy and sexual pleasure (see the Sexual Double Standard Hypothesis section), but men are pressured to "give" an orgasm to women (Fahs, 2011) using their own body (Savoury et al., 2022). For example, in comparison to men who imagined their partner orgasming from a vibrator (an external object), men who imagined

their partner orgasming via intercourse or manual/oral stimulation (using one's penis, hands or mouth) felt more accomplished and masculine (Savoury et al., 2022).

In addition, some women consider sexual satisfaction to be determined by their partner's pleasure, particularly the partner's orgasm, rather than their own orgasm (Fahs, 2014, 2020; Nicolson & Burr, 2003; Salisbury & Fisher, 2014). The prioritisation of men's pleasure and satisfaction during partnered penetration (over women's pleasure) might be a result of sexual scripts that deem men's orgasm to be the end of a sexual encounter (Conley & Klein, 2022; Fahs & Swank, 2013; Kelly et al., 2017; Klein & Conley, 2022; Laan et al., 2021; McClelland, 2011; Nicolson & Burr, 2003; Salisbury & Fisher, 2014). While women's sexual pleasure is less prioritised, both women and men prioritise men's pleasure, and men are also more likely to demand it during sexual activity (McCabe et al., 2010; McClelland, 2011; Muehlenhard & Shippee, 2010)

Although neither solo nor mutual masturbation is clearly included in the traditional sexual script, the vague script of masturbation expects that it will happen *alone* (Kirschbaum & Peterson, 2018). Indeed, how people define masturbation differs but the term is commonly used for solo masturbation (Bowman, 2017; Kirschbaum & Peterson, 2018). Another common belief about masturbation is that only single people masturbate (Kaestle & Allen, 2011; Yuxin & Ying, 2009). Masturbation may be seen as more "normal" for single individuals than for those in relationships. Consequently, when in relationships, functions and role of self-pleasure may depend on partner- and relationship-related factors; however, most people engage in the behaviour regardless of their relationship status (Gerressu et al., 2008; Ghaznavi et al., 2023; Herbenick et al., 2022). Further, if a woman shares her masturbation experience with her partner, through verbal and/or non-verbal communication (e.g., preferred stimulation techniques can be demonstrated during mutual masturbation), it can enhance mutual pleasure (Heiman & LoPiccolo, 2009; Mintz, 2017). However, the traditional sexual norm of "sex equals intercourse" hinders women's pleasure (Muehlenhard & Shippee, 2010, p. 564; Willis et

al., 2018). A new definition of "sex" that does not relate to a specific sexual act but rather to an experience, a sexually joyful one that is warmly/passionately shared between equals, can be practised by men and women together (Laan et al., 2021). Thus, I wanted to challenge the ideas of "only single people masturbate" and "masturbation happens alone" (Kaestle & Allen, 2011; Kirschbaum & Peterson, 2018). Consequently, I recruited people in relationships and made a clear distinction between solo and mutual masturbation in the information provided to participants.

Regarding women's self-pleasure (masturbation and/or vibrator use), without available discourses on pleasure and desire, most women likely lack a sexual script when discussing or engaging in self-pleasure, leading to internalised stigma toward masturbation (Fields, 2008; Fine, 1988; Haus & Thompson, 2020; Kaestle & Allen, 2011; Mosher, 1979; Tuana, 2004). Therefore, women's experience of self-pleasure has the potential to trigger shame, guilt, fear, confusion, or conflicts in relationships (Hogarth & Ingham, 2009; Kaestle & Allen, 2011; Kelley, 1985; Kraus, 2017; Mosher, 2011), and women are more likely to report feeling more intense shame following self-pleasure compared to men as it contradicts with societal ideas (Kaestle & Allen, 2011). The most common societal ideas and beliefs about women's pleasure and self-pleasure, that can create false assumptions about women's self-pleasure are:

- women's pleasure is the male partner's responsibility (also, known as the heterosexual performance script; Braun et al., 2003; Fahs, 2011, 2014, 2020; Laan et al., 2021; Sakaluk et al., 2014), and the cultural associations drawn between a woman's masturbation/vibrator use and their partner's sexual skill/prowess (Bruijn, 1982; Chadwick & van Anders, 2017; Fahs, 2014; 2020; Séguin, 2022; Waskul & Anklan, 2019)
- the "gift" metaphor of sexual pleasure: women "receive" sexual pleasure from men and men "give" pleasure to women (Fahs, 2011; 2020)

- the sexual script that women's orgasm should be experienced within relationships during intercourse (Bruijn, 1982; Muehlenhard & Shippee, 2010)
- the belief that men's orgasm signals the end of sex (Beres, 2014; Braun et al., 2003; Muehlenhard & Shippee, 2010; Opperman et al., 2014)
- the belief that "*women should not masturbate with or without a vibrator or that women who masturbate or use vibrators are single or lonely*" (Herbenick et al., 2011, p.330).

#### ***1.1.3.5 The Sexual Double Standard Hypothesis***

The Sexual Double Standard Hypothesis (SDS) refers to judging men's and women's sexual behaviours based on different criteria (Crawford & Popp, 2003; Endendijk et al., 2020; Gentry, 1998). For example, men's greater sexual freedom and broader repertoire of sexual activities (including masturbation) are seen as acceptable while more restrictions and a passive role are placed on women's sexuality; consequently, women's expressions of sexual pleasure are repressed compared to men's (Álvarez-Muelas et al., 2021; Gentry, 1998; Katz-Wise & Hyde, 2014; Kiefer & Sanchez, 2007; Milhausen & Herold, 2002). If a woman does not accommodate restricted sexual behaviours she might be afraid of being "slut shamed" (Endendijk et al., 2020; Laan et al., 2021; Webb, 2015) and to avoid this, she might seek approval for her sexual exploration from a partner when in a relationship. In contrast, many societies view a high sex drive, conceptualised as a high frequency of sexual cognitions (e.g., thoughts, fantasies), sexual feelings (e.g., desire, lust), and sexual behaviour (e.g., masturbation, self-stimulation), to be more normative for men than for women (Frankenbach et al., 2022).

Girls and young women are mostly taught about their sexual anatomy within the domain of reproduction and within heterosexual partnered interactions (Fields, 2008; Hyde & Jaffee, 2000). Historically, while the clitoris was not included, textbooks include detailed explanations and illustrations of the structures centering the penis (Nagoski, 2021;



O'Connell et al., 1998, 2005; Tuana, 2004). Boys are provided with a context to touch their genitals; for example, boys frequently learn to touch their penises during toilet training, while girls are not taught to touch their clitoris (Conley & Klein, 2022; Wiederman, 2005). Girls rarely receive accurate and direct knowledge about self-pleasure, the functions of their sexual anatomy, the location of the clitoris (Fields, 2008; Waskul et al., 2007). The context and anatomical differences (see Biopsychological Model section) can explain gender differences in masturbation frequency and onset (Wiederman, 2005, see Gender Differences in Prevalence of Masturbation section).

Women's historical lack of access to accurate sexual knowledge and pleasure may lower women's expectations for pleasure (Fahs, 2014; Ford et al., 2021; Klein & Conley, 2022; Laan et al., 2021; Reis et al., 2021). Societal factors, including religion and cultural norms that prioritise reproductive sex, seem to convey negative views about masturbation, particularly women's masturbation (Hogarth & Ingham, 2009; Thorpe et al., 2023). Female masturbation has long been considered a taboo subject due to the societal double standard surrounding self-pleasure (Kaestle & Allen, 2011; Watson & McKee, 2013). Most societies still have a specific silence regarding women's masturbation, and some girls and women consider masturbation as acceptable solely for boys and men (Hogarth & Ingham, 2009; Huong & Liamputtong 2018; Kaestle & Allen, 2011; Meiller & Hargons, 2019; Thorpe et al., 2023). Girls often learn about masturbation through self-discovery or from their romantic partner, but boys often learn about it from their male peers (Kaestle & Allen, 2011; Mosher, 1979). While boys learn about their sexuality through masturbation and self-exploration, girls may learn through boys (Hyde & Jaffee, 2000). Recently, a study among Black women demonstrated that some women receive mixed messages about masturbation rather than solely negative or solely positive messages (Thorpe et al., 2023).

Research on the persistence and extent of the SDS is unclear, partly because of the measurement, biased reporting, and conceptualization of SDS (Endendijk et al., 2020; Frankenbach et al., 2022; Mitchell et al., 2019); however, the SDS appears less persistent

for certain sexual behaviours such as premarital and casual sex (Bordini & Sperb, 2013; Crawford & Popp, 2003; Endendijk et al., 2020), and perhaps, masturbation (Haus & Thompson, 2020). Although gendered sexual inequalities still persist, continuing efforts have been made from the 1960s and 1970s to improve women's sexuality, connection with their body parts, and sexual pleasure, and to normalise women's self-pleasure (Fahs, 2020; Herbenick, Fu et al., 2023). Some examples include the Hite report, Betty Dodson's books and workshops, feminist porn, websites (such as OMGYES, The Pleasure Project), and TV shows like the Principles of Pleasure (Dodson, 1974; Ford et al., 2021; Hite, 1976; Hensel et al., 2022; Netflix, 2022; the Pleasure Project, 2021; Stewart, 2019). These initiatives paved the way for normalising women's masturbation. Consequently, given these changing cultural norms, I wanted to explore partnered heterosexual men's attitudes towards women's masturbation.

Notably, researchers have also found gender differences in the SDS where men were more likely to follow traditional sexual norms while women demonstrated a "reverse SDS" (Milhausen & Herold, 2002; Sakaluk & Milhausen 2012). The reverse SDS refers to the tendency to judge some of women's sexual behavior less harshly than men (Haus & Thompson, 2020).

One's attitudes toward partners' self-pleasure vary by gender and the individual's motivation to engage in the behavior (Clark & Wiederman, 2000; Haus & Thompson, 2020). Clark and Wiederman (2000) found that women reported more negative feelings than men towards partner's solo masturbation and argued that this might be explained by women's lower sexual self-esteem compared to men, and the SDS for masturbation (e.g., masturbation is only acceptable for boys and men). More recently, Haus and Thompson (2020) investigated gender differences in attitudes toward masturbation and the endorsement of the SDS relating to masturbation in a study conducted in the U.S. ( $N = 760$ ). Regarding gender differences in attitudes of participants, women were more accepting toward masturbation than men. The authors found that hypothetical women in a

vignette were rated as higher quality partners than men, regardless of relationship status, because it was assumed that women masturbate due to both pleasure-focused (e.g., fun, self-care) and intimacy-focused (e.g., improve sexual communication) motives to a greater extent than men: these findings suggest a “reverse SDS”. The authors challenged the SDS of “the tendency to judge women’s sexual behavior more harshly than men’s” regarding masturbation (p. 809). Consistent with previous research exploring women’s masturbation, Haus and Thompson’s (2020) findings suggested ambivalent attitudes toward masturbation rather than solely negative judgments in which masturbation is seen as shameful and/or undesirable (Bowman, 2014; Fahs & Frank, 2014; Fahs & Swank, 2013; Foust et al., 2022; Hogarth & Ingham, 2009; Kaestle & Allen, 2011; Waskul & Anklan, 2019). However, it is important to note that in both studies (Clark & Wiederman, 2000; Haus & Thompson, 2020), participants responded to *hypothetical* scenarios involving men or women in committed relationships.

#### ***1.1.3.6 Complementary and Compensatory Models of Masturbation in Relationships***

Experiences of solo masturbation seem to depend on whether one is in a relationship, and if so, whether it is a casual or committed relationship. Some studies have found that both men and women without a sexual partner reported more frequent masturbation compared to those with a sexual partner (de Lima et al., 2022; Huang et al., 2022). Among individuals in relationships, having a partner with lower sexual function and reporting lower sexual compatibility are associated with higher masturbation frequency in both women and men (Huang et al., 2022).

Gerressu et al. (2008) highlighted that although women were more likely to masturbate when they were in a sexual relationship, the frequency of masturbation was lower among men who were sexually active with a partner. Similarly, Regnarus et al.’s (2017) research found that for women who were content with their sex frequency, frequent partnered sexual activity was linked to more frequent masturbation. In other words, masturbation is a complement to an already active and satisfying sex life. By contrast, men

appear to be masturbating more if they reported “not having sex as often as they would like” (p. 2116). To explain this finding, some researchers proposed a “complementary” pattern for women where solo sex enhances partnered sex, and a “compensatory” pattern for men where solo sex is a substitute for a lack of partnered sex (Burri & Carvalheira, 2019; Carvalheira & Leal, 2013; de Lima et al., 2022; Fischer & Træen, 2022; Gerressu et al., 2008; Regnerus et al., 2017). These findings demonstrate that masturbation practices and motives are often quite different between women and men, and women's masturbation habits may be more nuanced than those of men.

Recently, Rowland, Kolba et al. (2020) proposed that if women report lower sexual satisfaction, they may consider masturbation as an alternative to unsatisfying partnered sex. However, this hypothesis was challenged by some studies reporting positive associations between masturbation frequency/quality and sexual satisfaction (discussed below, de Lima et al., 2022; Fischer, & Træen, 2022; Hurlbert & Whittaker, 1991). Further, the model does not account for partner knowledge about and/or involvement in masturbation: what if masturbation is experienced with a partner?

#### **1.1.4 Summarising Convergence and Divergence among the Concepts and Theories**

The theories presented in the previous section, which informed the current thesis, have one thing in common: social domain. Sexual script theory (SST) and the sexual double standard hypothesis (SDS) focus on heteronormative norms and emphasise specifically that sexuality is socially constructed in ways that favour heterosexual men. Also, SST and SDS highlight potential sociocultural restrictions to explain women's ambivalent emotions about and mixed experiences of masturbation. The biopsychosocial model was presented to explain the similarities between genders in their biological capacity to experience sexual pleasure but also the importance of psychosociocultural aspects shaping sexual behaviours. Considering women in heterosexual relationships, they are likely to have fewer opportunities for sexual pleasure compared to men due to

heterosexual sexual activities often centering around PVI (Laan et al., 2021). I believe gender differences in experienced pleasure are not purely rooted in biological causes and that consequently, increasing women's opportunities for pleasure would serve sexual justice around the globe (Laan et al., 2021; Ford et al., 2021). For example, during masturbation, both genders have similar opportunities for sexual pleasure (Blair et al., 2018; Wetzel & Sanchez, 2022). This raises the questions of why women are less likely to report masturbation (even though the same brain region is activated during masturbation and during partnered-stimulation in women; Wise, 2020), why women are less comfortable experiencing or discussing it compared to men, and why it is more stigmatised among women than men? By focusing on psychological and sociocultural factors, culturally shared sexual scripts along with sexual double standards might partly answer these questions because those scripts and standards expect high sexual desire, pleasure, initiative and dominance for men, while women are expected to express low sexual desire, less interest in sexual pleasure, and passivity (Frankenbach et al., 2022). However, as proposed by Laan (2021, p. 526), "*when contextual and sociocultural factors are removed, opportunities for sexual pleasure*" are likely to increase.

Bronfenbrenner's ecological systems model is distinctive by adding the romantic/sexual partner (the microsystem) and the timeline – the chronosystem – to the abovementioned theories to understand behaviour and emotion (Bronfenbrenner, 1979, 1986). For example, the second wave of feminism in the 1960s was very helpful in reducing stigma and misinformation about women's pleasure and masturbation; however, some researchers argue that it was perhaps less successful regarding clitoral knowledge among both women and men (Dienberg et al., 2023; Wade et al., 2005). This is one of the reasons why I wanted to explore attitudes and emotions about masturbation and investigate any possible differences from previous studies. Also, the timeline of the study (e.g., data collection) is important when interpreting the results (see General Discussion).

Complementary and compensatory models differ from other theories/models as these were proposed specifically for masturbation. Although the most common motivations to masturbate have been reported as “physical pleasure” and “to release sexual tension” (Bowman, 2014; Burri & Carvalheira, 2019; Carvalheira & Leal, 2013; Laumann et al., 1994), some researchers have suggested that the role of masturbation is seen as a substitute for (unsatisfactory or infrequent) partnered sex (Dekker & Schmidt, 2002; Kontula & Haavio-Mannila, 2002; Regnerus et al., 2017). In the current thesis, complementary and compensatory models informed the interpretation of the results, including the associations between sexual satisfaction and solo masturbation (Paper 2).

The couple interdependence theory, which emphasises the interdependence between members of a romantic couple, had a unique contribution to inform my analysis approach in the current thesis. Given the amount of time couples spend together, it is likely that one partner's thoughts, feelings, and behaviours have an influence on the other's (Cook & Kenny, 2005; Kenny et al., 2006; Zimmer-Gembeck et al., 2011). When examining romantic and sexual relationships, it is especially important to investigate the impact that one partner's behaviours or attitudes have on the other (interdependence). A statistical model referred to as the Actor Partner Interdependence Model (APIM) is used by researchers to examine the dependency between both partners' data in order to account for partners' effect on one another in the couple interdependence theory (Cook & Kenny, 2005; Kenny et al., 2006). Consequently, I designed Paper 2 based on the requirements of APIM (e.g., recruited couples, and collected data from both partners).

### **1.1.5 Gender Differences in Prevalence of Masturbation**

Consistent gender differences in prevalence estimates of masturbation are reported, with women typically reporting that they masturbate less often than men (Driemeyer et al., 2017; Fischer et al., 2022; Frankenbach et al., 2022; Gerressu et al., 2008; Ghaznavi et al., 2023; Herbenick et al., 2010, 2022; Richters et al., 2014). Even still, recent self-reported lifetime prevalence estimates of women's masturbation experiences exceed 70% (Burri &

Carvalheira, 2019; Carvalheira & Leal, 2013; Csako et al., 2022; de Lima et al., 2022; Gerressu et al., 2008; Herbenick et al., 2010, 2022; Rowland, Kolba et al., 2020). With respect to vibrator use, more than half of women, and nearly half of men report solo vibrator use (Döring & Poeschl, 2020; Herbenick et al., 2009; Herbenick et al., 2010; Reece et al., 2009; Wood et al., 2017), and nearly half of both men and women report partnered vibrator use (Döring & Poeschl 2020; Herbenick et al., 2009; Herbenick et al., 2010; Reece et al., 2009).

Men's more frequent masturbation might be the result of gender differences in reporting sexual behaviour, thus, in comparison to men, women may underreport how often they masturbate. (Alexander & Fisher, 2003; Frankenbach et al., 2022; Petersen & Hyde, 2010, 2011; Suschinsky et al., 2020). This might be due to differing cultural expectations, the SDS, and/or social pressure to conform to sexual gender norms, particularly for women (Alexander & Fisher, 2003; Emmerink et al, 2016; Endendijk et al., 2020; Fisher, 2013; Frankenbach et al., 2022; Mitchell et al., 2019) considering some women still report shame, guilt or stigma toward masturbation (Kaestle & Allen, 2011; Hogarth & Ingham, 2009; Huong & Liamputtong 2018; Thorpe et al., 2023). The difference in reporting of masturbation between genders is also smaller in societies with greater gender equality (e.g., Finland, Sweden, Frankenbach et al., 2022; Kontula & Haavio-Mannila, 2003; Petersen & Hyde, 2010).

#### ***1.1.5.1 Cultural Differences***

The majority of research on gender differences in sexual behaviour, however, has relied on self-report, which raises the possibility that gender expectations and preconceptions based on culture likely influenced the findings (Fisher, 2013). Notably, most previous masturbation prevalence estimates come from studies conducted in middle- and high-income societies (Frankenbach et al., 2022), and much lower prevalence estimates have been reported in some societies due to cultural differences and varying attitudes toward masturbation (Chi et al 2015; Das et al., 2009; Younis et al., 2018).

Although it is a private behaviour, masturbation has been controlled and stigmatised (e.g., chastity belts) before the scientific discoveries at the start of the 20th century (Bullough, 2003; Kontula & Haavio-Mannila, 2003). Members of relatively conservative groups, uninformed parents and religious fundamentalists held strong anti-sex-education ideas and negative attitudes about masturbation, and considered sexual curiosity highly inappropriate (Bullough, 2003; Coleman, 2003). Masturbation was disapproved for men and ignored for women in some cultures (e.g., ancient China) throughout history (Bullough, 2003). This belief is still held in some societies. According to Yuxin and Ho Sik Ying (2009), masturbation is still considered taboo among some Chinese women. In China, the estimated prevalence of women's masturbation varies between 10% and 18% (Chi et al 2015; Das et al., 2009). Similarly, a qualitative survey among Black women demonstrated that partially because of religious expectations, for some women, masturbation was seen as taboo and a sinful act (Thorpe et al., 2023). Relatively lower rates of masturbation were observed in studies conducted in Egypt: Younis et al. (2018) found that 53% of women in their study reported masturbation, and Mansour et al. (2019) demonstrated that most women reported negative attitudes. McCarthy and Bodnar (2005) argued that while most cultures have maintained a conventional double standard, very few countries, including Scandinavia, respect and acknowledge gender equality in terms of sexual expression. However, with changing cultural definitions of normality and sexuality, each generation has adopted new and more accepting ideas about masturbation (Dekker & Schmidt, 2003; Kontula & Haavio-Mannila, 2003). The stigma around masturbation has been reduced and masturbation is considered a way of enhancing sexual health in both genders in some societies, including America, Sweden, Russia, Finland, Brazil, Estonia and Germany, Portugal, New Zealand (Bowman, 2017; Burri & Carvalheira, 2019; Carvalheira & Leal, 2013; Csako et al., 2022; de Lima et al., 2022; Dekker & Schmidt, 2003; Fahs & Frank, 2014; Kaestle & Allen, 2011; Kontula, & Haavio-Mannila, 2003; Petersen & Hyde, 2010). However, it is important to



acknowledge that masturbation is still not considered in this positive light by all women or men (e.g., the NoFab communities targeting mostly boys/men, see Zimmer & Imhoff, 2020).

### 1.1.6 Women's Self-Pleasure

There has been increasing research attention on women's masturbation in the last two decades (Csako et al., 2022; de Lima et al., 2022; Fischer et al., 2022; Thorpe et al., 2023; see Bohmer et al., 2022 for a content analysis of studies published between 2000 and 2020), including the relationship between masturbation and frequency or quality of partnered sexual relationships (Cervilla & Sierra, 2022; Herbenick, Fu et al., 2022; Rowland, Hevesi, et al., 2020). However, the role of women's masturbation in relationships is still not well-understood. Consequently, the current research explored positive aspects of women's solo and mutual masturbation among individuals in relationships.

Women report various reasons for masturbating, both in general (e.g., when single), and at specific times (e.g., when feeling tired, frustrated, or aroused), including individual-related, context-related, and partner-related factors. Women report masturbating for pleasure, to relax, to release sexual tension, to cope with stress, to get to sleep, or to learn about their own anatomy/desires/sexual responsiveness/sexual likes and dislikes, to enhance partnered sex via sharing or applying the techniques and sexual knowledge learnt via masturbation, or if orgasm was not experienced with partnered sex, or if a partner was unavailable (Bowman, 2014; Burri & Carvalheira, 2019; Carvalheira & Leal, 2013; Das, 2007; Das et al., 2009; de Lima et al., 2022; Fahs & Frank, 2014; Goldey et al., 2016; Kaestle & Allen, 2011; Philippsohn & Hartmann, 2009; Rowland, Hevesi, et al., 2020; Rowland, Kolba et al., 2020; Thorpe et al., 2023).

On the other hand, reasons for *not* masturbating are understudied. Herbenick, Fu et al. (2022) found that interestingly, more men than women reported partner-related reasons (e.g., being in a committed relationship, the feeling of cheating on the partner, assuming it

would bother the partner, or the partner does not want them to masturbate) for not masturbating. Other reasons reported by women include lack of interest, the belief that it is sinful, the belief that it is against one's religion, cultural shame and stigma, conflict with one's moral or values, feeling uncomfortable with own body, lack of privacy, the belief that masturbation is bad for one's health, and feeling bad about themselves afterwards (e.g., guilt, shame), among others (Herbenick, Fu, et al., 2022; Hogarth & Ingham, 2009; Kaestle & Allen, 2011; Thorpe et al., 2023)

Masturbating allows women to learn about their anatomies, their preferred stimulation techniques, and sexual pleasure (Bowman, 2014; Towne, 2019). In fact, masturbation was found to be a way for women to learn about the clitoris and orgasm (Towne, 2019; Waskul et al., 2007). Twelve of the 15 women in Towne's (2019) qualitative study reported that their first orgasm experience was through masturbation; they learned how to stimulate their clitoris to orgasm through masturbation and applied the techniques to partnered sex. Strikingly, all of the women in this study described different techniques when masturbating and diverse variations, including rhythm, pressure, speed, and the area of the clitoris being stimulated (Towne, 2019). Among women usually more than one method is used, although the most commonly reported is stimulation of the clitoris by hand; other common techniques include vaginal stimulation, use of vibrators/dildos, use of an object (e.g., pillow) to put pressure on the genitals, use of the shower jet water, among other ways (Bruijn, 1982; Carvalheira & Leal, 2013; de Lima et al., 2022; Rowland, Kolba, et al., 2020; Towne, 2019).

How men in relationships with women view and feel about their partner's masturbation and/or vibrator use is understudied but may influence women's experiences and disclosure regarding their masturbation experience (Herbenick 2010; Herbenick, Fu, et al., 2022; Marcus, 2011). Dyadic sexual communication about disclosing masturbation experience and sharing which techniques or positions were helpful for their orgasmic pleasure might improve women's sexual pleasure during partnered sex (Heiman &

LoPiccolo, 2009; Mintz, 2017; Rowland, Hevesi et al., 2020). A male partner does not know the female partner's body as she does, and the female partner does not know their partner's. Consequently, couples may need time and sharing to learn each other's sexual likes. Mutual masturbation might be a helpful sexual activity and communication strategy (Heiman & LoPiccolo, 2009; Mintz, 2017; Towne, 2019) and may be used as a means of connecting with the partner, increasing sexual confidence, ensuring mutual pleasure, and enhancing intimacy and sexual satisfaction (Foust et al., 2022).

It is important to challenge the stigma surrounding female masturbation as it is an essential aspect of sexual health. Promoting positive attitudes towards sexual self-care can be helpful to create a more inclusive and sex-positive culture. Access to pleasure is everyone's right, alone and with a partner, and the key might be just to talk about pleasure and normalise masturbation for all, in all contexts.

#### **1.1.7 The Sexual Context and Women's Pleasure: Inequalities in the Bedroom**

The pleasure gap has been described as reflecting neglect of women's sexual pleasure as sexual pleasure experiences are often framed in a gendered script that is unfair to women and overvalues partnered penetration (Ford et al., 2021; Klein & Conley, 2022; Laan et al., 2021; Reis et al., 2021). For example, one of the most well-documented examples of pleasure inequalities is the orgasm gap. The psychophysiological experience known as an orgasm is defined as the momentary peak of intense sexual pleasure that induces a state of altered awareness and is accompanied by rhythmic, involuntary contractions of the pelvic and vaginal muscles as well as emotions of well-being and fulfilment (Meston et al., 2004). The orgasm gap has been defined as the difference in frequency of orgasm during heterosexual sexual activity (in particular, PVI) (Mahar et al., 2020).

On average, heterosexual men report experiencing orgasm more frequently and consistently than heterosexual women (Blair et al., 2018; Frederick et al., 2018; Garcia et al., 2014; Herbenick, Fu et al., 2022; Leonhardt et al., 2018; Wetzel & Sanchez, 2022).

Frederick et al. (2018) reported that the biggest gap in frequency of orgasm was between heterosexual men and heterosexual women, and the gap for women of different sexual orientations was much larger than that for men of different sexual orientations. In their study, carried out with 52,588 adults in the US, 95% of heterosexual men and 65% of heterosexual women reported that they usually/always orgasmed during sexual activity. Regarding sexual orientation, heterosexual men are more likely to report orgasm during partnered sexual activity than gay and bisexual men; in contrast, heterosexual women report orgasm less frequently than bisexual and lesbian women (Blair et al., 2018; Frederick et al., 2018; Garcia et al., 2014).

Women with male sexual partners experience greater orgasm frequency during solo masturbation as compared to partnered sex, either with a familiar or new partner (Dekker & Schmidt, 2003; Mahar et al., 2020; Rowland et al., 2018; Wade et al., 2005; Wetzel & Sanchez, 2022). Interestingly, Wetzel and Sanchez (2022) also found gender differences in orgasm rates during masturbation, with heterosexual men reporting orgasm significantly more often than heterosexual women, although the effect size was much smaller than for gender differences in orgasm during sex with a familiar or new partner. In fact, in their follow up analysis, they found no differences in orgasm frequency during masturbation between genders (Wetzel & Sanchez, 2022). Similarly, comparing women in same-sex and mixed-sex relationships, Blair et al. (2018) reported the same level of sexual satisfaction from orgasm via clitoral manipulation by self. Among a sample of heterosexual women, all of whom reported previously experiencing orgasm, Brewer and Hendrie (2011) compared various sexual activities including oral sex, vaginal penetration with and without clitoral stimulation, and masturbation. They found that orgasm was most frequently reported through self-masturbation, masturbation by a partner, and oral sex, and was least often reported during vaginal penetration. Similarly, based on five Finnish national sex surveys, Kontula and Meittinen (2016) reported that many women (48%) experience orgasm more easily during masturbation than during intercourse. Interestingly, women over 50 reported

experiencing more intense orgasms during solo masturbation than men over 50 (Sierra et al., 2022). This might indicate that women are more perceptive in different parts of their bodies during masturbation than men (Sierra et al., 2022). It might also indicate something more specific related to older age.

Vibratory stimulation is positively correlated with improved sexual desire and general sexual function among both sexes (Rullo et al., 2018). However, when asked about the most recent partnered sexual activity, men's orgasm was most strongly associated with vaginal intercourse, whereas women's orgasm was most strongly associated with vibrator (or another sex toy) use (Herbenick, Fu et al., 2023).

For women, during partnered sex, clitoral stimulation is reported as the most reliable way to orgasm (Mintz, 2017). Although research findings vary widely due to the subjective characteristics of orgasm and orgasm assessment techniques (Graham, 2010; Shirazi et al., 2018; Simons & Carey, 2001), a minority of women (20-49%) report usually or always experiencing orgasm during PVI without any additional clitoral stimulation by self or a partner (Herbenick et al., 2018; Leonhardt et al., 2018; Mahar et al., 2020; Mintz, 2017; Richters et al., 2006; Rowland & Kolba, 2016; Wade et al., 2005). Indeed, sexual activities providing clitoral stimulation have been reported as particularly important for women's orgasm experience (Andrejek et al., 2022; Armstrong et al., 2012; Brewer & Hendrie, 2011). In a U.S. nationally representative cross-sectional study ( $N = 1055$ ), Herbenick et al. (2018) found that only 18.4% of women reported experiencing orgasm from "vaginal penetration alone during intercourse" and 36.6% reported clitoral stimulation necessary for orgasm during partnered sex. Additionally, 36.0% reported that, even if it was not necessary, their orgasm felt better with clitoral stimulation (Herbenick et al., 2018). Mintz (2017) found that when college students were asked in anonymous questionnaires to indicate the most reliable method of reaching orgasm, only 4% of women reported vaginal penetration alone, while 34% reported direct clitoral stimulation alone, and 43% reported penetration with clitoral stimulation. Similarly, in a study of 6591

college women, those who self-stimulated their genitals during sexual activity boosted their likelihood of orgasm from 12% to 24% during hook-up sex, and from 67% to 83% during partnered sex; a similar increase was reported when manually stimulated by partners (Armstrong et al., 2012). Regarding relationship types, women report higher sexual satisfaction and orgasm experience in committed sexual relationships compared to casual sexual relationships (Armstrong et al., 2012; Birnie-Porter & Hunt, 2015; Wongsomboon et al., 2020).

An important factor contributing to pleasure inequalities might be a lack of communication between partners. Research has demonstrated that men tend to overestimate how often women orgasm compared with women's own reports both in general (Shirazi et al., 2018; Wetzel & Sanchez, 2022), and in their own relationships (Leonhardt et al., 2018; Wetzel et al., 2022). A recent study highlighted that men perceived the orgasm gap in partnered sex to be much smaller than women did (6.9% vs. 40.0%, respectively; Wetzel & Sanchez, 2022). Also, within mixed-sex couples, men are more likely to report that their partners experienced orgasm in contrast to the woman's own reporting (Leonhardt et al., 2018; Wetzel et al., 2022). Wetzel and Sanchez (2022) explained this finding by pointing to women's rates of faking orgasm, particularly during vaginal intercourse (Muehlenhard & Shippee, 2010). Although there is evidence that some men also fake orgasm (Goodman et al., 2017; Muehlenhard & Shippee, 2010; Séguin & Milhausen, 2016), women are more likely than men to fake orgasm (67% vs. 28%,  $N = 281$ ; Muehlenhard & Shippee, 2010). Women's motivation to fake orgasm may be partly explained by the pressure to experience orgasm from PVI alone (Muehlenhard & Shippee, 2010; Nicolson & Burr, 2003; Salisbury & Fisher, 2014; Wetzel & Sanchez, 2022). Other reasons might be to avoid feeling abnormal, a lack of physical/emotional energy and/or sexual excitement during sex, to trigger a genuine orgasm, for the sake of the partner's pleasure, to avoid hurting the partner's feelings, or to have a sense of control over the

partner (Fahs, 2014; Goodman, et al., 2017; McCoy, et al, 2015; Muehlenhard & Shippee, 2010).

It is important to note here that there is significant individual variability in the importance of orgasm for women's sexual satisfaction and sexual health (Graham, 2010; Gusakova et al., 2020). For some, orgasmic difficulties during sex may be followed by negative emotions, including inadequacy, distress, feelings of failure, and worry (Lavie-Ajayi & Joffe, 2009; Opperman et al., 2014), but for others, the absence of orgasm may be characterized as relatively unimportant (Bell & McClelland, 2017).

### 1.1.8 Partners' Reactions to Women's Self-Pleasure

Previous studies have also reported mixed reactions and feelings from women's own partners regarding their masturbation or vibrator use (Fahs & Frank, 2014; Fahs & Swank, 2013; Kaestle & Allen, 2011; Kılıç Onar et al., 2020; Mayr, 2021; Waskul & Anklan, 2019). In an online open-ended survey with 147 women, Waskul and Anklan (2019) found that while some reported not discussing vibrator use with their partner ( $n = 13$ ), most who had ( $n = 62$ ) reported positive, encouraging, and supportive responses ( $n = 48$ ). However, the authors also noted that some heterosexual women reported that previous or current partners felt threatened about their own sexual skills/power and intimidated by the woman's vibrator use as they considered it as an emasculating tool to compensate for a lack of pleasure. Other researchers have reported that some women report purchasing or using a vibrator (or masturbating) after being supported or convinced by their partners, either to enhance the male partner's desire, pleasure, and stimulation, or for their own pleasure (Fahs & Swank, 2013; Foust et al., 2022; Kaestle & Allen, 2011; Mayr, 2021). Indeed, some women report that they were first introduced to masturbation or vibrator use by their partner with positive encouragement (Kaestle & Allen, 2011). In contrast, for some women, messages about masturbation valued *partnered* pleasure rather than *solo* pleasure (e.g., "If you can't please yourself, how can you tell someone else to?"; Thorpe et al., 2023, p. 5).

For some women, partners' reactions sometimes result in changes to sexual behaviors. For example, in one study, one woman described throwing away her vibrator because her boyfriend did not like it (Fahs & Swank, 2013). Yet, a qualitative study with men about their perception of sexual pleasure and satisfaction after using a couple's vibrator (authors defined couple's vibrator as "*designed to be worn during penetrative intercourse between two people*") demonstrated appreciation of the partner's pleasure and highlighted that it was an important aspect of men's own experience of pleasure and overall enjoyment (Watson et al., 2016, p. 373). However, more than half of the sample reported previous familiarity and a lack of intimidation with using sex toys and vibrators during partnered sex (Watson et al., 2016). These narratives call into question who controls and who benefits from women's pleasure (Chadwick & van Anders, 2017; Fahs & Frank, 2014; Fahs & Swank, 2013; Foust et al., 2022; Mayr, 2021; Savoury et al., 2022).

### **1.1.9 Sexual Satisfaction and Masturbation**

Definitions of sexual satisfaction include aspects of the dyadic relationship, such as the existence of mutuality, orgasm, romance, creativity, and pleasure, rather than just the lack of sexual difficulties (Pascoal et al., 2014). Sexual satisfaction is correlated with the likelihood of orgasm, fewer conflicts between relationship partners, and higher relationship satisfaction (Haning et al., 2007; Leavitt et al., 2021; Sprecher, 2002). Due to the mutual aspects of sexual satisfaction (Brouillard et al., 2020; Pascoal et al., 2014), the link between masturbation and sexual satisfaction is understudied (compared to the link between masturbation and orgasm) but complex (Fischer, & Træen, 2022). Thus, in the research presented in this thesis, I explored women's solo and mutual masturbation among individuals in relationships and a possible link between these behaviours and sexual satisfaction.

While previous research has reported mixed results, particularly for women (Cervilla et al., 2024), recently, Fischer and Træen (2022) proposed four groupings for the relationship between (solo) masturbation and sexual satisfaction among both women and



men: high masturbation frequency and high sexual satisfaction, low masturbation frequency and high sexual satisfaction, high masturbation frequency and low sexual satisfaction, and low masturbation frequency and low sexual satisfaction (from larger to smallest cluster, respectively). Additional studies assessing the link between (solo) masturbation and sexual satisfaction (and/or sexual function that includes sexual satisfaction as a component) are summarised below.

#### ***1.1.9.1 Women's Masturbation and Sexual Satisfaction***

Some researchers have reported a negative link between masturbation and sexual satisfaction (Bridges et al., 2004; Klapilová et al., 2016; Phuah et al., 2023; Rowland, Kolba et al., 2020; Velten & Margraf, 2017) and satisfaction with one's sexual activity among women (Fisher et al., 2022). However, in other studies, women's masturbation experience was associated with greater sexual satisfaction (de Lima et al., 2022; Fischer, & Træen, 2022; Hurlbert & Whittaker, 1991) and higher orgasmic pleasure during partnered sex (Rowland et al., 2019). Likewise, more frequent masturbation has been associated with better sexual function, greater ease in experiencing an orgasm, less difficulty in sexual arousal, and lower sexual inhibition among women (Carvalho & Leal, 2013). Expectedly, the direction differs depending on the relationship status of an individual (Huang et al., 2022). Huang et al. (2022) reported that while frequent masturbation was linked to lower orgasm function for women who were in relationships, it was associated with greater orgasmic experience and higher levels of sexual satisfaction in women without a sexual partner (Huang et al., 2022).

#### ***1.1.9.2 Men's Masturbation and Sexual Satisfaction***

Less research has been done assessing men's masturbation and sexual satisfaction, but most associations reported have been negative (Cervilla et al., 2024; Huang et al., 2022; Miller et al., 2019; Phuah et al., 2023; Velten & Margraf, 2017). Klapilová et al.'s (2016) study, however, found no association between men's solo masturbation and sexual satisfaction. A recent study demonstrated that higher masturbation frequency was

associated with better erectile function and better ejaculatory latency in men without a partner, but was linked to lower intercourse satisfaction, lower sexual desire, lower orgasm function, and delayed ejaculation in men with sexual partners (Huang et al., 2022). Also, Cervilla and Sierra (2022) and Sierra et al. (2022) reported that solitary masturbation frequency was associated with more difficulty in experiencing orgasm and lower satisfaction with orgasm in sexual relationships for men, but not for women. Among men with or without sexual difficulties (erectile dysfunction, premature ejaculation, or delayed ejaculation), sexual function was higher during masturbation than during partnered sex (Rowland et al., 2021). However, Rowland et al.'s (2022) study showed weak or no associations between masturbation frequency and men's sexual function, including erectile dysfunction severity, erectile functioning, and relationship satisfaction (Rowland et al., 2022).

#### **1.1.10 Sexual Self-esteem**

As an important domain of sexual well-being, sexual self-esteem can be briefly operationalised as feeling good about one's own body sexually, feeling sexual confidence, and feeling in control of sexual thoughts and desires (Mitchell et al., 2021; Zeanah & Schwarz, 1996; 2020). Five domains of overall sexual self-esteem include skill/experience, control, moral judgment, attractiveness, and adaptiveness (Zeanah & Schwarz, 1996; 2020). Sexual self-esteem is considered to be shaped by past experiences, manifests in current experiences, and can guide sexual behaviour (Andersen & Cyranowski, 1994; Snell, 2001). It is possible that individuals with higher sexual self-esteem place greater value on their sexual well-being and experiences, and as a result, they are more open to discussing issues related to sexual activities such as satisfaction, pleasure, and willingness to engage in solo/mutual masturbation with a sexual partner (Oattes & Offman, 2007). As a result, having higher sexual self-esteem may contribute to having more opportunities for sexual pleasure, while experiencing greater sexual pleasure may lead to having higher sexual self-esteem (Anderson et al., 2013).

Notably, the role of “attractiveness” (relationship to body, body/physical satisfaction) has been found to be central to women’s sexual self-esteem (Hensel et al., 2011). Given the role of masturbation in relation to the body, researchers have explored the link between masturbation and body satisfaction. Although one study found no association between lifetime solo masturbation and women’s sexual body-esteem (Horne & Zimmer-Gembeck, 2005), previous studies have reported mostly positive associations between women’s (solo) masturbation and body satisfaction: higher masturbation frequency has been associated with lower body shame, higher body appreciation (de Lima et al., 2022), and positive body image (Shulman & Horne, 2003).

Partly because of the positive aspects of masturbation (e.g., increased body image, anatomical knowledge, and sense of autonomy; see Goldey et al., 2016; Kaestle & Allen, 2011), one might expect an association between masturbation and higher sexual self-esteem. However, if masturbation is experienced due to unsatisfying partnered sex, a person may blame their sexual skills and this may influence their sexual self-esteem negatively. Similarly, if one is masturbating because they have a partner with lower sexual desire, or they do not have a partner, they could internalise this in a similar way. Or someone might have higher sexual self-esteem when engaging in solo masturbation but not in a partnered context (mutual masturbation) due to body insecurities (Foust et al., 2022).

Although Coleman (2003) encouraged researchers to explore the link between sexual self-esteem and masturbation, this has received little research attention. However, the limited research has reported that the frequency and quality of solo masturbation is associated with higher sexual self-esteem (Hurlbert & Whittaker, 1991; Rodríguez-Domínguez et al., 2022; Zamboni & Crawford, 2003).

#### **1.1.11 Why is it Important to Study Women’s Self-Pleasure?**

Masturbation is a very common sexual behaviour even when individuals are in relationships (Gerressu et al., 2008; Herbenick, Fu et al., 2022). Also, the use and marketing of vibrators have become more visible and vibrators have become more easily

accessed in middle- to upper-income countries (Döring & Poeschl 2020; Herbenick et al., 2009, 2010; Reece et al., 2009; Wood et al., 2017). In fact, vibrator purchases might have reached a peak during COVID-19 restrictions (Arafat & Kar, 2021). Research attention on women's masturbation has also increased (Bohmer et al., 2022). Yet partly because of the common belief that only "single people masturbate", most studies have focused on the meanings and experiences of masturbation within an individual context, whereas aspects of masturbation in a partnered context remain understudied (Bohmer et al., 2022; Kaestle & Allen, 2011; Kirschbaum & Peterson, 2018). However, although sexual expectations have changed, and women's masturbation is now more normalised and acceptable (Bowman, 2014; Foust et al., 2022), gendered sexual scripts prioritising men's pleasure still exist (Fahs & Swank, 2013; Klein & Conley, 2022; McClelland, 2011; Nicolson & Burr, 2003; Salisbury & Fisher, 2014). And so, the role and functions of women's masturbation might be related to their partners' attitudes, beliefs, feelings about, and reactions to, female masturbation (or vibrator use). Considering both the positive and negative range of views and beliefs regarding female masturbation among men may help determine how women's sexual partners may influence their masturbation experience. In addition, understanding partners' attitudes and beliefs about women's masturbation may support clinicians and sexuality educators to help women develop a sense of entitlement to sexual pleasure while in romantic relationships. Accordingly, it is critical to understand the role of women's masturbation in a relationship context and couples' scripts for women's masturbation.

Sexual pleasure should not be limited to partnered penetration as sexual behaviours with clitoral stimulation are a more reliable way to experience pleasure and/or orgasm for women. Indeed, in sex therapy, masturbation is considered the most effective training tool to enhance sexual functioning, and especially to improve women's orgasm experiences (Heiman & Meston, 1997; Marchand, 2021). However, negative feelings and attitudes or beliefs might influence the success rate of these therapies (Heiman & LoPiccolo, 2009; LoPiccolo & Lobitz, 1972; Mosher, 1979; Mosher, 2011). For this reason, the research for

this thesis broadly aimed to understand the role of self-pleasure (solo, mutual, vibrator) among couples. A better understanding of women's and their male partners' experiences and attitudes towards women's solo masturbation, and the association between solo masturbation recency and sexual satisfaction/sexual self-esteem, might be useful for clinicians who help couples improve their sexual relationships and relationship satisfaction.

For example, Rowland, Hevesi et al. (2020) reported that the greater the alignment between techniques used in women's masturbation and partnered sexual activities, the greater the likelihood of experiencing orgasm and orgasmic pleasure, the lower the difficulty with orgasm and arousal, and the greater the duration of sexual activities (with adequate arousal). Similarly, although de Lima et al. (2022) did not find an association between frequency of orgasm during sexual intercourse and masturbation frequency, orgasm experience through masturbation was associated with higher orgasm frequency in partnered intercourse (de Lima et al., 2022). Research demonstrates that women report a wide range of techniques used when masturbating, and if they want to bring the techniques acquired through masturbation to partnered sex to experience orgasm and pleasure, this requires multifaceted communication (verbal and non-verbal) with a partner (Herbenick et al., 2018; Towne, 2019).

Mutual masturbation, in particular, can help to improve dyadic sexual communication with additional visual demonstrations of women's preferences for stimulation (Heiman & LoPiccolo, 2009; Mintz, 2017). An educating tool for both women and their partners about women's pleasure and anatomy is, therefore, critical to helping couples develop satisfying and pleasurable sexual and romantic relationships (Klein et al., 2022; Laan et al., 2021). Indeed, mutual masturbation can be considered an educating tool and non-verbal communication as it includes a combination of vocal and bodily forms of communication, including mimics and physical demonstration of stimulation techniques (Séguin, 2022; Towne, 2019). During sex, sexual communication can increase sexual

pleasure and emotional intimacy and help to clarify assumptions and reduce personal insecurities (Séguin, 2022). A recent qualitative study exploring sexual communication during sex reported a strong preference for nonverbal communication to maintain the mood, avoid experiencing negative emotions, protect the partner's feelings, or avoid the partner's judgment (Séguin, 2022).

A mutually fulfilling and satisfying sex life may first require unlearning negative messages about women's masturbation and sexual pleasure; and then the ability to communicate with the partner about masturbation (Bohmer et al., 2022; Coleman, 2003; Kaestle & Allen, 2011; Thorpe et al., 2023). Increasing sexual knowledge is often helpful to handle sexual difficulties such as orgasm difficulties or low sexual satisfaction (Heiman & LoPiccolo, 2009). Creating free, easily accessible, evidence-based content on sexual pleasure is important to close the gap in inequalities around accessing affordable accurate sexual knowledge. The findings of this thesis can help sex educators to create accessible sexual health materials on women's sexual pleasure, masturbation (solo/partnered; with or without vibrators), and couple's sexual satisfaction.

### **1.1.12 Gaps in Knowledge about Women's Self-Pleasure**

Firstly, a gap was identified in the literature about the understanding of women's masturbation in a romantic relationship context. Most studies have focused on masturbation in individual contexts and very few have focused on the partner and/or the combination of partnered and individual contexts using individual-level data (see Bohmer et al., 2022). Paper 1, the systematic review, attempted to draw a clear picture of women's masturbation in relationships reviewing existing qualitative data.

Secondly, to the best of our knowledge, the current research is the first to explore aspects of women's masturbation in a relationship context using both individual- and couple-level data. As discussed above, another gap identified is that what we know about women's perceptions of their partners' (negative) attitudes and feelings mostly comes from culture/society rather than women's own partners (Hogarth & Ingham, 2009; Kaestle &

Allen, 2011; Paper 1; Thorpe et al., 2023). Thus, I explored women's partners' attitudes about women's solo masturbation in Paper 2, which is the first study to report data from men about their *actual* attitudes towards women's solo masturbation and elucidate the associations between masturbation and sexual satisfaction with data from both partners using dyadic analysis.

Thirdly, the relationship between the types of women's masturbation (solo/mutual) and sexual self-esteem is not well understood. Although studies suggest a positive link between masturbation and sexual self-esteem (e.g., sexual confidence and knowledge gained from masturbation, developing positive/satisfying relationship with own physical body and genitals; Bowman, 2014; Foust et al., 2022; Kaestle & Allen, 2011), very few studies have investigated this with solo masturbation using only individual-level data (Hurlbert & Whittaker, 1991; Rodríguez-Domínguez et al., 2022; Zamboni & Crawford, 2003). To the best of my knowledge, no previous studies have explored the link between mutual masturbation and sexual self-esteem, and no couple studies have explored solo masturbation and sexual self-esteem. Given the role and influence of partners in women's masturbation, dyadic analysis of the link between solo/mutual masturbation and sexual self-esteem is important.

Fourthly, the current research is the first to explore joyful aspects of mutual masturbation among both women and men. Only one recent U.S. qualitative study was identified that explored young women's experiences with partnered and solo masturbation (Foust et al., 2022). Foust et al.'s findings highlighted how women's sexual desire differs in different masturbation contexts (mutual vs. solo) and that attitudes about masturbation are mixed. While sometimes women reported a desire to connect with their partner and improve intimacy, they also reported that they tended to engage in *mutual masturbation* to arouse/stimulate and please their partner, sometimes upon the male partner's request without their own sexual desire at any point. In contrast, when alone, women reported

masturbation for their own needs, including to release sexual tension when feeling horny (Foust et al., 2022).

Some qualitative studies exploring women's masturbation have also noted experiences with mutual masturbation. For some, mutual masturbation was perceived as helpful in developing new sexual relationships and mutual pleasure (Kaestle & Allen, 2011). However, some women report masturbating during partnered sex for male partner pleasure/desire, rather than for their own pleasure or orgasm (Fahs & Swank, 2013). In line with this, in Foust et al.'s study, a male partner's request from a female partner to masturbate in front of him was sometimes followed by some women feeling awkward and/or distressed because of insecurities about their body, or the performative nature of the act (concerns about putting on a show); however, for other women, the ability to arouse their partner was empowering, attractive and powerful. However, I could not locate any quantitative study on this topic. And so, using quantitative data, I address the question of whether the role and experience of masturbation (and vibrator use) differ when with a partner (mutual) or alone.

### **1.1.13 The Aim and Research Questions**

The primary aim of the overall project was to understand the role of masturbation in relationships, and to investigate partners' influence on women's self-pleasure (solo and partnered masturbation) and how these are associated with sexual satisfaction and sexual self-esteem.

The overarching research questions were as follow:

- How do partner- and/or relationship-related factors shape women's masturbation when they are in a relationship?
- What are the associations between masturbation and sexual satisfaction and sexual self-esteem?

No specific hypotheses were suggested due to the exploratory focus of the study.

More specific research questions for each paper are listed in subsequent chapters.



## 1.2 Methodology

This thesis used a mixed methods approach, with composite analysis, with a qualitative synthesis (systematic review) and a study using a cross-sectional correlational design with individual and dyadic analyses which explored the role of masturbation in relationships. The methods used in all three papers in the thesis were carefully selected, and the following sections will discuss the rationale for the chosen methods of data collection and analysis.

### 1.2.1 Researcher's Position: Epistemological Stance

My approach within this thesis broadly falls within critical realism and more specifically, with a pragmatic perspective. Ontologically, critical realism sees "reality as something that exist independently of those who observe it but is only accessible through the perceptions and interpretations of individuals" (Ormston et al., 2014, p. 21). It acknowledges the crucial value of each individual's unique interpretation of the topics under investigation and is aware that the perspectives of different people will lead to various levels of understanding (Ormston et al., 2014). The pragmatic perspective is either seen as a pragmatic choice or viewed as coherent within a critical realist framework (Ormston et al., 2014). Within the pragmatic perspective, the research question is seen as more important than aligning with a particular epistemological stance, and combining research methods is seen as essential to answer the specific research question asked (Ormston et al., 2014; Yardley & Bishop, 2007). Thus, I chose my research methods after I formulated my research questions for each paper in this thesis.

Additionally, I would like to highlight the timeline of my initial study design, as it influenced the choice of data collection methods. I initially planned a qualitative interview study with women using face-to-face interviews and received the ethics approval for this study. However, due to COVID-19 restrictions, this study was not conducted. At the time, I had two choices: either alter the study to an online interview or pause the interview study. Because of the lack of privacy related to the Covid-19 lockdown and the sensitive nature of

questions which included masturbation-related sexual communication strategies and/or challenges experienced with their partner, I decided not to conduct the qualitative study via online video call. I re-designed and conducted the online survey that was initially planned as the third paper of this thesis.

### 1.2.2 Mixed Methods Approach

Guided by both qualitative and quantitative studies, this thesis used a mixed methods approach using composite analysis. Well-designed mixed-method studies allow merging qualitative and quantitative approaches to overcome the shortcomings that arise when using quantitative or qualitative studies individually, and can help achieve a richer and more complete understanding of a phenomenon (Yardley & Bishop, 2007).

Mixed methods studies serve five main purposes: triangulation, complementarity, development, initiation, and expansion (McCrudden et al 2021). *Triangulation* refers to the combination of quantitative and qualitative methods to investigate identical aspects of the same phenomenon and corroborate the findings of each other (McCrudden et al., 2021). To have a wider understanding of women's solo masturbation, all three papers of this thesis included women's solo masturbation experience. *Complementarity* refers to using one method to enhance and clarify the results from the other method (McCrudden et al., 2021). During data screening for the secondary thematic analysis, I noticed the lack of research about women's masturbation and couples' experiences. Most prior studies exploring women's self-pleasure recruited women only. Thus, I decided to design a dyadic study and recruited couples for my second study. *Development* refers to using the findings from one method to inform subsequent methods (McCrudden et al., 2021). For example, findings from Paper 1 showed that partner- and relationship-related factors influence women's masturbation experiences, sometimes negatively. However, findings from Paper 1 also showed that women's assumptions were not always based on actual partner reactions and therefore I wanted to clarify women's partners' attitudes towards women's solo masturbation, and the link between masturbation and couples' sexual outcomes using

dyadic analysis. *Initiation* refers to seeking contrast between findings from quantitative and qualitative methods (McCrudden et al., 2021). Due to the nature of secondary thematic analysis, I did not collect qualitative data myself and instead synthesized results from existing qualitative studies. Also, the studies included in the review had different research priorities and aims. However, the rich results provided an in-depth understanding and a broader context regarding women's masturbation in relationships, including common misconceptions about women's masturbation such as it was perceived as "normal" only if a woman is not in a relationship. However, these misconceptions were later challenged in subsequent quantitative analyses (Papers 2 and 3). The quantitative findings also clarified some of the findings from the qualitative analysis. For example, very few participants mentioned mutual masturbation in the qualitative studies included in the review. But, the way it was expressed when it was reported attracted my attention: some women reported their men partner's desire as a motive rather than their own desire, while some considered it as a first step to developing strong sexual and romantic relationships that are mutually satisfying (see The Gaps in Knowledge about Women's Self-Pleasure). Thus, I wanted to explore feelings about and experiences of mutual masturbation and the link between mutual masturbation and sexual satisfaction and sexual self-esteem and I wanted to do this with a relatively large sample using an online survey. Importantly, the combination of results is stronger than the individual interpretation of only quantitative or qualitative findings. For example, Paper 1 found that women hold negative assumptions about women's masturbation in relationships, but these are coming from society, not from their partners. In fact, Papers 2 and 3 found positive attitudes and emotions about women's solo and mutual masturbation among men in relationships with women. *Expansion* refers to using both quantitative and qualitative methods to investigate different phenomena (McCrudden et al., 2021). To have a wider understanding of the topic, more than one type of masturbation was studied: solo masturbation, mutual masturbation, solo vibrator use, and partnered vibrator use.

### 1.2.3 Paper 1: Secondary Thematic Analysis

For the first paper of this thesis, a systematic review of qualitative studies was conducted to explore partners' and/or relationship-related factors regarding women's masturbation. The topics of interest and specific research questions were developed based on my engagement with the literature, my previous research experience (I explored attitudes towards masturbation among young women with a mixed design study for my MSc dissertation), and my aims for the research. I was aware of some of the qualitative studies exploring women's masturbation and so, decided to systematically review existing qualitative studies. The first aim of the review was to explore what existing literature has revealed about women's self-pleasure within a relationship context (including women of any sexual orientation), focusing on partner-related factors. I wanted to identify the gaps in knowledge regarding women's masturbation to clarify the research questions of Papers 2 and 3. Dixon-Woods et al. (2001) proposed possible roles for qualitative evidence in systematic reviews that aligned with the aims of this review: clarify the research question of the review, identify the relevant outcomes of interest and types of participants, and design/revise the topic guide and/or the survey questionnaire.

The secondary aim of Paper 2 was to explore how women's experiences and perceptions of relationships, and of their partners' ideas, feelings and/or reactions, relate to women's perceptions, behaviours, and motives regarding masturbation. The findings from the included qualitative studies were integrated using a secondary thematic analysis (Thomas & Harden, 2008). This enables a researcher to stay close to the primary data, and to conduct an interpretative synthesis (Dyer & das Nair, 2013; Thomas & Harden, 2008). Interpretative synthesis occurs at the final stage of the analysis and allows researchers to go beyond the content of the primary studies and create new interpretive explanations (Thomas & Harden, 2008).

#### **1.2.4 Reflexivity - Feminism and Sex Positivity**

By allowing researchers to openly consider their background, position, belief, and motivations within the research, reflexivity enables transparency in qualitative research (Dowling, 2006; Jamieson et al., 2023). To be reflexive (before, during, and after the actual research process), a researcher must have an awareness of their assumptions and reflect upon them, and an understanding of how their skills, beliefs, experience, and theoretical and personal values influence the interpretation of the data (Braun & Clarke, 2019, 2021; Jamieson et al., 2023). The theoretical position is presented above (in the Researcher's Position: Epistemological Stance section). Within the current section, I present below my background and motivations, and discuss how my feminist viewpoint influenced my interest in gendered sexual inequalities and more specifically, in women's experiences of self-pleasure.

I am the primary investigator of this thesis project, a heterosexual woman from Turkey. I have a research background in sexual health both in Turkey and in the UK. At the time of qualitative data analysis (October 2019-March 2020), I was 28 years old and in a relationship for four years, married for one and a half years. I am a feminist and sex-positive, which shaped my motivation to conduct the research and my interpretations of the data. For example, due to the existence of pleasure inequalities, it was important to me that my findings contribute to breaking down the stigmatisation of women's masturbation, particularly in relationships (due to the idea that only single people masturbate). I believe that pleasure is an essential part of sexual health and rights, and women should feel empowered to express themselves sexually based on their own needs and pleasure not according to traditional sexual "scripts".

#### **1.2.5 Papers 2 & 3: Online Questionnaire Use**

An online, cross-sectional quantitative questionnaire survey was used in this study targeting women and their partners. Self-report questionnaires include a set of questions used for describing the characteristics of participants and are one of the most widely used

assessment techniques in psychology (Conte, 1983; Demetriou et al., 2015).

Questionnaires are easily accessible, allow the collection of large datasets relatively easily, and can be transferred into online versions (Demetriou et al., 2015).

Results from studies using bogus pipeline technique (bogus pipeline technique refers to a method in which participants believed lying could be detected) indicate that prior studies on gender differences in sexual behaviour may have some serious limitations (Alexander & Fisher, 2003, Fisher, 2013; Suschinsky et al., 2020). It is likely that the SDS creates significant variations in self-reported sexual behaviour, particularly for research in which questionnaires are completed in a public environment (e.g., a classroom or face-to-face interviews). However, online assessment is used commonly to explore sexual behaviours, and is especially suggested for studying masturbation (Burri & Carvalheira, 2019; Carvalheira & Leal, 2013; Cervilla, Vallejo-Medina et al., 2022). It was for this reason that I chose to conduct an online survey, using several validated questionnaires for the key variables of interest. I decided to conduct a broader survey which included variables that could be used for individual-level analysis as well as dyadic-level analysis.

### **1.2.6 Paper 2: Correlational and Dyadic Analyses**

Due to the nature of the cross-sectional survey, I decided to use a correlational design. Also, because I recruited couples, when deciding which analyses to use, I had to account for the nonindependence of dyadic data; thus, I used dyadic data analysis approaches.

The first aim of Paper 2 was to assess the similarities and differences between partners' attitudes about women's solo masturbation and their associations with women's solo masturbation recency. The sample included 105 mixed-sex couples. To explore how (dis)similar partners are in their attitudes toward women's solo masturbation, paired *t*-tests and bivariate Pearson correlations were used. To explore (men) partners' attitudes toward women's solo masturbation and their associations with their woman partner's solo masturbation, binary logistic regressions were run. To explore partners' (dis)similarity in

attitudes towards women's solo masturbation and its association with women's solo masturbation, a combination of polynomial regression with response surface analysis and a chi-square analysis was used. Polynomial regression with response surface analysis can answer how the combination of two independent variables (similarities between partners) relates to an outcome variable (Shanock et al., 2010). However, because there was no significant association (and because the outcome variable was dichotomised) I did not create the surface graphs and reported the Chi-Square analysis results at the final step.

Although the correlational designs used for the first aim of Paper 2 do not account for nonindependence, to overcome nonindependence issues for these analyses, data were organized as a matched couple (dyad) dataset such that there was one record for each couple including data from both partners,  $N = 105$ . One can test similarity effects with dyadic response surface analysis (Schönbrodt et al., 2018), but because the outcome variable was only women's masturbation recency (not their partner's), I decided to use simpler analyses and explore further depending on the results.

A secondary aim was to explore recent solo masturbation experiences and their associations with women's, and their partner's, sexual satisfaction and sexual self-esteem. Researchers have started to use APIM to study sexual dynamics (e.g., Maas et al., 2018; Muise et al., 2018; Pascoal et al., 2018; Velten & Margraf, 2017), as the model takes nonindependence between couples into account and so it has contextual and mathematical advantages (Kenny et al., 2006). Thus, I decided to use APIM via multilevel modelling (APIM\_MM). APIM can be done using multilevel modelling or structured equation modelling but multilevel modelling is suggested as a "more accessible framework" for research comparing indistinguishable and distinguishable dyads (Kroeger & Powers, 2019, p. 159).

### **1.2.7 Paper 3: Correlational Analysis**

The aim of Paper 3 was to explore women's and men's feelings about and experiences with mutual masturbation and to investigate any associations between mutual

masturbation recency and sexual satisfaction and sexual self-esteem. Paper 3 was exploratory in nature; I wanted to understand associations between key variables without any intervention, and used a cross-sectional survey with a correlational design.

Although the “couple” nature of the study was emphasized in advertisements and in the participant information sheet, a significant proportion of partners ( $n = 164$ ) did not complete the survey, leaving a large sample of participants who provided individual data. Consequently, it was decided to conduct an individual-level analysis using data from these participants. To enhance the individual-level sample with respect to gender and sexual orientation, I also included one randomly selected partner from each same-sex couple and all male partners from the mixed-sex couples in the larger study. Due to the nonindependence issue, only one member of the couple was included in the individual-level sample.

117 women and 151 men ( $M_{age} = 29.7$  years) were included in the individual-level analysis. To examine differences in reported recency of mutual masturbation experiences between women and men, a chi-square test of independence was run. To explore women’s and men’s (gender as independent variable) feelings about mutual masturbation (as outcome variable), and to examine associations between mutual masturbation recency (independent variable) and sexual satisfaction and sexual self-esteem (outcome variables), simple and multiple linear regressions were run. For demographic variables, simple univariable linear regression analyses were conducted to identify potential relationships with outcome variables. Significant variables with  $p < .05$  in univariable analyses were included as control variables in the final multiple linear regression models. An exploratory analysis was carried out using PROCESS v.4.2, Model 1 to identify the relevant moderator (gender) (Hayes, 2018).

### **1.2.8 Challenges of Conducting Research with Couples**

Although it has contextual and analytical advantages (Kenny et al., 2006; Muise et al., 2018), conducting research with couples has some challenges. Personally, I invested



more time, effort and research budget than I had planned. In terms of effort, I had to pause and revise the study and recruitment strategies during data collection due to the slow process of recruiting both partners of a couple. The ethics approval also needed to be amended accordingly. Financially, the use of social media to recruit couples was also slow and not as expected and so, I decided to use a paid participants recruitment platform (Prolific). This also influenced the timeline of the study and the total data collection lasted one year.

One of the biggest mistakes made was not to have a screening survey from the beginning because research nonparticipation in couple studies has frequently been attributed to partner unwillingness (Corsini-Munt et al., 2017). Although in the advertisements and information sheets it was emphasised that the study targeted couples who were both willing to participate in the study, I noticed low attendance from both partners. Consequently, after six months of data collection, the recruitment was also expanded to Prolific because the platform allows researchers to recruit couples with a pre-screening option targeting participants who report “participating together with a romantic partner on Prolific”. Additionally, with the screening survey created for the current study, participants were asked about their willingness to take part as couples in a study about “attitudes, beliefs and experiences on some sexuality-related topics, including solo and partnered sexual practices”. If both partners who took the screening reported willingness to participate as a couple and provided their partners’ Prolific id, they received the survey via Prolific.

### **1.2.9 Re-Visiting Variables After Data Collection**

After integrating the participants’ recruitment platform, Prolific, with the Qualtrics survey, I experienced some technical issues. Some of the questions were asked (displayed) based on answers to prior questions. However, after the integration, the logic of the response option changed due to a technical mistake, with display options based on gender, and I realised this after some time. This resulted in some missing variables: women’s

clitoral self-stimulation during partnered sex and sexual function variables were not completed by 29.1% of participants ( $n = 78$ ; 21 women, 57 men) or more for the clitoral stimulation measure.

Additionally, the general attitudes toward sexuality measure (the Sexual Opinion Survey-Short Form, Rye et al., 2011) was initially included as a control variable for Papers 2 and 3. However, it was dropped because the alpha fell under the unacceptable range: Cronbach's alphas in Papers 2 and 3 were (.42), and (.53), respectively.

Finally, as I successfully reached the minimum number of couples required to conduct the APIM, I decided to create two more research papers. Analyses including the Relationship Assessment Scale (RAS; Hendrick et al., 1998), The Emotional Intimacy Scale (EIS; Sinclair & Dowdy, 2005), the revised Sexual Self-Disclosure Questionnaire (designed by Byers & Demmons, 1989), the Dyadic Sexual Communication Scale (DSCS; Catania, 2011), and the Beliefs about Women's Vibrator Use Scale (WVS; Herbenick et al., 2011) will be reported in subsequent research papers.

## **Chapter 2**

### **2 Chapter 2 What does research tell us about women's experiences, motives and perceptions of masturbation within a relationship context?:**

#### **A systematic review of qualitative studies**

##### **2.1 Abstract**

This systematic review provides an overview of what qualitative research has revealed about partner-related factors around women's masturbation and explores how these factors relate to women's behaviour, perceptions, and motives towards masturbation. Eleven studies were identified and secondary thematic analysis was used for synthesis. Women's perceptions often focus on the (potential) negative influences of masturbation on current or future relationships. Motivations some women reported for masturbating due to partner-related factors were diverse. Findings suggested that some women modify their masturbation behaviour when in a relationship. The implications of these findings for sexual health educators and clinicians are discussed.

Keywords: women; masturbation; relationship; qualitative research; secondary thematic analysis

## 2.2 Introduction

Masturbation is the self-determined physical act of touching one's genitals or any part of one's body with conscious self-stimulation that may result in orgasm or pleasure (Bowman, 2017a). This self-stimulation may or may not involve the use of sex toys (Bowman, 2017a). Although mutual masturbation is often not very well defined, in the current review, mutual masturbation is defined as partner involvement or partner presence during self-stimulation, which may occur without, before, during, or after sexual intercourse.

### 2.2.1 The Prevalence of Women's Masturbation and Sex Toy Use

According to Fahs and Swank (2013, p. 667), greater recognition of the role of clitoral stimulation in women's pleasure and the emphasis on sexual self-reliance has helped promote the idea to "take pleasure into your hands" among women. Recent frequency estimates of women's reported masturbation experiences exceed 80% in middle- and high-income societies (Bowman, 2014; Burri & Carvalheira, 2019; Carvalheira & Leal, 2013; Herbenick et al., 2010). There has been less research investigating women's masturbation in lower income countries. The few studies that have explored this reported lower rates of masturbation compared to middle- and high-income countries, based on nationally representative (Das et al., 2009) or regional data (Chi et al., 2015; Younis et al., 2018). The estimated prevalence of women's reported masturbation in China ranges between 10% and 18% (Chi et al., 2015; Das et al., 2009). Younis et al. (2018) recently found that 53.3% of Egyptian women in their study reported masturbation. When comparing the frequency of masturbation among women of different sexual orientations, most studies have found that lesbian and other sexual minority women report masturbating more frequently than heterosexual women (Gerressu et al., 2008; Herbenick et al., 2010; Laumann et al., 1994).

Many women also masturbate with sex toys, both with partners and alone (Döring & Poeschl, 2020; Fahs & Swank, 2013; Herbenick et al., 2010). A nationally

representative U.S. study found that 40% of heterosexual-identified women reported using vibrators in partnered sex, and 45% did so while masturbating (Herbenick et al., 2010). Döring and Poeschl (2020) found that heterosexual-identified women in Germany reported using sex toys significantly more frequently while masturbating than men ( $N = 1,723$ ), and heterosexual men reported sex toy use in partnered sex (52%) more than during solo masturbation (37%). While Herbenick et al. (2011) noted that heterosexual women might have concerns about how their partners would react and some women in their study believed that a vibrator was intimidating to a partner, the majority of their male participants had positive feelings about women's vibrator use.

Although research has demonstrated consistent gender differences in some Western countries (including the United Kingdom, United States, Sweden, and Australia), with women reporting masturbating less often than men (Driemeyer et al., 2017; Gerressu et al., 2008; Herbenick et al., 2010; Laumann et al., 1994; Richters et al., 2014), the majority of women report engaging in self-pleasure at some point in their lives, even when involved in romantic relationships (Burri & Carvalheira, 2019; Gerressu et al., 2008; Herbenick et al., 2010). In the second British National Survey of Sexual Attitudes and Lifestyles (Natsal), women were more likely to masturbate when they were having partnered sexual activity, while this pattern was reversed among men (Gerressu et al., 2008). Other studies have suggested that for men, masturbation is frequently perceived and experienced as a substitute for partnered sex, but for women masturbation seems to complement partnered sex within a wider sexual repertoire (Burri & Carvalheira, 2019; Carvalheira & Leal, 2013; Regnerus et al., 2017).

### **2.2.2 Reasons for Masturbating**

Research demonstrates a huge diversity in women's motivations to masturbate, with different motives existing at different times across the lifespan. Women report masturbating to release sexual tension, for pleasure, to relax, to cope with stress, to get to sleep, as a substitute for partnered sex, and to learn about their own anatomy, desires, and

sexual likes and dislikes (Bowman, 2014; Burri & Carvalheira, 2019; Carvalheira & Leal, 2013; Clifford, 1978; Das, 2007; Das et al., 2009; Fahs & Frank, 2014; Goldey et al., 2016; Kaestle & Allen, 2011; Laumann et al., 1994; Philippsohn & Hartmann, 2009; Rowland, Kolba, et al., 2020). These diverse motives might help to explain the reverse sexual double standard regarding masturbation observed by Haus and Thompson (2020). They found that women who masturbated when in a relationship were rated as higher quality partners than men who masturbated when in a relationship. Their suggested explanation for this finding was participants' belief that women reported motives for masturbation based on both their own pleasure and intimacy with a partner, but men reported motives based only on their own desires and pleasures (Haus & Thompson, 2020).

### **2.2.3 Justification for This Review**

The reported frequency of orgasmic difficulties varies widely due to the subjective aspects of orgasm experience (Graham, 2010) and the lack of consistency in studies' methodology (Graham, 2010; Simons & Carey, 2001). Whether distress is included in the assessment also influences prevalence estimates (Hayes et al., 2006), since only a fairly small proportion of women with orgasm difficulties report associated distress (Mitchell et al., 2016; for a review, see Graham, 2010). The estimated frequency of female orgasmic difficulties ranges between 18% and 41%, depending on features such as severity, persistence over time, and culture (Graham, 2010; Hayes et al., 2006; Laumann et al., 2005). While this review focused on the experiences of women of any sexual orientation, there is also evidence of sexual orientation differences in orgasm, suggesting that heterosexual women report sexual activity without orgasm more frequently than bisexual and lesbian women (Blair et al., 2018; Frederick et al., 2018; Garcia et al., 2014).

Female masturbation - sometimes including the use of vibrators - is often recommended by therapists treating women with orgasmic and arousal problems (LoPiccolo & Lobitz, 1972; McMullen & Rosen, 1979; Meston et al., 2004; Reisinger, 1974, 1978; Wylie, 2007). Although masturbation appears to be an effective treatment

technique for women with orgasmic difficulties, various problems, including lack of knowledge or understanding of the role of self-pleasure among women and/or their partner, might affect the success rate of interventions (LoPiccolo & Lobitz, 1972; Mosher, 1979).

Importantly, studies find that women still receive contradictory messages about masturbation e.g., that they should have self-control regarding masturbation (Hogarth & Ingham, 2009; Kaestle & Allen, 2011). The source of negativity and stigma around female solitary masturbation is sometimes seen as related to women's own concerns (e.g., individual embarrassment), but cannot be separated from societal attitudes. There appears to be a societal attribution that men are the source of female orgasm, and an idea that "you should not have to do that" (i.e., pleasure yourself) because you should have a partner to "give you an orgasm" (Fahs, 2011, pp.50-53; Kraus, 2017).

Little is known about how women navigate the role of masturbation in their relationships. Although qualitative research on women's masturbation has been done (Fahs & Frank, 2014; Goldey et al., 2016; Hogarth & Ingham, 2009), little is known about how, and to what extent, women's experiences with masturbation are related to partners' perceptions, how partners might influence women's behaviour (to engage in or avoid masturbation), and how much couples communicate about women's masturbation.

### ***2.2.3.1 Women's Pleasure within Relationships***

Traditionally, orgasms have been perceived as the goal of sex and a sign of "healthy" sexuality and relationships. Although social norms and cultural ideas about healthy sexuality and sexual satisfaction often include orgasm in partnered sexual activity (Bell & McClelland, 2017), many young women report not experiencing orgasm during penile-vaginal intercourse (Bell & McClelland, 2017; Blair et al., 2018; Graham, 2010; Herbenick et al., 2018; Wade et al., 2005; for a review, see West et al., 2004). In a cross-sectional study of women aged 18 to 94 in the US ( $N = 1,055$ ), Herbenick et al. (2018) found that 36.6% reported clitoral stimulation was necessary to reach orgasm during sexual intercourse. Considering diverse preferred techniques for clitoral stimulation, this requires

multifaceted communication with a partner (Herbenick et al., 2018; Towne, 2019). It is noteworthy, then, that women who have difficulty experiencing orgasm have reported problematic communication with partners about sexual activities linked to direct clitoral stimulation (Kelly et al., 2004).

Important aspects related to the prioritisation of a partner's concerns over women's own pleasure were highlighted by Salisbury and Fisher (2014). In this qualitative study, young heterosexual women described a tendency to refrain from discussing the need for clitoral stimulation due to the fear of their partner's judgement. Similarly, Nicolson and Burr (2003) highlighted that the women in their study (aged 19-60, mean age = 28.6 years) expressed less concern about having an orgasm during sexual intercourse for themselves than for the sake of their partner. In an experimental study with men ( $N = 810$ ), Chadwick and van Anders (2017) reported that despite greater attention to women's pleasure, men's concerns regarding women's orgasms may be in line with societal expectations that prioritise men's masculinity. Heterosexual women's descriptions of feeling pressured to experience orgasm with a male partner (Fahs, 2011, pp.53-55; Salisbury & Fisher, 2014), or men's perceived achievement of masculinity resulting from a woman's orgasm (Chadwick & van Anders, 2017), can partially be explained through sexual scripts. Established sexual scripts might lead women to compromise their own sexuality as a means of maintaining a strong relationship with a partner rather than achieving their own sexual pleasure (Wiederman, 2005). Traditional sexual scripts and the sexual double standard, however, do seem to be changing, and may now be more influential at the cultural than at the dyadic level (Masters et al., 2013).

Research has shown that masturbation is one of the most common sources of orgasm among young women (Smith et al., 1996; Wade et al., 2005). Rowland et al. (2019) recently found that women reported greater orgasmic pleasure during partnered sexual activity than masturbation; however, women who experienced orgasmic difficulties reported lower orgasmic pleasure during partnered sex than women who did not



experience orgasm difficulties ( $N = 2059$ , age range 18-90 (mean = 28.8), samples from the USA and Hungary). More recently, Rowland, Kolba, et al. (2020) reported that higher masturbation frequency was associated with lower orgasm difficulty and greater orgasmic pleasure among women ( $N = 2215$ , mean age = 28.8 years). As noted by Coleman (2003), self-pleasure can contribute to a sense of control and autonomy over one's own body, and eventually might improve the capacity for intimacy with a partner because of increased sexual self-identity and sexual self-esteem. Yet, Kraus (2017) found that for many women in a relationship, masturbation remains taboo partly because of the fear that partners may misinterpret female masturbation as a sign of their own inability to meet their partner's needs.

There is a particular gap in the literature on men's perceptions and reactions to female masturbation, both solitary and mutual, within the relationship context. Women's perceptions and experiences with their partner, and how men react towards their partner's masturbation experience, are little understood.

#### **2.2.4 Why is this Review Important?**

A growing body of literature has emerged on female self-pleasure (Bowman, 2014; Burri & Carvalheira, 2019; Fahs & Frank, 2014, Goldey et al., 2016). However, less research has focused on women's experiences and perceptions of masturbation within a relationship context. To the authors' knowledge, this review is the first to provide an overview of the qualitative research on partners' reactions and views on women's masturbation and sex toy use. Better understanding of women's ideas of their partner's perceptions of female masturbation in the context of relationships, and of positive and negative associations with these, might help women to construct positive associations with pleasure seeking and sexual desire (Zimmer-Gembeck et al., 2011).

Masturbation techniques illustrate how women stimulate themselves to experience pleasure or orgasm and these techniques might help inform women and men about clitoral stimulation methods during partnered sex. The findings of this review might be useful to

improve outcomes in sex therapy, as the meanings that are associated with female masturbation might affect the success rate of therapy that utilizes masturbation.

Additionally, integrating the accumulated findings on women's perceptions of partner views and women's experiences of partner reactions can be used to inform interventions which provide educational solutions, instead of pharmaceutical solutions, and which can target men, women, and couples to overcome orgasm difficulties and increase overall sexual satisfaction.

### **2.2.5 Objectives of Review**

The main aims of the present review were to determine what qualitative research has revealed about women's self-pleasure within a relationship context, focusing on partner-related factors (such as women's perceptions of their partners' ideas and their partners' reactions, if experienced) around women's masturbation, and to explore how these relate to women's behaviours and perceptions of masturbation.

The present review sought to answer the following research questions:

(1) What has qualitative research revealed about women's perceptions of their partner's views on women's masturbation?

(2) What has qualitative research revealed about the relationship- and/or partner-related motives for experiencing self-pleasure among women?

(3) What has qualitative research revealed about women's experiences of masturbation when in a relationship and their partner's reactions to women's solitary and/or mutual masturbation?

(4) What is the overall quality of the qualitative research in this field?

The secondary thematic analysis aimed to answer the following research question:

(1) How do women's experiences and perceptions of relationships, and of their partners' ideas, feelings and/or reactions, relate to women's perceptions, behaviours, and motives regarding masturbation?

## 2.3 Method

### 2.3.1 Selection Criteria

Studies were included in the review if they:

- were written in English
- were published prior to October 2019 (no time limit for the earliest study)
- were primary research studies (not systematic reviews, editorials, commentaries, or theoretical articles)
- included adult women of any sexual orientation over 18 years old as participants
- explored women's experiences of, or motivations for, female solo masturbation
- used a qualitative method of data collection and analysis

Studies were excluded if they:

- included only young women under 18 as participants
- explored women's self-stimulation as a treatment component for acute or chronic medical conditions (e.g., stimulation or vibrator use following treatment of gynaecological cancer, or dilator use as a treatment of vaginismus), without concentrating on the pleasure aspects of masturbation or sexual enjoyment of women
- did not assess or report on women's perceptions of their partner's ideas, or women's experience of their partner's reactions to female solo masturbation, or what partner-related factors influenced women's motivation to experience self-pleasure

### 2.3.2 Search Strategies

Searches were conducted on the PsycINFO, Medline, Embase, and CINAHL databases. Additional exploration of the grey literature was conducted and ProQuest Dissertations & Thesis Global™ was searched to obtain collections of doctoral dissertations from around the world. The key words used for searches are presented in

Table 1 (a detailed table on the search strategy can be found in the online supplementary material).

**Table 2.1**

*The Key Terms Which Were Searched Under the Default Field, Which Searches Abstracts, Authors, Subject Headings, Titles and Keywords*

Category 1	Category 2	Category 3
solo-sex OR self		qualitative OR ethnograph* OR phenomenol*
pleasur* OR	wom? n or	OR ethnonurs* OR grounded theor* OR
masturba* OR	female*	purposive sample OR hermeneutic* OR
sex toy* OR		heuristic* OR semiotics OR life experiences
vibrator* OR self AND	AND	OR cluster sample OR action research OR
stimulation OR		observational method OR content analysis
self-stimulation		OR thematic analysis OR constant
OR solo		comparative method OR field stud* OR
masturba* OR		theoretical sample OR discourse analysis OR
self-touching		focus group* OR ethnological research OR
		ethnomethodolog* OR interview*

### 2.3.3 Selection of Studies

The reference manager software EndNote was used to assess the articles for relevance. Some articles were excluded based on their title if they clearly did not meet inclusion criteria. Studies with unclear titles that lacked abstracts were obtained for a full text review. The first author made evaluations about screening and full text reading, and after the initial screening, decisions on study eligibility were made with a second coder, an experienced qualitative researcher, who reviewed half of the articles that required full text review. After completing full-text reading, any uncertainties when deciding which papers were eligible were discussed with one of the co-authors (CG) (for the list of articles chosen for full-text reading, see online supplementary file). As recommended by Moher et al. (2009), the selection process implementation is presented in Figure 1.

### 2.3.4 Quality Assessment

Although it is vital to consider and evaluate the methodology of qualitative studies (Dixon-Woods et al., 2004; Ring et al., 2011), there is no widely agreed method of evaluation (Carroll et al., 2011; Daly et al., 2007; Dixon-Woods et al., 2006; Thomas & Harden, 2008). The general consensus is that some assessment is required to establish the possible influence of a study's quality on the findings of the review, to avoid over-reliance or under-reliance on certain findings, and to reduce the possibility of researcher bias (Carroll et al., 2011; Dixon-Woods et al., 2007; Dixon-Woods et al., 2006; Thomas & Harden, 2008).

In this review, a standardized tool, The National Institute for Health and Care Excellence's checklist (NICE, 2012), was used to assess the methodological limitations and strengths of the included studies. The checklist has been successfully used in several recent qualitative reviews (e.g., Bradbury et al., 2018; Lui et al., 2018; Sinković & Towler, 2019). Each item in the checklist was assessed with three descriptive grades: ++ (positive), + (insufficient/unclear), or – (inadequate)); an overall grade was also assigned to each included study. Using NICE guidance, when deciding on an overall grade, a higher grade is recommended if the study fulfils “all or most of the checklist criteria,” and a medium grade is suggested if the study fulfils “some of the checklist criteria.” In order to score the highest grade (++), an article needs to score ++ (positive) on at least 10 out of the 14 criteria; ++ (positive) scores are needed on at least six to be assessed as a middle grade (+); lowest quality (-) articles score less than six positive grades (Sinković & Towler, 2019). A second coder independently rated three randomly chosen articles, and then the results were compared and the differences resolved through discussion. It is important to note that the results of the quality assessment did not have an impact on the exclusion of specific studies.

### 2.3.5 Synthesis of the Findings

In order to help readers consider the context of the primary studies (Thomas & Harden, 2008), structured summaries of each included study, describing the aims, sample, data collection method, data analysis method, and key findings are presented in Table 2.

Secondary thematic analysis (Thomas & Harden, 2008) was used to integrate the findings from the primary qualitative studies. While staying close to the primary data, secondary thematic analysis enables a researcher to conduct an interpretative synthesis (Dyer & das Nair, 2013; Thomas & Harden, 2008). Interpretative synthesis occurs at the final stage of the analysis and enables researchers to go beyond the content of the primary studies and generate new interpretive explanations (Thomas & Harden, 2008).

The verbatim findings were organized and extracted using NVivo software, but the analyses were completed using both NVivo and by hand using highlighters. The findings or results sections of the study reports were counted as data (Dyer & das Nair, 2013; Thomas & Harden, 2008). The first author coded each line of the results section of each study report, including the participants' quotes and authors' interpretations related to the review questions according to their meaning and content (Thomas & Harden, 2008). During this stage, line-by-line coding of the findings of the primary studies was conducted, and every sentence situated within the objectives of this review had at least one code applied.

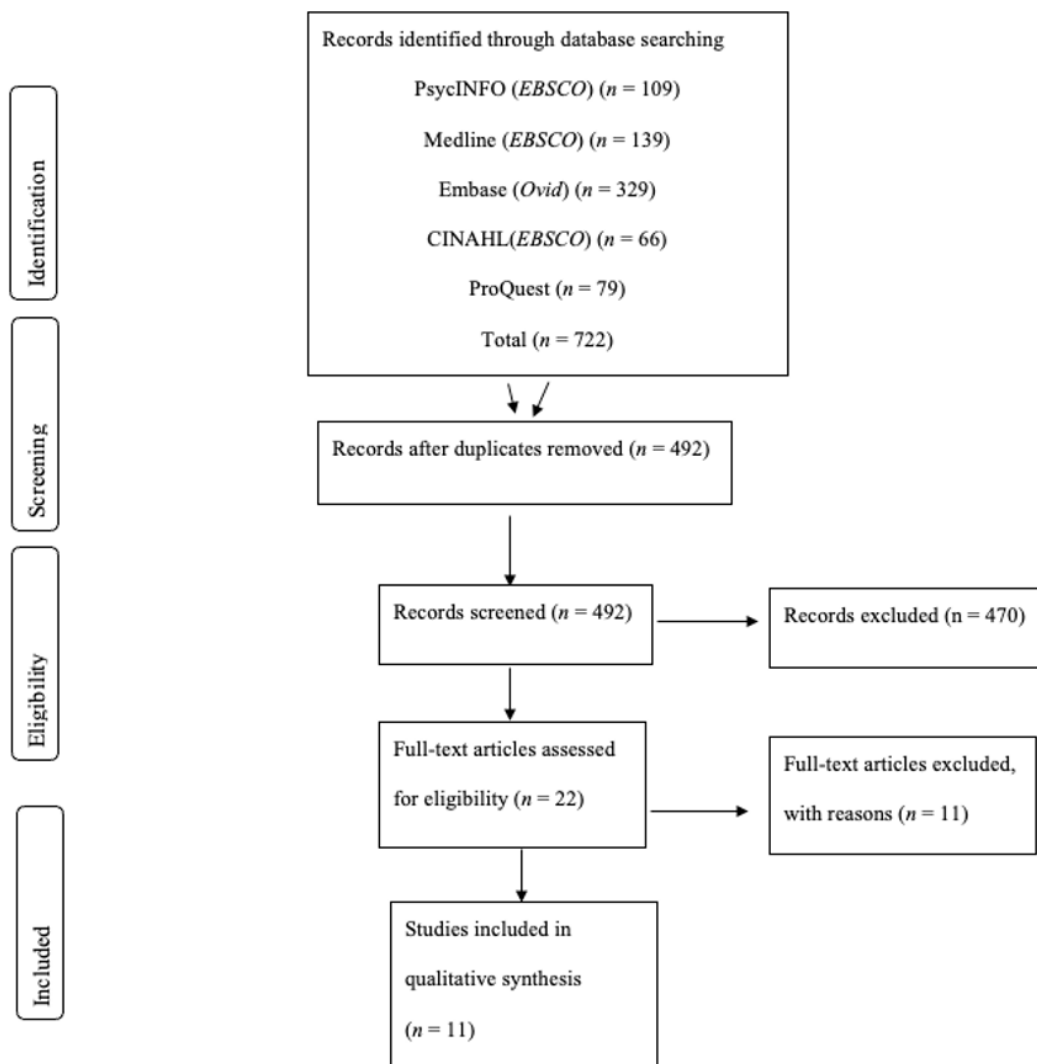
In the next stage, free codes were generated into related areas to build up the descriptive themes. The coding lists and descriptive themes were examined in the primary studies to check for consistency, and to see if any changes or additional codes were needed. A total of 16 initial codes were created. Then, the codes were examined and grouped according to their similarities and differences. The final coding process resulted in three structures (current or future partner-related motives, perceptions of partner's ideas regarding women's masturbation, and experience when in a relationship and reactions from partner), with several sub-codes used to organize a total of seven descriptive themes.

In the final stage, descriptive themes were organized to create analytical themes. A draft summary of the themes was written by the first author, and the second reviewer commented on the draft. The final version was agreed by both reviewers. The findings of primary studies were combined by listing the themes which described women's experiences and perceptions of masturbation when in a relationship to explore how partner-related factors relate to women's behaviour and motives to avoid or engage in masturbation. The descriptive themes which resulted from the inductive analysis of the primary studies were central to "going beyond" the content of the original studies (Thomas & Harden, 2008). The reviewer then considered the changes in women's views and experiences of masturbation when in a relationship. Throughout this process, analytical themes started to develop, and three such themes were created (see Results).

## **2.4 Results**

The initial search identified 721 articles; 229 of these articles were excluded because they were duplicates. Most of the studies were excluded following a screening of the titles and abstracts (see PRISMA flow-chart, Figure 1).

**Figure 2.1**  
*The Selection Process Flow Chart*



*Note.* The number of studies excluded at full-text review as per exclusion criteria was 11. For the ‘List of Papers Identified for Full Text Reading with Reasons Why Excluded’, see Appendix A.

Table 2 summarizes the characteristics of the 11 articles included in this review. Most of the research was published in peer-reviewed journals; three of the selected studies were unpublished doctoral dissertations (Bowman, 2017b; Frank, 2014; Hong, 2004). The earliest study was published in 2004 (median year 2014), and most studies were conducted in the U.S. (nine articles). The most common method for data collection was interviews (used in nine articles). Thematic analysis (four articles) and grounded theory (four articles) were the most commonly used methods in the analysis.



**Table 2.2**

*Characteristics of the Qualitative Research on Women's Experiences and Perceptions of Masturbation*

Author(s) and year	Aim	Participants	Location	Data collection method	Data analysis method	Key findings
Bowman, 2017	Investigate women's solo masturbation experiences and how do social power and embodied knowledge interact to inform women's experiences	30 women Aged 25-35 Mean age=30  Self-reported sexual orientation: 20=heterosexual, 5=queer, 3=lesbian, 2=bisexual, 1=pansexual, 2=other  55% White, ethnically diverse  Relationship status: 20= in relationship, 10=single	The New York City metro area	Face-to-face semi-structured interviews	A combination of narrative and thematic analyses (Braun & Clarke, 2006; Brown & Gilligan, 1992; Riesman, 1993)	<ul style="list-style-type: none"> <li>- "I'm Like Really Lost Here":</li> <li>- 'Confusion Arising from a Tension between Embodied Pleasure and Discursive Shame',</li> <li>- 'Confusion Arising from Masturbation Experiences Not Being What Women Expected': (a) 'Is this what masturbation is supposed to feel like?' (b) 'Am I doing this right?' (c) 'Is something wrong with me?'</li> <li>- 'Masturbation is an Aspect of Sexuality, So There Must be Something Negative About It': (a) 'Masturbation is immoral' (b) 'Women who masturbate are on the verge of being out of control or excessive' (c) 'Masturbation must have major consequences' (d). 'Masturbation could affect current or future sexual partners'</li> <li>- "It Was Just Something that Felt Good"</li> <li>- 'Self-Discovery of Masturbation as a Free-Floating Embodied Sensation'</li> <li>- 'Shifting from a Free-Floating and Embodied to a Sexual Understanding of Masturbation'</li> <li>- "It Opened Some Kind of Door for Me"</li> <li>- 'Explicitly Rejecting Shaming Messages Learning New Information': (a) 'Independent learning' (b) 'Social learning'</li> <li>- 'Listening to One's Body': (a) 'Embodied learning and discovery' (b) 'Embodied agency and empowerment'</li> </ul>
Fahs & Frank, 2014	Explore women's techniques, feelings, ideas and experiences regarding masturbation Explore pros and cons of the	20 women Mean age=34, SD=13.35  Self-reported sexual orientation: 12=het erosexual,	Southwest ern United States	Semi-structured interviews	Thematic analysis (Braun & Clarke, 2006)	<ul style="list-style-type: none"> <li>Five themes;</li> <li>- "Assumptions that most women self-penetrate during masturbation even when primarily using clitoral stimulation"</li> <li>- "Masturbation as sexual labour"</li> <li>- "Masturbation as a threat to male dominance"</li> <li>- "Masturbation as routine tension release"</li> <li>- "Masturbation as a source of joy, fun, and pleasure"</li> </ul>

Author(s) and year	Aim	Participants	Location	Data collection method	Data analysis method	Key findings
Fahs & Swank, 2013	<p>invisibility of women's masturbation</p> <p>Explore women's subjective feelings and narratives about using sex toys across sexual identity boundaries and the meaning of sex toys in their sexual repertoire (both single and partnered)</p>	<p>6=bisexual, 2=lesbian</p> <p>55% White, ethnically diverse</p> <p>20 women</p> <p>Aged 18-59</p> <p>Self-reported sexual orientation: 12=heterosexual, 6=bisexual, 2=lesbian</p> <p>55% White, ethnically diverse</p>	Southwest ern United States	Semi-structured interviews	Thematic analysis (Braun & Clarke, 2006)	<p>Six themes emerged;</p> <ul style="list-style-type: none"> <li>- "Emphasis on non-penetrative use of sex toys"</li> <li>- "Embarrassment about disclosing use to partner"</li> <li>- "Personifying vibrators (and dildos) as male"</li> <li>- "Coercion and lack of power when using sex toys"</li> <li>- "Embracing sex toys as campy, fun, and subversive"</li> <li>- "Resistance to sex toys as impersonal or artificial"</li> </ul>
Frank, 2014	<p>Understand how gender and sexuality discourses affect women's masturbation experiences, and to explore women's masturbation discourses</p>	<p>109 women (college students)</p> <p>Aged 18-32</p> <p>Self-reported sexual orientation: 82= heterosexual, 12= bisexual, 6= lesbian, 9=other</p> <p>57.8% White, ethnically diverse</p>	Arizona and Michigan	<p>Triangulation data collection;</p> <p>One-on-one semi-structured interviews, one-on-one focus groups, journals, and questionnaires</p>	Grounded theory (Strauss & Corbin, 1998)	<ul style="list-style-type: none"> <li>- "Learning the Dominant Cultural Discourses and Silences Around Female (Self-) Pleasure"</li> <li>School, Parents, Religious Communities, Peers, Mainstream Media:                             <ul style="list-style-type: none"> <li>(a) Discursive silence, (b) Explicitly prohibitive masturbation discourses, (c) Heteronormative discourses</li> </ul> </li> <li>- "The Consequences of Internalizing Hegemonic Sexuality Discourses for Young Women's Experiences of Sexual Self-(Dis)Pleasure"</li> <li>'Masturbation as sin'</li> <li>'Female masturbation as (secular) stigma'</li> <li>'Female masturbation and heteronormativity'</li> <li>'Female masturbation and the "pleasure imperative'</li> <li>- "Challenging and Overcoming Internalized Masturbation Ideologies"</li> <li>"Gaining intellectual masturbation knowledge"</li> <li>"Taking active steps to discuss and engage in masturbation"</li> <li>- "The Benefits of Normalizing Female Masturbation"</li> </ul>

Author(s) and year	Aim	Participants	Location	Data collection method	Data analysis method	Key findings
Goldey et al., 2016	Explore how heterosexual and queer women define sexual pleasure during partnered and solitary experiences	72 women, 1 bigender participant Aged 18-64 Self-reported sexual orientation: 40=heterosexual, 12=bisexual, 13=lesbian, 7=queer, 1=gay  63.89% White, ethnically diverse Relationship status: 21=single, 11=dating, 40=in relationship	University of Michigan	13 Focus groups	Thematic analysis (Boyatzis, 1998; Braun & Clarke, 2006)	Developing an embodied understanding of female sexuality Claiming the right to solitary sexual pleasure Masturbation as a tool for improving partnered agency - "Awareness of and challenging pleasure double standards" -Solitary Pleasure "All About Me": Autonomy, "If You're Horny and You Don't Have Anybody": Compensation, Maintenance, Regulation -Partnered Pleasure "My Ultimate Goal Is to Get Them Off": Partner's Pleasure, "The Shared Vulnerability": Trust, Feeling desired, Closeness - Overlap Between Solitary and Partnered Pleasure, Exploration, Feeling of getting outside oneself, - Social Location and Experiences of Pleasure, Sexual identity and entitlement to pleasure, Age and shifts over time
Hong, 2004	Investigate the influence of a discourse of pleasure on sexual resilience and sexual health, and to identify external and internal protective factors towards sexual resilience	25 women Aged 18-22 (inclusion of women who had had first or early negative partner sex experiences)  Self-reported sexual orientation: 22=heterosexual, 1=bisexual, 2=ambiguous	The United States	Face-to-face semi-structured interviews	Constructivist grounded theory (Charmaz, 2000)	- "Relevant Sexual Behaviours and Sexual Messages" 'What constitutes a negative sexual experience?': (a) "Objectively" Negative Events, (b) "Contextually" Negative Events 'Key Messages Regarding Female Sexuality' (1) 'Young girls need to be protected from becoming women', (2) 'Women are either "prudes" or "sluts."', (3) 'Women should please others, not themselves', (4) 'Women are expected to behave like women', (5) 'Becoming a woman is a scary business' - "Sexual Resilience" 'What does sexual resilience look like among young college women?': - 'The numbing of the mind: creating distance' - 'Rationalizations and negative expectations' - 'Assigning blame'

Author(s) and year	Aim	Participants	Location	Data collection method	Data analysis method	Key findings
		52% White  Other inclusion criteria: full-time student, single/never married				<ul style="list-style-type: none"> <li>- ‘Asserting oneself’</li> <li>- ‘Being selective about partners’</li> <li>- ‘Challenging the female stereotype’</li> <li>- “The Discourse of Pleasure”</li> <li>‘Where, if at all, do women learn about sexual pleasure?’</li> <li>(a)The role of parents, (b)The role of the media</li> <li>‘What do women learn about sexual pleasure?’</li> <li>‘Masturbation is a male domain’</li> <li>‘Female sexual pleasure comes with relationship sex’</li> <li>‘Women who do seek sexual self-pleasure have a lot to hide’</li> <li>‘Types of Masturbators’</li> <li>‘Motivations for and attitudes towards masturbation’</li> <li>‘Likelihood of identifying orgasm experience’</li> <li>‘Making false distinctions between types of orgasm’</li> <li>‘Intention to achieve pleasurable partner sex’</li> <li>‘Real’ sex as penile-vaginal intercourse</li> <li>What is ‘wrong’ with masturbation?</li> </ul>
Huong & Liamputtong, 2018	To investigate women’s perceptions and experiences of masturbation	20 Vietnamese heterosexual women (married with children) aged 25-40 (other inclusion criteria: have a college or higher degree, be in salaried employment)	Hanoi, Vietnam	Face-to-face semi-structured interviews (60 to 90 minutes)	Thematic analysis (Liamputtong, 2013)	
Kaestle & Allen, 2011	Explore how young adults have learned and currently perceive masturbation	72 college students (56 women, 16 men) Aged 18-24  72% White, ethnically diverse	Southeastern United States	Written narratives	Grounded theory (Charmaz, 2006; Corbin & Strauss, 2008)	<ul style="list-style-type: none"> <li>- “Social contexts for learning about masturbation”; Silent families, Peers (teaching and being taught), School settings, Partners, Media, Erotic aids</li> <li>- “It Felt So Good but I Felt So Horrible: Learning the Contradiction”, ‘Shaming strategies’, ‘Trying not to do it’, ‘Masturbation is a gendered subject’</li> <li>- “Current discourses about masturbation”</li> </ul>

Author(s) and year	Aim	Participants	Location	Data collection method	Data analysis method	Key findings
Marcus, 2011	Examine behavioural and attitudinal changes and expectations after experiencing a vibrator	17 heterosexual women aged 23-55 58.82% (10) White, 41.18% (7) African American	New York	Face-to-face interviews (1-2 hours)	Grounded theory ( <i>reference is not reported</i> )	<p>‘Masturbation is wrong or stigmatized (I Will Never Accept It or I Am Still Conflicted)’,                      ‘Normalization: masturbation is natural or comfortable’, ‘Masturbation is critical to sexual health’</p> <p>Six areas addressed;                      - “The change in orgasmic patterns”                      - “The idea of introducing an outside object into sexual experience”                      - “A concern about dependency on a vibrator”                      - “Questions about entitlement to an object”                      - “Vibrator affects relationship with a partner”                      - “Changing attitudes towards sexual activities and masturbation”</p>
Towne, 2019	Explore how women acquired orgasmic clitoral stimulation during partnered sex	Mean lengths of participants’ relationship=11 years 15 women Aged 23-67 53.33% White, ethnically diverse (women who have had at least one experience of penile-vaginal intercourse with clitoral stimulation resulting in her orgasm were primary participants)	The United States	Semi-structured interviews (face-to-face or via video call)	Phenomenological methods (Moustakas, 1994)	<p>Three major themes;                      - “Masturbating to orgasm”                      - “Applying masturbation techniques to partnered sex”                      - “Clitoral stimulation concurrent with PVI leading to female orgasm”</p>

Author(s) and year	Aim	Participants	Location	Data collection method	Data analysis method	Key findings
Yuxin & Ying, 2009	Explore how women narrate, experience and perceive masturbation	4 men (partners of women participants) Aged 24-54 40 young heterosexual Chinese women Aged 22-39	Shanghai China	In-depth interviews	<i>Not reported</i>	<ul style="list-style-type: none"> <li>- “Women with masturbation stories”</li> <li>‘Masturbation as a way to fulfill the physical needs of a virgin’</li> <li>‘Masturbation as a way of loving oneself’</li> <li>‘Masturbation as a way to remain faithful or to develop intimacy’</li> <li>- “Women with comments on masturbation”</li> <li>‘Masturbation is not a necessary pleasure for a single girl’</li> <li>‘Masturbation as substitute for intercourse’</li> <li>‘Masturbation as a pleasure that can be good or bad’</li> <li>- “No comments group”</li> </ul>

### 2.4.1 Quality Assessment

The quality assessment was based on the report and not on the research itself (Dixon-Woods et al., 2004; Sinković & Towler, 2019). The quality of the included studies was relatively high; the majority of the NICE checklist items was met by six of the studies and these scored the highest grade ++ (positive). Only three studies failed to fulfil the majority of the NICE checklist items and these were scored as inadequate. The results of the assessment are presented in Table 3.

**Table 2.3**

*Quality Scores of Articles (N = 11) for Each Item on NICE Quality Assessment*

NICE Checklist Items	Bowman, 2017	Fahs & Frank, 2014	Fahs & Swank, 2013	Frank, 2014	Goldey et al., 2016	Hong, 2004	Huong & Liamputtong 2018	Kaestle & Allen, 2011	Marcus, 2011	Towne, 2017	Yuxin & Ying, 2009
Is a qualitative approach appropriate?		++	++	++	++	++	++	++	++	++	++
Is the study clear in what it seeks to do?	++	++	++	++	++	++	++	++	++	-	++
How defensible/rigorous is the research design/methodology?	++	++	++	++	++	++	++	+	+	-	++
How well was the data collection carried out?	++	+	+	++	++	++	++	-	+	+	-
Is the role of the researcher clearly described?	++	-	-	+	+	-	-	-	-	++	-
Is the context clearly described?	++	+	++	+	++	++	++	+	+	-	+
Were the methods reliable?	-	-	-	++	++	-	-	-	-	++	-
Is the data analysis sufficiently rigorous?	++	++	++	++	++	++	++	-	++	-	++
Is the data 'rich'?	+	++	++	++	++	+	++	+	++	+	++
Is the analysis reliable?	+	+	+	+	++	+	+	-	++	-	+
Are the findings convincing?	+	++	++	++	++	++	++	+	++	+	++
Are the findings relevant to the aims of the study?	+	++	++	++	++	++	++	+	++	++	++
Conclusions	++	++	++	++	++	++	++	+	++	++	++
Ethics	++	+	++	++	++	++	++	+	+	+	+
Overall assessment	++	+	++	++	++	++	++	-	+	-	++

*Note.* NICE = National Institute for Health and Care Excellence.

The aims of the studies were clearly presented in all of the included articles (see Table 2). The 11 studies reported on data from a total of 425 women. The participants' age ranges varied; five studies recruited a broad age range (from 18 to over 50 years), in four

studies the participants were aged between 18 and 35, and in two studies women were aged between 22 and 40. Most studies described using self-selected methods for recruitment; five studies used purposive sampling to maximize diversity (Bowman, 2017b; Fahs & Frank, 2014; Fahs & Swank, 2013; Frank, 2014; Hong, 2004). Among these, racial/ethnic minority women and sexual minority women were intentionally oversampled in two studies (Fahs & Frank, 2014; Fahs & Swank, 2013). Two studies did not provide information on their recruitment and sampling strategy (Huong & Liamputtong, 2018; Yuxin & Ying, 2009). In five studies, interviews and focus groups were carried out at on-campus locations (Bowman, 2017b; Frank, 2014; Goldey et al., 2016), or at a site chosen by the participants (Hong, 2004; Huong & Liamputtong, 2018); five articles did not report the location of interviews (Fahs & Frank, 2014; Fahs & Swank, 2013; Marcus, 2011; Towne, 2019; Yuxin & Ying, 2009). Six articles lacked information on how the data were transcribed verbatim, or by whom (Fahs & Frank, 2014; Fahs & Swank, 2013; Marcus, 2011; Huong & Liamputtong, 2018; Towne, 2019; Yuxin & Ying, 2009). Only one study reported that the participants (10 out of 15) had given feedback on the report of their transcripts (Towne, 2019).

Triangulation was observed in one study which used face-to-face semi-structured interviews, focus groups, and written narratives from sexuality journals (Frank, 2014). In the majority of the articles (8 of 11), the content of the topic guide was defined or example questions were given which helped to assess whether the study was designed to address the aims of the research; the topic guide was not presented in three articles (Huong & Liamputtong, 2018; Towne, 2019; Yuxin & Ying, 2009).

The type of analysis (methodological approach or underlying theoretical framework) was reported in 10/11 studies (exception: Yuxin & Ying, 2009) (see Table 2). A systematic and clear procedure which allows the reader to assess how the themes and concepts originated from the data was not provided in three articles (Huong & Liamputtong, 2018; Marcus, 2011; Yuxin & Ying, 2009).



Considering the reliability of the analysis, most (6/11) articles were graded as “not sure/not reported (+)”. Coding and analysis were conducted by more than one researcher in four articles (Fahs & Frank, 2014; Fahs & Swank, 2013; Goldey et al., 2016; Kaestle & Allen, 2011). The role of the researcher and the researcher’s impact on the data collection and data analysis processes were critically considered in only two articles (Bowman, 2017b; Towne, 2019).

Original data in the form of direct quotations from participants were provided in all included studies. Despite the overall positive scores on the reporting of the findings, the referencing of quotations was rated as “not adequate (-)” for five articles; thus, further interpretation of these quotes should be done with caution.

While the confidentiality of the data and informed consent procedures were described in almost all (10/11) of the selected studies, four articles did not report review by an ethics committee (Fahs & Frank, 2014; Marcus, 2011; Huong & Liamputtong, 2018; Yuxin & Ying, 2009).

#### **2.4.2 Secondary Thematic Analysis**

From the original studies, codes were extracted and organized into three overarching themes. In the first thematic group, the themes around perceptions of women related to their partner’s views on women’s masturbation were organized. In the second thematic group, the themes around women’s motivation to masturbate when in a relationship and partner-related motives of women’s masturbation were categorized. In the third thematic group, the themes around women’s experiences of masturbation and/or sex toy use when in a relationship were categorized. These themes and sub-themes with the sources of evidence are presented in Table 4. Because of the length of the text, the majority of the illustrative quotes from primary studies are presented in the final coding manual (see online supplementary file).

**Table 2.4**  
*Sources of Themes*

Themes	Bowman, 2017	Fahs & Frank, 2014	Fahs & Swank, 2013	Frank, 2014	Goldey et al., 2016	Hong, 2004	Huong & Liamputtong 2018	Kaestle & Allen, 2011	Marcus, 2011	Towne, 2017	Yuxin & Ying, 2009
<b>Women’s masturbation or use of sex toys might (n) affect current or potential relationships</b>	+	+		+		+	+	+	+		+
<b>Balancing sexual needs with self and partners</b>		+	+	+	+	+	+	+		+	+
<i>Substitute for partnered sex</i>		+		+	+	+	+	+			+
<i>If a woman did not reach orgasm with a partner</i>		+		+	+	+	+				
<i>If a partner was not around</i>				+	+	+	+				+
<i>If a woman is not in a relationship</i>				+	+	+		+			+
<i>A tool to enhance partnered sex and partnered intimacy</i>			+	+	+	+		+		+	+
<i>Exploration and intention to achieve pleasurable partnered sex</i>			+	+				+			+

Themes	Bowman, 2017	Fahs & Frank, 2014	Fahs & Swank, 2013	Frank, 2014	Goldey et al., 2016	Hong, 2004	Huong & Liamputtong 2018	Kaestle & Allen, 2011	Marcus, 2011	Towne, 2017	Yuxin & Ying, 2009
<i>A step to communicating successfully with their partner</i>				+	+	+		+		+	+
<b>Changes in women's masturbation behaviours and experiences with a partner</b>	+		+	+	+	+	+	+	+	+	
<i>Women modified their masturbation behaviour when in a relationship</i>	+			+	+	+	+		+		
<i>How to discuss/communicate with a partner?</i>				+		+			+	+	
<i>Partner's reactions</i>	+		+	+		+		+			

### *2.4.2.1 Women's Masturbation or Use of Sex Toys might affect Current or Potential Relationships*

Whether currently involved in a romantic relationship or not, women appear to have concerns about partners' perceptions regarding their masturbation behaviour. Some studies demonstrated that perceptions of partner's ideas regarding women's masturbation and use of sex toys seemed to affect some women's masturbation behaviour, as they believed that it might affect their (current or potential) partner's feelings and then the relationship itself (Frank, 2014; Hong, 2014; Marcus, 2011).

Most of the research demonstrated the perception of women's pleasure as being the role of men (Bowman, 2017b; Kaestle & Allen, 2011; Marcus, 2011; Yuxin & Ying, 2009). Some women seemed to internalise the idea that women should be sexual only in the context of a partner (Hong, 2004; Yuxin & Ying, 2009).

Yes, I almost did not want to take away his role in our making love because he gives me pleasure, and I didn't want to say, 'Ha ha, I want something that give[s] me more pleasure.' (Marcus, 2011)

My husband would try a lot of the positions we learnt from the movies. We even tried oral sex. But I didn't really like it. We just wanted to try something new. But I never think of masturbation. Why would a woman need to masturbate if she has a husband? Only the men who have no wives or who are separated from their wives do it. (Li li, age: 26) (Yuxin & Ying, 2009)

Some women believed that their orgasm should be "given" by their male partner when they are in a relationship, and that a women's masturbation might challenge men's role in relationships and men's ownership of women's orgasms; thus, men might feel left out of the process (Frank, 2014). Similarly, the idea of women's masturbation as a threat (or insult) to men's sense of sexual prowess was also reported in some of the selected articles (Frank, 2014; Fahs & Frank, 2014; Huong & Liamputtong, 2018; Marcus, 2011). Another perceived threat of women's masturbation to their partners was related to the frequency of sex toy use, even when being used with a partner (Marcus, 2011).

No. There are things that he is very sensitive about. I think if we had used it periodically [it would be okay], but not like every single time that we had sex. I think he would think that the thing is taking my place or she does not need me. You know, if we had sex and we

used it a lot, that will be [a] problem for him because, well, I think he would think that, you know, that's how he was raised, that she doesn't need me, you know. She can, she won't need me, [that she] can be pleased by the machine. (Marcus, 2011)

Right now, I do not really feel comfortable doing that [using the vibrator], in the room or with him watching with him. To me, it seems like it would mess with his manhood. I cannot really say what would happen if I handed him the vibrator after he came because I did not do that yet. He would definitely do it, but in his mind, he would say, maybe, yeah, 'I did not satisfy her' with his penis. (Marcus, 2011)

Similarly, some women believed that masturbation and sex toy use while in a relationship reflected either a bad relationship or the existence of problems in a relationship (Marcus, 2011; Yuxin & Ying, 2009). Perceived problems in a sexual relationship with a partner might include a lack of sexual competence in a partner, or unfulfilled and infrequent sexual experiences (Bowman, 2017b; Huong & Liamputtong, 2018; Marcus, 2011; Yuxin & Ying, 2009).

I can't imagine why some people need masturbation if they have sexual partners. They must be abnormal or they don't love each other at all. My husband used to do it when we were together. It made me feel sick. (Rose, age:33) (Yuxin & Ying, 2009)

Some women without a current partner perceived that future sexual interactions might be affected by orgasms experienced through masturbation or with a vibrator. Concerns about not being able to have the same satisfaction with a (future) partner and the fear of not being able to replicate/reproduce the orgasms acquired through masturbation during partnered sex were reported (Bowman, 2017b; Fahs & Frank, 2014; Frank, 2014).

Because Molly (18, white, heterosexual, Lutheran), for example, did not find her first intercourse experience to be enjoyable, she especially fears that the experience of independent masturbatory pleasure could result in future partnered sex feeling even more comparatively unsatisfactory. (Frank, 2014)

**Summary.** Regardless of relationship status, partner- and/or relationship-related concerns appeared to exist for some women due to the idea that *women's pleasure is men's role, and should be experienced when in a relationship*. If a woman is in a relationship but is masturbating, this might be perceived to signal a problem with the relationship or with one of the partners. As discussed below, while women's motives to masturbate were diverse, the beliefs that women's masturbation generally reflects an inadequacy in their partners'

sexual performance (unfulfilling partnered sex), and might affect a partner's feelings were common for some women. Although the sources of these messages were not always clear (and were not only from the partner), these ideas appeared to result in guilt, secrecy, and changes in masturbation patterns when in a relationship. Taken together, these narratives suggested that some women appeared to internalise the perceived negative effect of their masturbation on their relationship.

#### **2.4.2.2 *Balancing Sexual Needs with Self and Partners***

Partner- and/or relationships-related motives, for either current or possible future partners, were captured in women's narratives in the original studies. Two distinct aspects were identified: as a substitute for partnered sex and as enhancing partnered sex.

**Substitute for Partnered Sex.** The most common motive women reported for masturbation was to compensate for partnered sex, and the reasons for this substitution varied among women.

***If a Woman did not Reach Orgasm with a Partner.*** Some motives were due to the partner's performance, including lack of sexual competence (e.g., if partnered sex did not result in the woman's orgasm), lack of sexual knowledge (e.g., when a partner did not value the clitoris), and a partner's lack of attention to the woman's orgasm after his orgasm (Fahs & Frank, 2014; Frank, 2014; Goldey et al., 2016; Hong, 2004; Huong & Liamputtong).

[I]f we had had sex and then...um...then he climaxed before I did, then sometimes he would - usually he'd go take a shower after? And if I was close, then if [the vibrator] was right there (chuckles a little), then I just did it. Because I'm so close that - yeah! [How would you feel about doing that?] I'm just happy. Um... No, I'm not like upset at him or (chuckling) anything! (Uma) (Hong, 2004)

On the other hand, for some women, masturbation seemed to offer easier and/or better orgasms than partnered sex (Fahs & Frank, 2014; Frank, 2014; Goldey et al., 2016).

I actually think the most enjoyable sexual experiences I've had are by myself ... When I'm by myself it's more for me, and I know what I'm doing and what I want. And it's just ... better with myself. (Kara, 18, white, heterosexual, spiritual) (Frank, 2014)

Notably, some women reported feeling hindered by their partner during sexual intercourse (Frank, 2014).

I know how to get myself off, it's just my partner gets in the way of that a lot of time. (Dakota, 20, white, straight/bisexual, agnostic), (Frank, 2014)

***If a Partner was not Around.*** Sometimes masturbation served as a situational solution, a practical alternative when a sexual partner was not around or was unavailable due to time or distance (Goldey et al., 2016; Hong, 2004; Yuxin & Ying, 2009). Some women believed that one of the benefits of masturbation was helping them to remain faithful to their partner when in a relationship (Frank, 2014; Yuxin & Ying, 2009).

He always goes away for business trips. Sometimes we have to separate for two or three months. I will touch myself during that time. I joked to him that if I didn't know how to do it [masturbate] I might think of other possibilities. Men should understand that masturbation is a good way for women to love themselves when they are not with their partners. Actually, he told me that he uses the same way to comfort himself when he is alone. (Wei, 28-year-old) (Yuxin & Ying, 2009)

***If a Woman is not in a Relationship.*** Sometimes masturbation was a way to experience pleasure if women did not want to have a relationship or could not find a reliable partner. Some women were motivated to masturbate as it provided a break from the emotional stressors of a relationship (Frank, 2014).

Being by myself is a lot more fun ... In the shower I can get all the shit done and I'm super relaxed after, and it's good to be by myself without any emotional baggage that comes along with anybody, male or female. (Jordan, 21, white, straight/lesbian, culturally Jewish), (Frank, 2014)

Some women considered masturbation as a tool that would help them to develop a healthy relationship in the future. Masturbation was seen as a practical way to experience pleasure, an alternative that helped some single women avoid the possible physical (e.g., STIs, unplanned pregnancy) and emotional (e.g., regret) risks potentially associated with casual sex with an unfamiliar partner. In this context, women seem to become motivated and build up the confidence to say no to unwanted sexual activities (Frank, 2014; Goldey et al., 2016; Hong, 2004; Kaestle & Allen, 2011; Yuxin & Ying, 2009).

After sharing the various struggles and pains she had endured with various contraceptive methods, Ana (25, Latina, heterosexual, no religion), for example, says, "Oh, it was

terrible. I far prefer masturbation simply because of this. It's great at the time. Sex is awesome – until two weeks later when you're like, 'God, I hope I'm not pregnant'. You know?" In the process of trying to prevent pregnancy, partnered sex became so medicalized for Ana – so associated with doctor's visits, prescription medications, and physical and emotional pain – that she opted to forego any contraceptive use. (Frank, 2014)

Gaining emotional connection before starting a new relationship was another motive reported by some women (Frank, 2014; Hong, 2004). Some women noted that masturbation helped them to gain control over their sexual urges, allowing them to wait to have sex with a partner to whom they had an emotional connection.

Leah (19, white, heterosexual, Jewish): I never needed to go hook up with random guys and do those kinds of things, I think, because I had masturbation more than other girls. That was their sexual outlet, so I'm glad I had that to do and not be dependent on other people or put myself in certain situations, emotionally, and upset myself, because ... I have a need to trust somebody before I would think about doing anything with them. (Frank, 2014)

**A Tool to Enhance Partnered Sex and Partnered Intimacy.** Another common motive among women was the intention to communicate successfully with a partner about what was explored during masturbation in order to experience more pleasure and enhance partnered sex.

***Exploration and Intention to Experience Pleasurable Partnered Sex.*** Masturbation was considered a tool that provides an understanding of how the body works for some women. In this context, women were motivated to explore sexual likes and dislikes, their genital anatomy, and the unique stimulation techniques that they preferred (Frank, 2014; Kaestle & Allen, 2011; Yuxin & Ying, 2009). For example, some women reported valuing their clitoris more after they discovered their body through masturbation (Towne, 2019).

I have come to learn and accept that I must learn to pleasure myself before I can have anyone else truly pleasure me while having sex.... I feel that masturbation is an important part in exploring your own sexuality so you can know what you like and what you don't like.... Masturbation is really very important to having a healthy sexual life. (Kaestle & Allen, 2011)

Women seemed to be motivated to understand their sexual preferences, and masturbation appeared to help some women to gain this sexual awareness. For some, masturbation served as their first information on, and experience of orgasm, so that they



could then make sense of their orgasms during partnered sex (Frank, 2014; Yuxin & Ying, 2009). It seems that gaining sexual awareness first with oneself helps women to be more sexually aware with a partner.

If I had waited to learn that from partners it would have taken me forever, and I would probably be frustrated every other time that I had sex because I really would like to orgasm but can't. (Di, 27, Chixan@/Mestizo/brown, queer, atheist) (Frank, 2014)

Masturbation was also sometimes considered as a tool to enhance partnered sex, as it can enrich the sexual repertoire of couples (Fahs & Swank, 2013).

The dildo was kind of small. We got it in a kit from the adult store, so it doesn't really do anything. Neither of us (I guess you would say) wants it to be replicated like a penis, but it's just something different to do. It's kind of silly. Honestly, sometimes we'll be laughing because it's so funny. It's tiny and laughable and not meant to be taken seriously. (Cris, a 22-year-old white lesbian woman) (Fahs & Swank, 2013)

For some sexual minority women, one of the motives was to practice in order to please a potential partner (Frank, 2014).

young women could use what they do and do not enjoy during masturbation as a starting point for trying to please new female-bodied partners. (Di, 27, Chixan@/Mestizo/brown, queer, atheist) (Frank, 2014)

Sometimes, masturbation was a way to enhance partnered sex in terms of pleasing the male partner. In this way, without personal motives, women's masturbation appears to exist for the sake of the partner's pleasure rather than for personal pleasure (Fahs & Swank, 2013).

Usually when [masturbation] comes up, it's because, you know, guys like it. When it happens that I do it, it may be because the person I'm having sex with wasn't achieving satisfaction so—so in order to push him along, I would engage in that act, for him. (Jean, a 57-year-old White heterosexual woman) (Fahs & Swank, 2013)

***A Step to Communicating Successfully with their Partner.*** For some women who wanted to maximize their pleasure in a partnered context, the next step was to share their preferences with their partner (current or future). Masturbation helped these women feel comfortable with their body and gave them the confidence to communicate with a partner, as they could help or teach their partner how they experienced pleasure, or direct them during sex (Frank, 2014; Goldey et al., 2016; Hong, 2004; Kaestle & Allen, 2011; Yuxin

& Ying, 2009). The motive to teach their partner about how they experience orgasm was sometimes related to a perceived lack of knowledge among partners about this.

It is a great way of discovering your likes and dislikes... Masturbation is a much safer method of sexual expression and I have found that it has become much easier to communicate with both my partner and my girlfriends about sex. (Glenda) (Kaestle & Allen, 2011)

As Fei Fei said: The key to high quality sex is to know yourself first and then use this knowledge to teach your partner how to give you the greatest pleasure. It's ridiculous if you expect your partner to know you better than yourself ... (Yuxin & Ying, 2009)

I think I've learned something useful for when I actually do have sex and when I do get married, because ... if I don't know my body, how's a guy supposed to know that? Seriously. So you're having sex and you're like, "Why isn't this pleasurable? I'm having sex. I'm doing what I'm supposed to do..." So I think that would come in handy and I think that's probably for a healthier sexual relationship when I can actually be like "no, this is what you do." (Lauren, 20, white, heterosexual, Orthodox Jewish), (Frank, 2014)

For some women, masturbation was a helpful way to build up comfort and confidence to experience self-stimulation during partnered interaction (mutual masturbation), in order to have better/easier orgasms.

Casey (21, white, heterosexual, nondenominational Christian), knowing what she likes and wants always helps to "speed up the process" when she is trying to orgasm during sex. (Frank, 2014)

**Summary.** In the context of this review, the secondary analysis covered only the partner- and/or relationship-related motives for self-pleasure. For some women in a relationship, *balancing sexual needs with self* included motives for masturbating when a partner was not physically present. Another common motive for self-pleasure among young single women was developing emotionally and physically healthy relationships in the future, as masturbation provided relief from sexual tension, and pleasure, without having sex with an unfamiliar (and potentially risky) partner.

*Balancing sexual needs with others* covered women's diverse motives for masturbating. Sometimes self-pleasure served to provide women with orgasms if partnered sexual activity did not (generally without the partner knowing), sometimes it served to enhance partnered sexual activity, and sometimes it served to enhance men's arousal or excitement. Enhancing current or future partnered sex was also a common motive among

women, as masturbation was believed to help increase sexual awareness about sexual preferences which could then be transferred to partnered sex by communicating with and teaching a partner about what works in order to experience (better) orgasms (e.g., in relation to anatomy, sexual likes/dislikes, or stimulation techniques etc.).

#### **2.4.2.3 *Changes in Women's Masturbation Behaviours and Experiences with a Partner***

As discussed below, across different studies, women reported various experiences and feelings when in a relationship and diverse reactions from their partner related to their masturbation behaviour and use of sex toys.

**Women Modified their Masturbation Behaviour when in a Relationship.** Women seemed to modify their masturbation behaviour for the sake of their relationships. Some women in relationships tried to abstain from masturbation completely, some masturbated less frequently, and some avoided masturbation when their partner was around (Bowman, 2017b; Frank, 2014; Goldey et al., 2016; Hong, 2004). Not feeling comfortable enough to share their experiences with their (current or future) partner, the notions of women's orgasms being the man's role, and the idea that women should be sexual only in the context of a partner all appeared to contribute to these changes. Some women stopped masturbating entirely or temporarily because they did not want to offend or upset their partner or they did not want to get caught (Bowman, 2017b; Goldey et al., 2016).

Perceived or actual reactions from partners also resulted in changes in women's use of sex toys and masturbation behaviour. For example, some women modified their behaviour by limiting masturbation to times when they felt sure that they would not get caught by their partner, due to feelings of embarrassment (Bowman, 2017b; Hong, 2004).

K: I mean, I think, I feel like my husband isn't really, like, that open, so I feel like, like, I've caught him, but I feel like I would be embarrassed if he caught me, in a way? Um, so, I don't know. I, I think I kind of wait, until times when I know he's going to be gone for a certain amount of time um, or I know, like, where he is. Um, yeah. C: What do you think he would think if he were to catch you? Like, what would happen? K: I don't know. I mean, I feel like, [5 second pause] I don't know. I feel like he kind of, has a perspective a little bit about, like, that's something men do more. Um, yeah. And like, why, like, if we're in a relationship, why am I still doing that? (Kristy, White, Heterosexual, 27) (Bowman, 2017b)

What I use is a vibrator and it's not—to tell you the truth on that, I don't penetrate while masturbating. I just use it on—I go around it, I go around the clitoris and that's it. I don't even penetrate when I use the vibrator ... I'm embarrassed to tell my husband about masturbating. If he's on the computer I would even sneak to the back room and take the time just for myself to masturbate while he's in the front room, without even asking for help, or “hey babe, come watch.” For some reason, I am embarrassed to masturbate in front of him. (Keisha, a 34-year-old African American bisexual woman) (Bowman, 2017b)

The sexual script of women's pleasure being men's responsibility seems to have created complex attitudes. Some women seemed to believe that they were not supposed to experience any pleasure if it was not linked with partnered sex and this belief could create the feelings of cheating or feeling disloyal and guilty for some women (Frank, 2014; Goldey et al., 2016; Marcus, 2011). Some women felt that their fidelity might be questioned because of their fantasies during masturbation (Frank, 2014; Goldey et al., 2016).

For me, [orgasm] by myself is easier, but, I dunno, I'm married, and so, being married, for me, changed things, like...I almost feel like I'm cheating on my husband if I were to masturbate, I know that sounds kind a weird, but, so I don't engage in that without... (heterosexual woman in the 25–40 group) (Goldey et al., 2016)

Deb (22, white, lesbian, reform Jewish) also believes that masturbating to the fantasy of someone other than her current partner would feel like “one more step” closer to cheating. For this reason, she only thinks about her girlfriend during masturbation when she is in a relationship. (Frank, 2014)

Some women preferred to experience sex toy use or genital touching when with a partner rather than on their own (Frank, 2014; Marcus, 2011). Others were motivated to enrich their sexual repertoire with a partner when in a relationship, and this seems to overlap with the descriptive theme: “exploration and intention to experience pleasurable partnered sex”. Sharing masturbation experiences with a partner or including men in the process appeared to be helpful for some women because the partner was involved, and thus experiencing pleasure seemed less “wrong” (Frank, 2014; Marcus, 2011).

I think it's just an awareness, especially when we're on vacations and stuff like that. We'll talk about [masturbation], so the other person isn't completely left out of the experience ... I just don't want to keep things hidden ... I don't want to feel like if I masturbate it's a secret, so then I just talk about it, and in turn he talks about it. I think it's good to be open. (Casey, 21, white, heterosexual, non-denominational Christian), (Frank, 2014)

**How to Discuss/Communicate with a Partner?** Some women attributed their ease and confidence when communicating with their partner about their sexual likes to masturbation (Frank, 2014; Hong, 2014).

I am able to say ... 'this feels a lot better' and 'I don't need this' or 'more of this.' Things like that. So [masturbation's] definitely helped me to be able to articulate what feels better. (Deb, 22, Caucasian, Lesbian, Jewish) (Frank, 2014)

Two studies were notable, as they included details on women's experiences regarding *how* they shared (or could not share) acquired knowledge about how they experienced sexual pleasure from masturbation with a partner (Marcus, 2011; Towne, 2019). Sometimes communication was not easy due to the fear of upsetting a partner's feelings. Some women expressed confusion and concerns about not being able to explain to a partner that they masturbated and not knowing how to raise the issue properly. Importantly, some women especially reported a lack of knowledge on how to communicate to their partner that they preferred clitoral stimulation techniques to vaginal stimulation (Marcus, 2011; Towne, 2019).

Here is my question. How do you work a vibrator into a conversation? He is sitting there and [I say,] 'I was doing the laundry today. Hey, I got a vibrator.' How do you work that into the conversation? How do you think you do? I have no idea. That is part of my problem. (Marcus, 2011)

I've always wanted to use words more to try to explain what works and what doesn't, but I haven't been able to figure out how to do that in a short way that's explainable for someone to understand. So usually I do use my hands to demonstrate, and that doesn't always work. I don't know if they don't realize that I'm trying to show them something, or they don't realize that what they're doing isn't working. I certainly haven't always been clear about what I want in terms of correcting if they try to do something and it doesn't work the right way. (Towne, 2019)

One study explored aspects of clitoral stimulation with women who required clitoral stimulation to experience orgasm during partnered sex (Towne, 2019). Almost all of the women in this study (14 out of 15) stated that they learnt how to orgasm (and their preferred stimulation techniques) via clitoral stimulation during masturbation. One of the striking findings was that each woman described different stimulation preferences when

masturbating; therefore, transferring bodily knowledge in a partnered context involves communication about these specific preferences.

Towne (2019) reported some of the details on women's strategies; most initiated verbal communication with their partner about the need for clitoral stimulation in order to experience orgasm during partnered sex. Some women introduced the need for clitoral stimulation (with or without a sex toy) with a new partner just after sexual activity had begun. Some initiated clitoral stimulation themselves during partnered sex without explicit verbal communication, some demonstrated clitoral stimulation by masturbating in front of their partner, and some preferred both body language and verbal communication due to the complexity of the explanation.

One woman emphatically stated, "Of course I initiated it. How do men usually initiate clitoral stimulation? They don't care. They don't give a shit about the clitoris! So yeah, I initiated it." (Towne, 2019)

One woman described her use of body language in combination with sound; she elicited partnered clitoral stimulation by "tilting my hip or arching my back" and moaning to give him encouraging feedback. (Towne, 2019)

**Partner's Reactions.** Sometimes partners were reported as being a source of first information on masturbation and this appeared to have a positive influence on some women's perceptions (Frank, 2014; Hong, 2014; Kaestle & Allen, 2011). Perceived encouragement from partners inspired some women to explore self-stimulation during sex or on their own (Frank, 2014; Kaestle & Allen, 2011).

I was dating this Swedish guy ... We were having sex and he's like, "You don't touch your clitoris." And I was like, "Am I supposed to?" And he was like, "Yes." And I was like, "What do you mean?" ... And masturbation was okay in my household ... It was not a big deal. But, I never really understood it. I was like, "I don't really want to masturbate. I don't understand. I don't think it's bad or gross or ... immoral, but I don't get how it's going to get me in the mood." And then he's like, "Well, you should go home and work on it by yourself." ... And then after that, I was like, "How was I not doing this before? ... This is ridiculous!" (Jordan, 21, white, straight/lesbian, culturally Jewish) (Frank, 2014)

Although some women felt positively after partner encouragement, others felt concerns and wished to explore masturbation on their own before their partner taught them (Frank, 2014).

I had only heard about one girl fingering herself in middle school. I finally tried masturbation because my second boyfriend ever told me to do so. Through my boyfriend I learned about my sexuality. It's just driven me crazy that I've never noticed it. It makes me wonder what it would've been like if I did it on my own ... What would I find pleasing now? (Celia, 18, Hispanic, heterosexual, no religion) (Frank, 2014)

While a partner as a source of first information on masturbation was reported in three articles, no study explored the reactions of partners when women disclosed their masturbation experiences. Understanding and supporting partners, and explicit approval from partners, seemed to create comfort for some women (Fahs & Swank, 2013; Kaestle & Allen, 2011; Yuxin & Ying, 2009).

I put my hand between my legs, compressing, twisting and rolling my thighs ... I achieve orgasm within one minute all by myself. That's why even after three years of living apart in different cities from him [her boyfriend, now her husband] we are still together ... Now he is always around me and our sex life is harmonious, but I still do it [masturbate]. I am just so used to doing it. He is very understanding. Most of time I do it after lovemaking. I tell him: 'Hey! I am going to do a bad thing'. He knows what I mean. He lies down beside me and lets me do it by myself. If he is not tired he helps me by kissing me or touching my breasts. It is really nice. (Yuxin & Ying, 2009)

When I asked my boyfriend about female masturbation he said, 'all girls do it, I think it is sexy.' He even offered to buy me a vibrator! (Oma) (Kaestle & Allen, 2011)

On the other hand, relatively negative reactions from partners could elicit changes in women's masturbation and sex toy use (Bowman, 2017b; Fahs & Swank, 2013; Hong, 2004). These reactions included jealousy and feeling upset; one woman reported that her partner did not like her dildo.

I had a dildo before, Mr. Cool Guy, but I got too emotionally attached to him. I really liked him and enjoyed my plastic man but my boyfriend didn't like it. Eventually I just threw him away so he and I couldn't have our sexual rendezvous anymore. (Zhang, a 36-year-old Asian-American bisexual woman) (Fahs & Swank, 2013)

Some of the men I've chatted with about (my vibrator) become jealous that they can't perform the same act as the vibrator does, so I try to shy away from speaking to them about it. When I can't have an orgasm during sex with them, they become, you know, kind of self-conscious because I tell them that I can with a vibrator. Now I just don't talk about it at all with them. (a 25-year-old white heterosexual woman) (Fahs & Swank, 2013)

**Summary.** Overall, when in a relationship, some women tried to abstain from masturbation, some continued to masturbate but hid their behaviours from their partner and/or masturbated less frequently (compared to when single), and some continued to

masturbate, sometimes with partner participation. Changes in women's self-pleasure behaviours when in a relationship might have resulted from the perceived negative attitudes of a partner. While some women appeared to be comfortable talking with a partner about their masturbation experiences and self-learned sexual preferences, for others, lack of knowledge on communication strategies in terms of discussing self-learned sexual preferences without hurting the partner's feelings, and uncertainties over how to incorporate a sex toy such as a vibrator into partnered sex, were common concerns. Concerns about sharing masturbation experiences were sometimes due to perceived (or real) reactions from a partner. Although reactions from partners to women's self-pleasure were not explored in the primary studies, some varying responses from partners were obtained in women's narratives. Some women reported their partner as a source of first information on masturbation, some reported understanding and supportive partners and their explicit approval, while others reported negative feelings from partners, such as jealousy and upset.

## **2.5 Discussion**

The current review investigated women's perceptions of their partners' ideas about women's masturbation, the partner-related motives women reported for their masturbation, and women's masturbation experiences when in a relationship.

### **2.5.1 Partner-Related Perceptions**

The sexual script theory (SST; Gagnon & Simon, 1973), which proposes that sexual behaviours are scripted and culturally/socially determined, is the most discussed theoretical explanation of the societal discomfort around women's masturbation (see Gauvin et al., 2020; Kaestle & Allen, 2011; Towne, 2019). Sexual scripts also provide sexual cues about what sexual behaviours are appropriate and under what circumstances (Simon & Gagnon, 1984; Wiederman, 2005). Although most sources of sexual socialization (for example, society, culture, religion, media, peers, or family) provide messages within heterosexual partnered interactions (penile-vaginal intercourse, or PVI)



(Hyde & Jaffee, 2000), sometimes women appear to accept these societal messages as if they are their (potential) partner's ideas. The sexual scripts around notions that women's pleasure is men's responsibility, and pleasure needing to be experienced within a relationship, seem to persist for some women. This perception that women's pleasure should be "given to them" by men is especially evident in young heterosexual women's narratives and appears to shape some women's behaviours and feelings towards masturbation and sex toy use, regardless of their relationship status (Bowman, 2017b; Frank, 2014; Hong, 2004; Kaestle & Allen, 2011; Marcus, 2011; Yuxin & Ying, 2009). While some believe that if a woman masturbates when in a relationship it may reflect an inadequacy in their partner's sexual performance, which then might threaten their male partner (Bowman, 2017b; Fahs & Frank, 2014; Fahs & Swank, 2013; Frank, 2014; Huong & Liamputtong, 2018; Marcus, 2011; Yuxin & Ying, 2009), other women have challenged these ideas and have accepted self-stimulation as a normal sexual behaviour in all contexts, including when they are in a relationship (Bowman, 2017b; Fahs & Frank, 2014; Fahs & Swank, 2013; Frank, 2014; Goldey et al., 2016; Hong, 2004; Kaestle & Allen, 2011; Marcus, 2011; Towne, 2019).

Herbenick and colleagues' (2011) U.S. survey on beliefs about women's vibrator use reported that most men and women held low negative and high positive beliefs. The majority of men and women did not agree that "women's vibrator use is intimidating to women's partners"; however, more women than men agreed with this. The authors suggested that women have more concerns about vibrator use regarding partner response than men's actual concerns. Women's partners' actual beliefs, perceptions, and experiences towards women's masturbation and women's use of sex toys (both solitary and mutual) need further investigation. Perhaps nowadays societal norms may be less influential at a dyadic level (Masters et al., 2013) and/or may influence women's attitudes but may not always affect their behaviours. After women become involved in relationships, they might make individual adaptations related to their partners' beliefs and

reactions (Laumann & Gagnon, 1995, p.188, Wiederman, 2005) (as discussed below, some women still masturbate but less frequently and sometimes in secrecy when in a relationship).

### **2.5.2 Partner-Related Motives**

Unfulfilling partnered sex and the unavailability of a partner were reported motives for masturbation among some women in relationships. However, whether women communicated with their partner about their masturbation experiences and how their partner did or would react were not explored in detail in any of the studies. The findings demonstrate that the motives to masturbate for some single women are to develop healthy, physically and emotionally trusting relationships in the future. Masturbation could bring situational sexual relief so that women could then focus on developing emotional connections and for some, avoid unwanted casual sex.

Another reason for masturbation commonly referred to by women was gaining sexual awareness and enhancing partnered sex. Women were inspired to explore their anatomy, sexual likes and dislikes, and then to share this bodily knowledge with a potential or current partner in order to have a better sex life. Some women considered masturbation as a helpful tool that prepared them to communicate successfully with their partner about how to please them, as it enhanced comfort and confidence with their own sexuality and brought to light sexual preferences. Although the perception of masturbation as a helpful tool which did or could ease communication on this sensitive topic was commonly reported by women, the original studies lacked information about how these women successfully communicated with their partners (if they did).

Kraus (2017) argued that women's masturbation is "the manifestation of a failing sex life both in quantitative and qualitative terms" (p. e40); however, the results of the current review demonstrated that most women in relationships considered masturbation as a tool that enhanced partnered sex and sexual health rather than only compensating for unsatisfactory or unavailable partnered sex. In line with this review's findings, Haus and

Thompson (2020) experimentally examined the reported motives of 264 US adults (115 women, 149 men) regarding why hypothetical men or women in committed relationships masturbated in a range of vignettes/scenarios. They found that participants rated motives on a masturbation motives scale (MMS) for women to masturbate as being both pleasure-focused (stress release, fun, self-care) and intimacy-focused (enhanced relationship, foreplay, improve sexual communication, maintain sexual health) to a greater extent than hypothetical men. Reported motives for men to masturbate were based on their own desires and pleasures. It is important to note that the authors used a non-standardized measurement of assumed motives (MMS), which was created for the purposes of the study. Future research might benefit from use of a comprehensive and validated assessment of actual motives for masturbation (Haus & Thompson, 2020). In a national probability sample of American adults (8,090 women and 7,648 men, aged 18 to 60), Regnerus and colleagues (2017) examined the compensatory and complementary model hypotheses of masturbation by examining associations with masturbation and the frequency of partnered sex. While in the compensatory model masturbation is seen as a substitute for sexual desires when partnered sex is not possible (due to infrequent partnered sex, lack of a partner, or unfulfilling partnered sex), the complementary model holds that masturbation enhances partnered sex, and may even be practiced mutually (Regnerus et al., 2017). In line with previous quantitative studies (Carvalheira & Leal, 2013; Gerressu et al., 2008), Regnerus et al. reported that an increase in masturbation was associated with increasing partnered sex frequency among women. The authors suggested a complementary relationship for women and a compensatory relationship for men. While men report that they are more likely to masturbate if they are not having partnered sex, or are unhappy or dissatisfied with their partners, for most women, masturbation does not seem to be “a partner substitute” (Carvalheira & Leal, 2013; Das, 2007; Laumann et al., 1994; Burri & Carvalheira, 2019; Gerressu et al., 2008; Regnerus et al., 2017). Instead it is more likely associated with openness, body comfort and acceptance, high levels of sexual interest and

desire, and comfort with their own sexual desires (Bowman, 2014; Burri & Carvalheira, 2019; Wentland et al., 2009).

### **2.5.3 Experiences when in a Relationship and Reactions from Partners**

Four of the eleven studies focused only on male/female relationships (Huong & Liamputtong, 2018; Marcus, 2011; Towne, 2019; Yuxin & Ying, 2009), and in most other studies, the majority of participants identified as heterosexual. The relationship status of participants was diverse in eight articles but in three studies only women who were involved in mixed-sex relationships were included (Huong & Liamputtong, 2018; Marcus, 2011; Yuxin & Ying, 2009).

Overall, the evidence suggests that women modify their masturbation behaviour when in a relationship. Some women stop masturbating (temporarily or permanently) or masturbate less frequently, some continue in secrecy (sometimes to hide their behaviour from partners but sometimes because they see it as a private experience, potentially related to feelings of autonomy; Fahs & Frank, 2014; Goldey et al., 2016), and some experience self-pleasure with their partner's participation or encouragement.

Although there was not enough information to generate a clear picture of men's actual reactions to their partner's masturbation, partners were sometimes reported as a source of first information about masturbation, and appeared to encourage some women to try masturbation (Frank, 2014; Hong, 2004; Kaestle & Allen, 2011). Men sometimes did this in pursuit of women's pleasure, but sometimes it also appeared to be in the interests of their own desire or arousal (Fahs & Swank, 2013). Importantly, some women reported concerns about obtaining such knowledge first from a partner, and wondered what their sexual awareness in terms of sexual sensations, sexual preferences, and pleasure would be if they had experienced masturbation before partnered sex (Frank, 2014). A lack of knowledge among male partners with regards to women's sexual pleasure appeared to leave some women who have sex with men confused.

Only two studies explored whether and how women communicated with their partners about their masturbation or sex toy experiences (Marcus, 2011; Towne, 2019). Marcus (2011) recruited heterosexual women who had never used a vibrator before, and then asked them to use one for a month, with the aim of learning about behavioural and attitudinal changes. The participants were asked how they decided to use the vibrator with their partner. Some women reported concerns and confusion about how to raise the issue, even if they wanted to. Most of the women in the study reported feeling too uncomfortable to share the experience properly, without hurting their partner's feelings. Although most of the women reported perceived comfort with their partner, it was noteworthy that they did not share their vibrator experiences with their partner. One possible explanation for why these women did not feel able to share their vibrator experiences with their partner might be that they were using a vibrator for the first time for the study. Whether these women continued to include a vibrator in their sexual repertoire (solitary or alone), or just used the vibrator for the four weeks of the study, was not assessed.

On the other hand, Towne (2019) recruited women who required clitoral stimulation during partnered sex to experience orgasm and explored how these women acquired clitoral stimulation when having sex with a partner. Each participant in this study reported different masturbation techniques and some women appeared to be confused due to the complicated aspects of communication (stimulation preferences, rhythm, pressure, use of vibrator, etc.; Towne, 2019). This might be attributed to lack of knowledge and discussion on how to explain to a partner the sexual preferences that they had discovered themselves. Girls and young women rarely receive direct and accurate knowledge about sexual pleasure, particularly about solitary masturbation, from school, parents, partners, peers, or media (Hogarth & Ingham, 2009; Ingham, 2005; Kaestle & Allen, 2011; Watson & McKee, 2003). Rather than being taught about the functions of their genitalia or the location of the clitoris and its only known function (pleasure) (Fields, 2008; Waskul et al.,

2007), girls are mostly taught about their sexual anatomy within the realm of reproduction (Fields, 2008).

While confusion over how to raise the issue of masturbation was common in these two studies, Towne (2019) also reported some of the strategies used by women when discussing their sexual preferences, including using verbal communication, body language, or both; however, the details of women's strategies, and the aspects of communication (how, where, when), were beyond the scope of the study.

In a survey study of 913 French women aged 18 to 69, Kraus (2017) found that the majority of women currently in a relationship (55%) told their partner that they had experienced masturbation during their lifetime, 22% reported that their partner did not know that they had masturbated, and 23% stated that they had not had the opportunity to tell their partner. Similarly, in Herbenick et al.'s (2010) large-scale U.S. survey study, the majority of heterosexual (85.9%) and bisexual (89.7%) women, and all of the lesbian women indicated that their partner had knowledge about their vibrator use. Fourteen percent of women reported that their partner did not know that they used a vibrator. In line with findings in the current review, most reported that the reasons for not sharing their masturbation experiences with partners included feeling uncomfortable, concerns about their partner's feelings, concerns about their partner's response (indicating masturbation or sex toy use would question his manhood), and perceived partner reaction (jealousy, threatened). Some women reported that they did not consider telling their partner, as they did not see it as important to do so and some just preferred to masturbate privately (Herbenick et al., 2010).

The most reported barriers to communicating about vibrator use and masturbation were the women's concerns about their partner's response (Marcus, 2011; Towne, 2019), discomfort with communicating with a partner about sexual preferences (Gauvin et al., 2020; Herbenick et al., 2010; Marcus, 2011), lack of knowledge on communication strategies about women's self-learned sexual preferences (Towne, 2019), and the idea that

men might be threatened by women's self-stimulation (Fahs & Swank, 2013; Herbenick et al., 2010; Marcus, 2011). However, overcoming the barriers to communicating on this topic might improve partnered sex. For example, very recently, in a multinational survey study (N = 2215 women, mean age = 28.8) conducted in the U.S. and Hungary, Rowland, Hevesi, et al. (2020) reported that the greater the alignment between women's masturbation and partnered sex (the ratio of the techniques used in masturbation to partnered sex), the lower the difficulty with arousal and orgasm, the greater the likelihood of experiencing orgasm, and the greater orgasm latency during partnered sex.

The findings of the present review suggest questions for further exploration, such as:

- how do women explain to their partner about their masturbation experiences, and how do they transfer what they have learnt through masturbation to partnered sex?;
- what strategies do women use when discussing masturbation or sex toy experience?;
- are there differences in applying masturbation techniques to partnered sex in an early relationship compared to women's experiences in established or committed relationships?;
- how might discussion of masturbation with a partner affect women's sexual behaviour and sexual satisfaction, and how do women's partners react?;
- how might any of these experiences and reasons differ by sexual orientation, age, ethnicity, or education level?

#### **2.5.4 Cultural Differences**

Shame, guilt, fear, and uncertainty, along with curiosity, pleasure, and will (Bowman, 2017b) were common in women's stories in all included studies. Only two studies, however, were conducted in Asian countries, one in Hanoi, Vietnam (Huong & Liamputtong, 2018) and one in Shanghai, China (Yuxin & Ying, 2009). Consistent with

the limited research findings from non-US countries, this review highlights that sexuality, women's pleasure, and non-coital sexual activities such as masturbation tend to be more silenced and/or stigmatised in some non-US cultures (Huong & Liamputtong, 2018; Rashidian et al., 2013; Rashidian et al., 2020).

While Yuxin and Ying's (2009) study contributed to each theme in the secondary synthesis, the study by Huong and Liamputtong (2018) was under-represented regarding specific supporting statements from the participants on women's experiences of masturbation when in a relationship (the final major theme). Instead, the perception of "women's pleasure is men's role and should be experienced within a relationship" was significantly more common in this study. Although the aim of Houng and Liamputtong's study was to explore women's perceptions and experiences of masturbation, the analysis resulted in two themes: "'real' sex as penile-vaginal intercourse" (p. 507), and "what is wrong with masturbation?" (p. 509). The authors reported that about 30% of the women in their study ( $N = 20$ ) mentioned masturbation in their narratives; three women had positive attitudes (seeing masturbation as normal, natural), but others reported feeling ashamed or guilty. Considering the experiences of these women when in a relationship, the authors reported that the women either reduced their masturbation frequency or discontinued masturbating after marriage (Huong & Liamputtong, 2018).

It is important to note that cultural differences seem to result in widely diverse perspectives on the themes identified through the secondary analysis; thus, this might limit the value of the narratives (see the online supplementary file) in terms of the understanding of women's sexual pleasure in non-Western cultures.

### **2.5.5 Quality Assessment**

Small sample sizes (Fahs & Swank, 2013; Hong, 2004; Towne, 2019) and an overrepresentation of highly educated, relatively young and White women could limit the findings' generalizability.



The aim of the quality assessment was to evaluate the theoretical consistency, methodological rigor, and the relevance of research analysis and interpretations of the data (NICE, 2012). Analysis of data relies on indicators of methodological appropriateness (Eakin & Mykhalovskiy, 2003) and the NICE checklist is procedure-centered. However, studies with a clear description of the methodology with poor interpretation of data might be scored as “adequate”, but may offer little insight into the secondary analysis; vice versa, sometimes “in-depth” and/or rich analysis with an unclear description of method might be scored as “inadequate” or “unclear”, but may provide important insights (Carroll et al., 2012; Dixon-Woods et al., 2004). For these reasons, inadequately reported studies were not excluded from the synthesis.

Although the type of data collection and analysis were generally appropriate to answering the research question posed, overall, the lack of reporting on data collection, context, and reliability of method should be taken into account when evaluating the studies discussed, and any overall positive evaluation of the included studies should be interpreted with caution. Despite the methodological limitations of some of the included studies, each article contributed a value and perspective to the secondary analysis. Because of the mixed methodological quality, some studies contributed more (e.g., Bowman, 2017b; Frank, 2014; note that both are doctoral dissertations) than others.

Three studies failed to fulfill the majority of the NICE checklist items (Huong & Liamputtong, 2018; Marcus, 2011; Yuxin & Ying, 2009), and these were scored as inadequate. In the secondary synthesis, however, only one of these three articles was under-represented in terms of supporting statements from participants (Huong & Liamputtong, 2018). However, in the analysis, both the participants’ statements and author(s)’ interpretations were considered and interpreted; thus, despite the lack of statements, the paper contributed a value to the synthesis. The lack of statements (quotes) from the participants might indicate cultural differences and barriers towards discussions

on women's sexuality and pleasure in Asian/non-Western countries (Rashidian et al., 2020).

Regarding women's understandings and perspectives of women's masturbation, qualitative methods provided valuable insights. Due to the rich nature of the qualitative data the secondary data analysis enabled us to move beyond what the research revealed about relationship-related factors (such as a partners' beliefs, feelings, and reactions towards women's masturbation), and helped to answer the particular secondary synthesis research question of how partner-related factors might affect women's perceptions, motives and behaviours regarding masturbation.

### **2.5.6 Strengths and Limitations of the Review**

This review is the first to synthesize an overview of the qualitative research on women's experiences and perceptions of masturbation within a relationship context. Including dissertations should have helped to reduce publication bias (i.e., negative, neutral, or limited results are less likely to be published) (Aromataris & Pearson, 2014; Butler et al., 2016). The use of a standardized quality assessment tool and the involvement of a second coder to assess the quality of three of the studies independently were additional strengths of the review (NICE, 2012).

Regarding limitations, only English language studies were included, and nine out of the 11 studies were conducted in the U.S., which could limit the generalizability of the synthesis. Although the secondary thematic analysis was useful for identifying the commonalities and unique aspects of the themes identified across the included studies with different participants (Braun & Clarke, 2006), the analysis was limited to quotes and themes determined by the authors of the original articles (Dyer & das Nair, 2012). Another challenge during the analysis was lack of clarity of the reported context (e.g., characteristics of participants and settings, the topic guide) in the original studies.

### 2.5.7 Conclusions

Although some women have challenged the traditional script of women's pleasure which assumes that orgasms are men's responsibility, an internalised stigma towards women's masturbation within relationships appears to persist for some, due to a lack of discourse, knowledge, discussion, and communication. One question that needs to be asked, however, is how much of the internalised stigma toward women's masturbation within a relationship is due to actual experiences with a partner and how much to women's own concerns and perceptions? Future research involving couples is needed to estimate the between-partner concordances and discordances in experiences, beliefs, and attitudes towards women's masturbation, and the extent to which the sexual scripts of women's masturbation persist at a dyadic level.

This review highlights the need for evidence-based platforms, as well as counselling and sexual health materials, on the strategies that women can use to communicate sexual preferences with a partner. To inform this, further qualitative and quantitative research exploring how women communicate their self-learned sexual preferences with a partner is needed. Additionally, further research should focus on what strategies are perceived as helpful and how sexual communication with a partner regarding women's preference for genital stimulation might affect sexual satisfaction, sexual well-being, and relationship quality.

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## Chapter 3

### 3 Chapter 3 (Dis)Similarities in attitudes between partners about women's solo masturbation: A dyadic approach to solo masturbation and its associations with sexual satisfaction and sexual self-esteem

#### 3.1 Abstract

Attitudes about women's solo masturbation among couples are not well understood. The primary aim of this study was to assess (dis)similarities in attitudes between partners about women's solo masturbation and associations of these with women's solo masturbation. A secondary aim was to explore partners' solo masturbation and associations with women's and their partners' sexual satisfaction and sexual self-esteem. One hundred and five mixed-sex couples ( $M = 27.62$  years), recruited through social networking websites and Prolific, completed an online survey about demographics, their experiences of solo and partnered sex and validated measures of attitudes about women's masturbation, sexual satisfaction, and sexual self-esteem. Dyadic data were analysed using correlational methods and the actor-partner interdependence model. Women and their partners reported similar and positive attitudes about women's solo masturbation. There was no association between partners' similarity in attitudes and women's solo masturbation recency. Reporting solo masturbation within the past week was not associated with sexual satisfaction or sexual self-esteem for either partner. The role of solo masturbation within romantic relationships is complex but our results support the idea that women's masturbation is now less stigmatized than commonly thought. Clinical and research implications are discussed.

**Key words:** women's masturbation, sexual satisfaction, sexual self-esteem, dyadic data.

### 3.2 Introduction

Masturbation is a common sexual behaviour defined as the self-stimulation of one's genitals or other body parts, with or without a vibrator, for purposes of orgasm and/or sexual pleasure (Bowman, 2017; Burri & Carvalheira, 2019; Carvalheira & Leal, 2013; Gerressu et al., 2008). Masturbation can also be a useful technique in therapeutic settings to enhance sexual functioning, especially to improve women's orgasm experience and to help manage difficulties with men's ejaculation (Heiman & Meston, 1997; Marchand, 2021; Shirai et al., 2023; Stravynski et al., 1997).

Studies have reported a consistent "orgasm gap", the well-established difference between heterosexual men and women's frequency of orgasm during penile-vaginal intercourse (PVI) (Blair et al., 2018; Frederick et al., 2018; Garcia et al., 2014; Mahar et al., 2020). Heterosexual women also report orgasm less frequently than bisexual and lesbian women (Blair et al., 2018; Frederick et al., 2018; Garcia et al., 2014). Orgasm during sexual activities apart from PVI is understudied, but this pleasure gap does reduce with sexual behaviours that focus on clitoral stimulation (Andrejek et al., 2022; Mahar et al., 2020; Mintz, 2017). One sexual behaviour that may help close the orgasm gap is women's masturbation (solo and mutual). Studies indicate that women in same-sex as compared to mixed-sex relationships experience the same sexual satisfaction from orgasm from clitoral manipulation by self (self-pleasure) (Blair et al., 2018, p. 728). During masturbation, heterosexual women's orgasm rates also do not differ from men's (Wetzel & Sanchez, 2022).

#### 3.2.1 Sexual Double Standard and Sexual Script Theory

Sexual behaviours are more influenced by gender role expectations than other behaviours (Fisher, 2013). The sexual double standard (SDS) refers to perceptions about appropriate sexual behaviours which are judged by different standards for men and women (Crawford & Popp, 2003; Gentry, 1998). For example, frequent sexual activity, sexual freedom and sexual exploration are expected of men, whereas women are expected to

respond to the sexual requests of men (Endendijk et al., 2020; Kiefer & Sanchez, 2007; Milhausen & Herold, 2002). Many societies also view a high sex drive to be more normative for men than for women (Frankenbach et al., 2022).

The existence of a SDS is influenced by sexual scripts and may vary for different sexual behaviours (Clark & Wiederman, 2000). Sexual scripts refer to expected sequences of sexual behaviours; however, specific behaviours within these scripts differ between men and women, e.g., sexual intercourse ends with men's orgasm, but women's orgasm is not always experienced (Braun et al., 2003; Gagnon & Simon, 1987; Muehlenhard & Shippee, 2010). Although masturbation is not included in the traditional sexual script (Fahs & Frank, 2014; Kirschbaum & Peterson, 2018), a traditional sexual norm that "only single people masturbate" or "you shouldn't masturbate if you are in a relationship" seems to persist for both women and men (Kaestle & Allen, 2011; Kılıç Onar et al., 2020; Kirschbaum & Peterson, 2018; Thorpe et al., 2023). Due to restricted gendered sexual norms linked with pleasure and desire, some young girls and women perceive or receive messages about masturbation being acceptable "only for boys and men" (Hogarth & Ingham, 2009; Huong & Liamputtong 2018; Kaestle & Allen, 2011; Thorpe et al., 2023). As such, men may be seen as being permitted to pursue pleasure and having the sexual freedom to masturbate, while women are not (Clark & Wiederman, 2000; Fields, 2008; Kaestle & Allen, 2011).

With the greater recognition of women's pleasure, it is now more acceptable for women to "take pleasure into your own hands" (Fahs, 2014; Fahs & Swank, 2013, p. 667). Women's perceived or actual motives to enhance partnered sex with the help of masturbation might also play a role in the normalisation of women's masturbation (Haus & Thompson, 2020; Kılıç Onar et al., 2020). Perhaps masturbation might be an example of a reverse SDS, where men are judged more harshly than women for masturbating (Haus & Thompson, 2020). A study showed that men who masturbate are subject to social stigma and are viewed as less desirable partners than women who masturbate in relationships

(Haus & Thompson, 2020). Among young heterosexual men and women, women indicated more negative feelings about a partner's solitary sexual behaviour than men (Clark & Wiederman, 2000).

While conventional sexual scripts may lead women to envision sexuality as a means of achieving a strong relationship rather than their own pleasure (Wiederman, 2005), reduced acceptance of a heterosexual sexual script may actually be associated with more pleasure and orgasm for women (Dienberg et al., 2023). There is evidence that traditional sexual scripts and the sexual double standard are changing and may be less influential at the dyadic level as compared to the cultural level (Masters et al., 2013). This encourages us to question how women experience the complexity of their own solitary masturbation in the context of romantic relationships.

### **3.2.2 Attitudes Towards Masturbation**

A meta-analysis on gender differences in 30 sexual behaviours and attitudes found that gender differences were not large, with the exception of masturbation: men are more likely to masturbate and to report masturbating more frequently than women (Petersen & Hyde, 2011). Research reporting gender differences in attitudes towards masturbation, however, has been less consistent. Some researchers have found that women's attitudes towards masturbation are more negative compared to men's (Petersen & Hyde, 2010) but the differences were very small or non-existent (Cervilla & Sierra, 2022; Petersen & Hyde, 2010; 2011). Interestingly, recent studies demonstrate that although men report more frequent masturbation than women, they report more negative attitudes about the behaviour (Sierra et al., 2021, 2022).

#### **3.2.2.1 Men's Attitudes Towards Masturbation**

Men's attitudes towards masturbation are varied but understudied (Petersen & Hyde, 2011; Sierra et al. 2021; Zimmer & Imhoff, 2020). Kaestle and Allen (2010) reported that some young men in their study had gender-specific scripts about when masturbation was acceptable which aligned with traditional sexual double standards (i.e.,



more acceptable and less stigmatized for men). Men's more varied repertoire of acceptable sexual activities, including masturbation, may also imply that men feel comfortable masturbating more than women (Clark & Wiederman, 2000; Fisher, 2013; Wiederman, 2005).

However, if there is a belief that men should be able to satisfy their sexual desires through sexual intercourse, then having to turn to masturbation instead may be considered undesirable (Frankenbach et al., 2022). Some men who feel shame or guilt about masturbating might not engage in the behaviour in certain contexts (Kaestle & Allen, 2011) or might choose abstinence from what they believe to be compulsive behaviour out of fear of being perceived as hypersexual (Castellini et al., 2016; Zimmer & Imhoff, 2020).

### ***3.2.2.2 Women's Attitudes Towards Masturbation***

Some women report feeling more stigmatized than men about their masturbation experiences partly due to the silence around women's pleasure and anatomy (Hogarth & Ingham, 2009; Kaestle & Allen, 2011; Thorpe et al., 2023). Some studies have also reported conflicting attitudes towards masturbation among young women where masturbation was defined as both pleasurable and shameful (Goldey et al., 2016; Hogarth & Ingham, 2009; Huong & Liamputtong, 2018). However, other research has found most women to be sexually empowered, shame-free, and comfortable regarding their masturbation experiences, and they described masturbation as a way of learning about their own anatomy as well as their sexual likes and dislikes (Bowman, 2014; Fahs & Frank, 2014; Kaestle & Allen, 2011). For some, this was achieved in a developmental process over time with increased positive messages, exploration, and exposure (Kaestle & Allen, 2011; Thorpe et al., 2023).

Because both favourable views regarding (solo) masturbation and the frequency of masturbation have been associated with ease of orgasm and satisfaction with orgasm during partnered sex among women (Cervilla et al., 2021; Cervilla & Sierra, 2022; Sierra

et al., 2021), it is important to understand attitudes toward women's solo masturbation to help increase sexual pleasure in relationships.

### 3.2.3 Self-Pleasure within Relationships

Self-pleasure through masturbation may be considered a normal, enjoyable and healthy sexual activity (Coleman, 2003; Gianotten et al., 2021; Kaestle & Allen, 2011). However, if masturbation is seen as inconsistent with one's and/or one's sexual partner's values (or society's standards), it might bring guilt, shame, confusion or conflict (Carvalho & Leal, 2013; Kaestle & Allen, 2011; Thorpe et al., 2023). These feelings may be amplified further when in relationships because of the sexual norm that only "single people masturbate" (Kaestle & Allen, 2011; Kılıç Onar, 2020; Kirschbaum & Peterson, 2018).

Compared with women, more men report partner-related reasons for not masturbating, such as being in a committed relationship, thinking their partner would be upset if they knew, and because their partner doesn't want them to masturbate (Herbenick et al., 2022). Contrastingly, in part because of heteronormative sexual norms that expect pleasure seeking from men but not from women, some women report feeling more reliant on their partner's approval of their masturbation compared to men (Kaestle & Allen, 2011; Kılıç Onar et al., 2020). Some women may also believe that their masturbation or solo vibrator use might damage the relationship or create conflicts with a partner as it may imply the partner is sexually unskilled (Herbenick et al., 2011; Salisbury & Fisher, 2014; Thorpe et al., 2023).

Due to the sexual norm that men are responsible for women's orgasm during sexual intercourse, some young heterosexual women feel pressured to experience (real or fake) orgasm with a male partner because of concerns about their partner's feelings or to feel "normal" (Braun et al., 2003; Fahs, 2011; Muehlenhard & Shippee, 2010; Salisbury & Fisher, 2014). On the other hand, confirming sexual norms that men *give* orgasm to women, and women *receive* it from men and coupled with a view that a partner's orgasm

demonstrates men's masculinity, some men might feel pressured to prioritise a woman partner's orgasm/pleasure (Braun et al., 2003; Chadwick & van Anders, 2017; Fahs, 2011; Salisbury & Fisher, 2014). When women's orgasm is a marker of male prowess (Chadwick & van Anders, 2017; Fahs, 2014), some women may also try to avoid masturbation or masturbate secretly to avoid reducing partners' sexual power, sexual self-esteem and masculinity. In fact, men perceived themselves as more masculine and reported higher sexual esteem if they believed their woman partner orgasmed during intercourse (Chadwick & van Anders, 2017).

### **3.2.4 Masturbation and Sexual Self-esteem**

Sexual self-esteem is an individual's sense of self as a sexual being, including self-evaluations of sexual sensations, thoughts, and actions, as well as judgements of one's own body, sexual acceptability, and sexual identity (Zeanah & Schwarz, 1996; 2020).

Individuals' sexual self-esteem can range from feeling sexually skilled to unskilled and from sexually appealing to unappealing (Mayers et al., 2003).

Masturbation may lead to a sense of autonomy, bodily integrity, and familiarity with one's own genitalia and might improve one's sexual self-esteem (Goldey et al., 2016; Kaestle & Allen, 2011). Previous studies have reported mostly positive associations between women's (solo) masturbation and body satisfaction: higher masturbation frequency has been associated with lower body shame, higher body appreciation (de Lima et al., 2022), and positive body image (Shulman & Horne, 2003), although one study reported no association between lifetime solo masturbation and women's sexual body-esteem (Horne & Zimmer-Gembeck, 2005). In a qualitative study, some women also stated that they valued the self-knowledge and greater sexual confidence that they gained from solo masturbation (Foust et al., 2022). While Coleman (2003) encouraged researchers to examine the link between masturbation and sexual self-esteem, to the best of our knowledge, only one study has done this using individual-level analysis. Expectedly, the

frequency of solo masturbation was associated with higher sexual self-esteem (Rodríguez-Domínguez et al., 2022).

### 3.2.5 Masturbation and Sexual Satisfaction

Reported associations between (solo) masturbation and sexual satisfaction have been inconsistent (Fischer, & Træen, 2022; Huang et al., 2022). The limited studies involving men have either found negative (Huang et al., 2022; Miller et al., 2019; Velten & Margraf, 2017), or no associations (Klapilová et al., 2016). For men without a partner, higher masturbation frequency was associated with better erectile function and better ejaculatory latency; however, for men with sexual partners, it was linked with delayed ejaculation and *lower* intercourse satisfaction, sexual desire, orgasm function (Huang et al., 2022).

Among women, findings are also inconsistent, with some studies reporting a negative association between masturbation and sexual satisfaction (Bridges et al., 2004; Klapilová et al., 2016; Rowland, Kolba et al., 2020; Velten & Margraf, 2017) and satisfaction with one's current level of sexual activity (Fisher et al., 2022). However, in other studies, the frequency or the quality of women's masturbation was associated with *greater* sexual satisfaction (de Lima et al., 2022; Fischer, & Træen, 2022; Hurlbert & Whittaker, 1991). Huang et al. (2022) found frequent masturbation was moderated by relationship status; it was linked to improved orgasmic experience and *higher* sexual satisfaction among women without a sexual partner but was associated with lower orgasm function for partnered women.

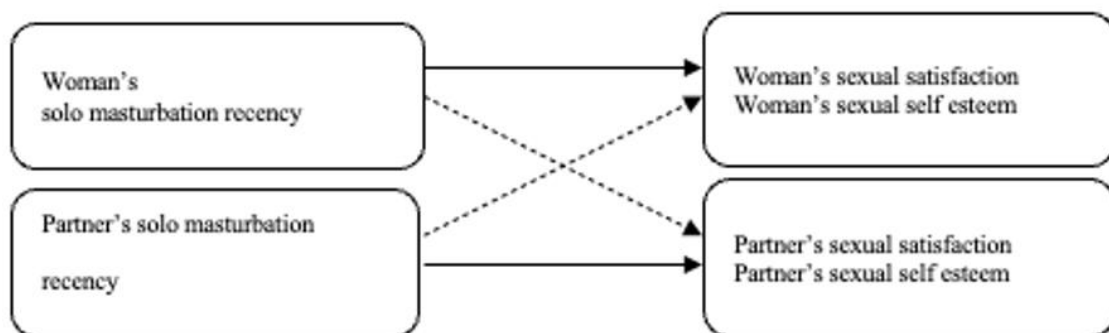
### 3.2.6 Couple Interdependence Theory

The overarching framework of the current study was the couple interdependence theory developed by Lewis et al. (2006). This theory holds that to best understand relationship- and health-related outcomes, examining individual-level data is not sufficient, as each individual's experiences can influence the behaviours and attitudes of both themselves (actor effect) and their partner (partner effect). More specifically, the theory

posits that “*the couple’s interdependence can transform motivation from doing what is in the best interest of the self (person-centered), to doing even selfless actions that are best for the continuation of the relationship (relationship-centered)*” (p. 1369). Further, as illustrated in Figure 1, the model suggests that relational and interpersonal factors influence motivation and behaviour change.

**Figure 3.1**

*Actor Effect and Partner Effect in the Couple Interdependence Model*



*Note.* The solid lines indicate actor effects (AE); the dashed lines indicate partner effects (PE)

Our analysis drew from couple interdependence theory to understand the associations between women’s solo masturbation recency and both partners’ sexual outcomes (including sexual satisfaction and sexual self-esteem), as well as associations between the partner’s solo masturbation recency and both partners’ sexual outcomes.

### 3.2.7 Justification for the Current Study

Although it is usually considered a private and autonomous act (Goldey et al., 2016; Peterson & Hyde, 2010; Thorpe et al., 2023), solo masturbation is influenced by one’s own assumptions, perceptions of what one’s partner thinks about masturbation, and expectations about how one should behave sexually when in a relationship (Herbenick et al., 2022; Kılıç Onar et al., 2020). Conducting research with couples provides analytic flexibility and contextual advantages (Mark & Lasslo, 2018). Although there have been some studies involving individual-level data on women’s experiences and perceptions of masturbation (Fahs & Frank, 2014; Goldey et al., 2016; Rowland, Kolba, et al., 2020),

there is a gap in understanding experiences of, and attitudes toward solo masturbation, and understanding mutual partner influences related to these, using dyadic data.

Women's pleasure and orgasm are associated with better clitoral knowledge (Dienberg et al., 2023; Wade et al., 2005) and how women masturbate can be an important anatomical feedback mechanism (Hite, 2003). Masturbation is a way for women to learn about orgasm and some also use it as a sexual communication tool to share their sexual likes and dislikes with their partner (Towne, 2019). Indeed, American undergraduate students cited self-exploration as the most helpful source for learning about the clitoris (Wade et al., 2005). However, very little is known about what women do with the sexual knowledge they gain from masturbation. Some women might not want to disclose masturbation to their partner, perhaps in part as masturbation brings complete autonomy (Goldey et al., 2016; Kaestle & Allen, 2011); others might want to share this with their partner but some may experience concerns about how a partner will perceive their masturbation and a tendency to hide the behaviour to avoid upsetting their partners' feelings and/or their judgement (Kılıç Onar, 2020). When disclosed, while some women report encouraging, supportive, and comfortable partner reactions to their masturbation or solo vibrator use, others report negative reactions (Fahs & Swank, 2013; Kaestle & Allen, 2011; Waskul & Anklan, 2019). Further, in some studies, women believed that men may be intimidated by female self-pleasure due to its threat to their dominance, or because of the autonomy that it brings (Fahs & Frank, 2014; Goldey et al., 2016; Waskul & Anklan, 2019). However, the level of agreement between partners on their attitudes toward women's masturbation, and how this might be associated with sexual satisfaction, have not been explored.

While the number of studies on women's perception of self-pleasure has recently increased, what we know about men's perceptions of female solitary masturbation is mostly based on studies exploring women's experiences, beliefs, and their ideas of their partners' perspective (Kılıç Onar et al., 2020; for exceptions see Clark & Wiederman,

2000; Haus & Thompson, 2020). Although Kaestle and Allen (2011) included young women's and men's written narratives on how they perceived, knew, and felt about masturbation in general, they did not explore men's perception of female masturbation and its role and function in romantic relationships.

### **3.2.8 Why is this topic important?**

Although solo masturbation is an individual sexual behaviour, it should also be evaluated within the relationship context (Bay-Cheng et al., 2009). Romantic relationships can be regarded as dynamic and transformative, as couples' discussions relating to their sexual interactions provide information, feedback, and a basis for modeling (Zimmer-Gembeck et al., 2011). Changing sexual scripts toward greater acceptance of self-stimulation, and neutral judgments toward self-pleasure in middle- to upper-income countries might be more visible at the couple level (Masters et al., 2013). Understanding the functions of women's solo masturbation in relationships is important because individuals can modify traditional sexual scripts to be more flexible to adapt to their situations (McCormick, 2010).

Considering masturbation is one of the most common sources of orgasm and pleasure among women, as well as a technique used in sex therapies for orgasm (Carvalho & Leal, 2013; Marchand, 2021), understanding partners' attitudes and beliefs about female masturbation may help women develop more positive views about their own sexual pleasure seeking (Zimmer-Gembeck et al., 2011). On the other hand, when women's partners' attitudes or reactions are negative, or if women worry about what their partners think about their masturbation, this may result in women's avoidance of pleasure-seeking and masturbation. When negative attitudes and shame of masturbation go unchallenged, it can prevent women from connecting with their body and maximising their own pleasure (Bohmer et al., 2022).

Understanding the aspects of women's solo masturbation from a dyadic approach might also help create effective approaches to improve women's sexual pleasure and

overall sexual health. It might also contribute to enhancing women's pleasure in the context of romantic relationships and might be useful for clinicians who help couples improve their sexual relationships and relationship satisfaction. Further, it can help couples navigate women's sexual pleasure while empowering women, so that female masturbation may be considered a way of improving sexual satisfaction and intimacy between partners.

### **3.2.9 Aims and Research Questions**

The first aim of this study was to assess the similarities and differences between partners' attitudes about women's solo masturbation and their associations with the women's solo masturbation recency. A secondary aim was to explore recent solo masturbation experiences and their associations with women's, and their partner's, sexual satisfaction and sexual self-esteem.

**RQ1:** How (dis)similar are partners in their attitudes about women's solo masturbation and how are these similarity levels associated with women's solo masturbation recency?

**RQ1a.** How (dis)similar are partners in their attitudes toward women's solo masturbation?

**RQ1b.** Are (men) partners' attitudes toward women's solo masturbation associated with their woman partner's solo masturbation?

**RQ1c.** Is partners' (dis)similarity in attitudes towards women's solo masturbation associated with women's solo masturbation?

**RQ2:** Is the recency of women's and men's solo masturbation associated with sexual satisfaction and sexual self-esteem among women and their partners?

## **3.3 Method**

### **3.3.1 Participants**

The minimum number of couples required to conduct analyses using the actor-partner interdependence model (APIM; Kenny et al., 2006) with indistinguishable dyads is 59 couples, and with distinguishable dyads, 60 couples for an average of actor effects. This is based on a web-based calculator designed for APIMs to have adequate power to detect an actor effect size of .25 (when power is at least 0.8 and alpha is set to .05) (Ackerman &



Kenny, 2016). However, considering the average number of participants reported in previously published studies that used APIM ( $N = 104$ ,  $N = 103$ , respectively; see e.g., Markey et al., 2016; Scott et al., 2017), the aim was to recruit approximately 150 couples.

Inclusion criteria for both partners included being 18 years of age or older, being willing to participate in the study as a couple, and being able to read and understand English. Women of any sexual orientation and their partners, and from any country or region, were eligible to participate.

### **3.3.2 Procedure**

This study was a dyadic cross-sectional online survey. Participants were initially recruited through social media (e.g., Twitter, Facebook) and [callforparticipants.com](http://callforparticipants.com) and only couples who had been in a relationship for at least one year were eligible. However, due to slow recruitment (12 couples in six months) and incomplete or no partner data, the recruitment platform, Prolific, was used with a screening survey. In the screening survey, willingness to participate as a couple replaced relationship duration as an eligibility criterion. Accordingly, participants were asked whether they were in a current relationship with a romantic partner who had a Prolific account and if they would be willing to participate as a couple in the main survey about sexuality. Participants who provided their partners' Prolific ID were eligible if their partner also participated in the screening and showed interest in the main survey.

Both partners in each couple completed the same self-report measures. It was suggested that they complete the survey in a private environment and answer the questions independently. All participants were shown a participant information sheet and gave informed consent by ticking a box prior to proceeding with the screening and then the survey. All study procedures were approved by the research ethics board at the University of Southampton (Ergo number: 62245-A3). Data collection occurred between 22 January 2021 and 28 January 2022.

### 3.3.3 Measures

#### 3.3.3.1 Screening

The screening survey was created to improve the likelihood that both partners would complete the survey. It took 1-3 minutes to complete and included questions on basic demographics, whether participants had a romantic partner with a Prolific account who would be willing to take part as a couple, and their partner's Prolific ID. Participants who reported, "*Yes, I have a romantic partner who has a Prolific account and we would be willing to take part as a couple*" were sent the main survey via their Prolific ID.

#### 3.3.3.2 Sociodemographic Questions

Sociodemographic questions included gender, age, ethnicity, sexual orientation, relationship status and length, whether participants lived with their partner and for how long, children (yes or pregnant vs. no), education, employment, household income, long-standing illness, religious participation, and area of residence. The response option for age was continuous (18-100); for all other response options, see Table 1.

Participants were also asked one question about sexual experiences within the last month: "Over the past 4 weeks, did you engage in sexual activity of any kind with a partner and/or by yourself (masturbation)?" Response options were: 0 = No sexual activity (neither with a partner nor by myself); 1 = Sexual activity with a partner only; 2 = Sexual activity by myself only; 3 = Sexual activity both with a partner and by myself (Meyer-Bahlburg & Dolezal, 2007).

#### 3.3.3.3 Experiences of Types of Self-pleasure

Participants were asked about their lifetime (yes/no), and last time (9 response options ranging from "today" to "never") solo masturbation experiences ("*Have you ever masturbated?*", "*When did you last masturbate?*"). Questions were taken from those used in previous studies (Bowman, 2014; Regnerus et al., 2017). Last time solo masturbation

was categorized into two groups: solo masturbation within the last week vs. not (variable: solo masturbation recency).

Participants were also asked about their lifetime and last time mutual masturbation, and solo and partnered vibrator use<sup>1</sup> experience ("*Have you ever engaged in mutual masturbation?*", "*When did you last use a vibrator (and/or dildo) during solo masturbation?*"), with the same response options as the solo masturbation questions.

#### **3.3.3.4 *The Revised Attitudes Toward Women's Solo Masturbation Inventory (R-AWMI)***

The R-AWMI was adapted from the Negative Attitudes Toward Masturbation Inventory (NAMI, 30-item) (Mosher, 2011). The R-AWMI, was designed to assess beliefs and attitudes toward women's solo masturbation. Three items regarding personally experienced negative affect (e.g., "*When I masturbate, I am disgusted with myself*") were removed, leaving 27 items in the revised scale. The response options remained the same and were measured on a Likert scale from 1 (not at all true) to 5 (extremely true). The total score ranges from 27 to 135. The wording of some items was also revised: "people" in the original scale was replaced by "women" and "women's solo masturbation" (e.g., "*After masturbating, a woman feels degraded*"; "*Women masturbate to escape feelings of tension or anxiety*"). In the original NAMI, nine items are reverse scored, with higher scores representing negative attitudes. However, for the revised version we used, items were calculated so that higher scores reflect more positive attitudes and lower scores indicate more negative attitudes toward women's solo masturbation (i.e., 18 items were reverse scored). In the present study, Cronbach's alpha for the revised version was good: .88.

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<sup>1</sup> Additional analyses on solo and partnered vibrator use will be reported elsewhere. As this study was a part of a larger project, additional questions and validated scales such as the Dyadic Communication Scale were also included in the survey but were not analysed for this article and are therefore not reported here.

### **3.3.3.5 *The New Sexual Satisfaction Scale – Short Form (NSSS-S; Brouillard et al., 2020)***

The short form of the New Sexual Satisfaction Scale (NSSS-S, 12-item) was designed to measure sexual satisfaction (Brouillard et al., 2020), including self-related sexual satisfaction and partner/sexual activity-related sexual satisfaction. Sample items from the NSSS-S are: “*My body’s sexual functioning*”, and “*The balance between what I give and receive in sex.*”. The items are rated on a 5-point Likert scale ranging from 1 (not at all satisfied) to 5 (extremely satisfied). The total score ranges from 12 to 60, with higher scores indicating greater sexual satisfaction. In the current study, Cronbach’s alpha was excellent,  $\alpha = .90$ .

### **3.3.3.6 *The Sexual Self-Esteem Inventory - Short Form (SSEI-S; Zeanah & Schwarz, 2020)***

We used the 35-item short form of the Sexual Self-Esteem Inventory, designed to assess emotional reactions to self-appraisals of sexual behaviours, feelings, and thoughts (Zeanah & Schwarz, 2020). Sample items from the SSEI-S are: “*I feel I am pretty good at sex.*”, and “*I feel physically vulnerable in a sexual encounter (reverse scored)*”. Ratings are made on a 6-point Likert scale ranging from 1 (strongly disagree) to 6 (strongly agree). Nineteen of the items are reverse scored. The total score ranges from 35 to 210; higher scores represent higher sexual self-esteem. In the current study, Cronbach’s alpha was excellent,  $\alpha = .92$ .

## **3.3.4 Data Analysis**

### **3.3.4.1 *Missing Data***

Participants who completed less than half of the survey items and/or those who missed at least one of the key outcome variables (e.g., sexual satisfaction) were excluded from the analysis ( $n = 80$ ). Also, participants were removed if only one member of the couple completed the survey. Due to the low number of participants, same-sex couples (13 couples) were also excluded.

Among included mixed-sex couples ( $N = 105$ ), no more than one participant was missing data from any given measure. Missing items for age and from validated scales were replaced with the mean. Other missing values were deleted pairwise during the analyses.

There were some cases where one participant did not complete a full measure (e.g., one participant completed zero items on the R-AWMI and another completed zero items on the SSEI-S) and these participants were excluded from analyses including that measure (with their partner as appropriate).

#### **3.3.4.2 Statistical Analysis**

For the demographics and descriptive statistics about self-pleasure, each participant was treated as a single unit, individual dataset, ( $N = 210$ ). For the first research question, data were organized as a matched couple (dyad) dataset such that there was one record for each couple including data from both partners,  $N = 105$ . To test RQ1a, paired  $t$ -tests and bivariate Pearson correlations were used to compare women's and their partners' attitudes toward women's masturbation.

To test RQ1b, binary logistic regressions were run with partner attitudes toward women's solo masturbation score as the independent variable and women's solo masturbation recency as the outcome variable.

To explore RQ1c, it was important to determine how many couples could be considered as having discrepant scores (e.g., one partner reported higher/lower scores than the other). To report this, and to create groups based on the difference scores, a procedure used in previous research was followed (Fleenor et al., 1996; Shanock et al., 2010). First, each independent variable's scores (women's and their partner's attitudes) were standardized. Next, the difference between the partners' standardized score was calculated, and any participants who had a difference greater than half a  $SD$  (for attitudes,  $1/2SD_{\text{attitudes difference}} = 0.42$ ) were classified as being discrepant. Three (dis)similarity groups were created based on these discrepant values: women's attitudes score higher than their

partners, lower than their partners, and the same as their partners. Finally, a Chi-Square analysis was run to examine associations between the (dis)similarity groups and women's solo masturbation recency. Analyses for the first research question were conducted with SPSS (Version: 28.0.1.1) for Mac.

For RQ2, to assess how the women's (actor effect) and their partners' (partner effect) reports of recent solo masturbation were associated with the women's and their partners' reports of sexual satisfaction and sexual self-esteem, dyadic data were analysed using the actor-partner interdependence model (APIM; Kenny et al., 2006) via multilevel modelling (APIM\_MM). In research on sexual satisfaction in relationships, the APIM is widely used in dyadic data analyses (Muisse et al., 2018; Pascoal et al., 2018) and the model takes nonindependence between couples into account. Dyadic nonindependence is the similarity between the two members of a dyad compared with two scores from two people from a different dyad (Kenny et al., 2006). Multilevel modelling is suggested as a "more accessible framework" for research comparing indistinguishable and distinguishable dyads (Kroeger & Powers, 2019, p. 159). Dyad members are considered distinguishable when there is a significant difference in a variable and this variable can be used to order the two members of the dyad members (e.g., gender in a mixed-sex couple). Whether a variable makes a statistically meaningful difference can be tested with the test of distinguishability, and different data analytic techniques are used for data based on their distinguishability (Kenny et al., 2006). For the current study, the gender variable was considered as a distinguishable variable and tested for sexual satisfaction and sexual self-esteem variables. Data were restructured as dyadic pairwise data for APIMs; there is a record for each individual, and each record includes the individual's (actor's) scores on all variables and the partner's scores on all variables. These were included in the analysis as actors (to examine the within-person; actor effects,  $\alpha_1$ ) and partners (to examine the between-partner; partner effects,  $p_1$ ),  $N = 210$ . Separate APIM\_MMs were conducted for each outcome variable (sexual satisfaction and sexual self-esteem). All APIM\_MMs were

analysed using the following online application:

[https://davidakenny.shinyapps.io/APIM\\_MM/](https://davidakenny.shinyapps.io/APIM_MM/). The estimates of the fixed effects were obtained using generalized least squares fit by restricted maximum likelihood (REML) (Kroeger & Powers, 2019, p. 159). The independent variable (last time solo masturbation) was grand-mean centered, and gender was recoded (women as -1, men as 1). The tests of coefficients in the APIM(s) were Z tests. The tests of correlations were based on one-way analysis of variance tests (ANOVAs) for sexual satisfaction and *t*-tests of the correlation coefficients for sexual self-esteem. For all analyses, alpha was set at 0.05.

For the analysis, the last time solo masturbation variable was categorized into two groups and a binary solo masturbation recency variable was created: individuals who reported solo masturbation within the last week (coded as 2,  $n = 119$ ) and those who did not (coded as 1,  $n = 91$ ).

#### **3.3.4.3 Preliminary Analyses for APIMs**

**The Measurement of Nonindependence.** As recommended by Kenny et al. (2006), Pearson's correlation coefficients were analysed for outcome variables to determine the degree of nonindependence in the dataset for the APIMs. The partial correlations between the dyad members' scores, controlling for actor and partner variables, revealed moderate degrees of nonindependence for couples' reports of sexual satisfaction ( $r = .421, p < .001$ ) and sexual self-esteem ( $r = .245, p = .014$ ). Pearson's correlations suggested a significant degree of similarity (nonindependence) between partners, indicating that when a woman scored higher in sexual satisfaction and sexual self-esteem, their partner also scored higher. In other words, couples could be treated as the unit of analysis in the subsequent APIM analyses.

**Test of Distinguishability.** A test of overall distinguishability was conducted for outcome variables to determine whether gender was the appropriate variable to treat dyad members as distinguishable. When the outcome variable was sexual satisfaction, the test of distinguishability was not significant,  $\chi^2 (df = 4) = 7.05, p = .133$ , indicating that partners

could not be distinguished based on the self-reported gender variable. Thus, gender was treated as nondistinguishable for sexual satisfaction.

When the outcome variable was sexual self-esteem, gender made a meaningful difference between partners as per the test of overall distinguishability,  $\chi^2(4) = 18.96, p < .001$ . In other words, members could be statistically distinguished based on gender, and so gender was treated as a distinguishable variable for APIM\_MM including sexual self-esteem.

### 3.4 Results

One hundred and five mixed-sex couples ranging in age from 18 to 65 years ( $M = 27.62, SD = 7.76$ ) completed the survey. Most (63.2%) were in a relationship but not married, and reported a relationship length of one year to less than five years (52.9%). Most (59.5%) also reported having completed a college/university or postgraduate degree and White background as their ethnicity (69.5%). Demographic characteristics of the participants ( $N = 210$ ) are presented in Table 1.

**Table 3.1**

*Demographic Characteristics of the Study Participants (N = 210)*

	Total <i>N</i> (%)	Women <i>N</i> (%)	Men <i>N</i> (%)
Age ( $n = 209$ )	$n = 209$ $M = 27.62,$ $SD = 7.76$	$n = 105$ $M = 27.14,$ $SD = 7.48$	$n = 104$ $M = 28.09,$ $SD = 8.04$
Sexual orientation ( $N = 210$ )			
Heterosexual	178 (84.8)	79 (75.2)	99 (94.3)
Bisexual	30 (14.3)	24 (22.8)	6 (5.7)
Lesbian/gay	0 (0.0)	0 (0.0)	0 (0.0)
Asexual	0 (0.0)	0 (0.0)	0 (0.0)
Pansexual	1 (0.5)	1 (0.9)	0 (0.0)
Other	1 (0.5)	1 (0.9)	0 (0.0)
Education ( $N = 210$ )			
Less than high school	2 (1.0)	1 (0.9)	1 (0.9)
High school or equivalent	62 (29.5)	31 (29.5)	31 (29.5)
Technical or vocational college	20 (9.5)	4 (3.8)	16 (15.2)
College/university	87 (41.4)	47 (44.8)	40 (38.1)
Postgraduate university (MSc/PhD)	38 (18.1)	22 (20.9)	16 (15.2)
Other ("HND"):	1 (0.5)	0 (0.0)	1 (0.9)
Ethnicity ( $N = 210$ )			
White British	17 (8.1)	8 (7.6)	9 (8.6)
Any other White background	129 (61.4)	63 (60.0)	66 (62.8)
Black British	1 (0.5)	0 (0.0)	1 (0.9)
Any other Black background	24 (11.4)	11 (10.5)	13 (12.4)
Asian or Asian British	5 (2.4)	3 (2.8)	2 (1.9)
Any other mixed background/Multiracial	30 (14.3)	18 (17.1)	12 (11.4)
Did not state	4 (1.9)	2 (1.9)	2 (1.9)



	Total <i>N</i> (%)	Women <i>N</i> (%)	Men <i>N</i> (%)
Long-standing illness, disability or infirmity ( <i>N</i> = 210)			
Yes	21 (10.0)	11 (10.5)	10 (9.5)
No	189 (90.0)	94 (89.5)	95 (90.5)
Occupation ( <i>n</i> = 227*)			
Full-time employed	101 (48.1)	44 (41.9)	57 (54.3)
Part-time employed	40 (19.0)	22 (20.9)	18 (17.1)
Full-time student	49 (23.3)	28 (26.7)	21 (20.0)
Part-time student	12 (5.7)	7 (6.7)	5 (4.8)
Other	25 (11.9)	14 (13.3)	11 (10.5)
Religious participation ( <i>N</i> = 210)			
Once a week or more	19 (9.0)	9 (8.6)	10 (9.5)
Less often but at least once in 2 weeks	4 (1.9)	3 (2.8)	1 (0.9)
Less often but at least once a month	7 (3.3)	3 (2.8)	4 (3.8)
Less often but at least twice a year	12 (5.7)	6 (5.7)	6 (5.7)
Less often but at least once a year	13 (6.2)	8 (7.6)	5 (4.8)
Less often	18 (8.6)	9 (8.6)	9 (8.6)
Never/practically never	131 (62.4)	63 (60.0)	68 (64.8)
Varies	6 (2.9)	4 (3.8)	2 (1.9)
Income ( <i>N</i> = 210)			
Poverty level	3 (1.4)	3 (2.8)	0 (0.0)
Lower income	27 (12.9)	11 (10.5)	16 (15.2)
Lower middle income	44 (21.0)	25 (23.8)	19 (18.1)
Middle income	94 (44.8)	43 (40.9)	51 (48.6)
Upper middle income	33 (15.7)	16 (15.2)	17 (16.2)
Upper income	2 (1.0)	2 (1.9)	0 (0.0)
I choose not to answer	7 (3.3)	5 (4.8)	2 (1.9)
Relationship status ( <i>N</i> = 210)			
Married	52 (24.8)	26 (24.8)	26 (24.8)
In a relationship	151 (71.9)	75 (71.4)	76 (72.4)
In a relationship and seeing others	5 (2.4)	3 (2.8)	2 (1.9)
Casually dating	1 (0.5)	0 (0.0)	1 (0.9)
Other ("engaged")	1 (0.5)	1 (0.9)	0 (0.0)
Relationship length ( <i>N</i> = 210)			
0 to less than 6 months	12 (5.7)	5 (4.8)	7 (6.7)
6 months to less than 1 year	9 (4.3)	6 (5.7)	3 (2.8)
1 year to less than 5 years	111 (52.9)	54 (51.4)	57 (54.3)
5 years to less than 10 years	45 (21.4)	23 (21.9)	22 (20.9)
10 years and more	33 (15.7)	17 (16.2)	16 (15.2)
Living w partner ( <i>N</i> = 210)			
Yes	130 (61.9)	65 (61.9)	65 (61.9)
No	80 (38.1)	40 (38.1)	40 (38.1)
Duration of living together (When did you first start living with your current partner?, <i>n</i> = 130)			
0 to less than 6 months	23 (11.0)	11 (10.5)	12 (11.4)
6 months to less than 1 year	10 (4.8)	6 (5.7)	4 (3.8)
1 year to less than 5 years	62 (29.5)	30 (28.6)	32 (30.5)
5 years to less than 10 years	22 (10.5)	11 (10.5)	11 (10.5)
10 years and more	13 (6.2)	7 (6.7)	6 (5.7)
Child ( <i>N</i> = 210)			
No	174 (82.9)	87 (82.8)	87 (82.8)
No, but I am (or my partner is) pregnant	3 (1.4)	1 (0.9)	2 (1.9)
Yes	33 (15.7)	17 (16.2)	16 (15.2)
Currently live ( <i>N</i> = 210)			
In a city	135 (64.3)	67 (63.8)	68 (64.8)
In another metropolitan or suburban area	51 (24.3)	27 (25.7)	24 (22.8)
In a small town or rural area	24 (11.4)	11 (10.5)	13 (12.4)

\*Participants could tick all that apply.

Regarding self-pleasure experiences, among the whole sample, 97.1% reported lifetime solo masturbation and 79.5% lifetime mutual masturbation; 50.0% lifetime

partnered vibrator use, and 33.8% lifetime solo vibrator use (see online supplementary file Table 1). Among women, 94.3% reported lifetime solo masturbation and 77.1% lifetime mutual masturbation; 54.3% lifetime solo vibrator use and 54.3% lifetime partnered vibrator use. Among men, all reported lifetime solo masturbation and 81.9% lifetime mutual masturbation; 45.7 % lifetime partnered vibrator use and 13.3% lifetime solo vibrator use.

Men were significantly more likely than women to report lifetime solo masturbation ( $\chi^2 (1, N = 210) = 6.18, p = .013$ ) and were also more likely to report solo masturbation within the past week ( $\chi^2 (df = 1, N = 210) = 14.14, p < .001$ , Table 2).

**Table 3.2***Descriptive and Bivariate Statistics for Key Variables and Corresponding Gender Differences*

Variable	Total <i>M/ SD (or n/%)</i>	Women <i>M/ SD (or n/%)</i>	Men <i>M/ SD (or n/%)</i>	Bivariate analysis <i>t (or <math>\chi^2</math>) p</i>		Did not	solo	Recent solo	
						report recent	masturbation	masturbation	Women
						<i>M/ SD</i>	<i>M/ SD</i>	<i>M/ SD</i>	<i>M/ SD</i>
Sexual satisfaction ( <i>N</i> = 210)	46.99/8.79	46.58/9.21	47.41/8.38	<i>t</i> = -0.68	.496	45.19/8.97	48.34/7.63	48.37/9.30	47.00/8.70
Sexual self-esteem ( <i>n</i> = 209)	164.29/26.54	158.68/28.25	169.84/23.58	<i>t</i> = -3.10	<b>.002</b>	154.12/29.25	173.50/21.14	164.43/26.11	168.23/24.54
Attitudes toward women's masturbation ( <i>n</i> = 209)	108.28/14.68	108.87/14.52	107.68/14.88	<i>t</i> = 0.58	.561	106.13/15.80	103.87/15.83	112.37/11.99	109.37/14.44
Solo masturbation recency ( <i>N</i> = 210)	119/56.67%	46/43.81%	73/69.52%	$\chi^2$ = 14.14	< <b>.001</b>	n/a			
Lifetime solo masturbation ( <i>N</i> = 210)	204/97.1%	99/94.3%	105/100%	$\chi^2$ = 6.18	< <b>.013</b>	n/a			

*Note.* Data were kept as individual dataset (*N* = 210). Independent samples *t*-tests between women's and men's scores were reported for continuous variables (the NSSS-S, SSEI-S, R-AWMI, and BWVS,) and  $\chi^2$  analyses were reported for categorical variables (solo masturbation recency and lifetime solo masturbation). To report statistics for women and their partners and masturbation recency, multilevel modelling was used and couples were treated as the unit of analysis. Statistically significant results are bolded.

### 3.4.1 (Dis)Similarities Between Partners in Attitudes About Women's Solo

#### Masturbation

The mean scores (uncentered) and SDs for the key variables are presented in Table 2. Scores for women's attitudes toward women's solo masturbation (R-AWMI scores;  $M = 108.87$ ,  $SD = 14.52$ ) were compared with their partners' scores ( $M = 107.68$ ,  $SD = 14.88$ ) with a paired  $t$ -test; the difference was not statistically significant,  $t(103) = 0.74$ ,  $p = .460$ . Based on bivariate Pearson correlations, attitude scores between partners were positively correlated and the strength of the relationship was large ( $r = .63$ ,  $p = <.001$ ; see Table 3). These results demonstrate similarities between partners in their attitudes toward women's solo masturbation.

**Table 3.3**

*Bivariate Correlations for Key Variables among Women and Their Partners (N = 105 Couples)*

Variables	Sexual satisfaction $N = 105$	Sexual self-esteem $n = 104$	Attitudes toward women's solo masturbation $n = 104$
Sexual satisfaction $N = 105$	<b>.43**</b>	.29**	.28**
Sexual self-esteem $N = 105$	.23*	<b>.25**</b>	.35**
Attitudes toward women's solo masturbation $n = 104$	.23*	.22*	<b>.63**</b>

*Note.* Correlations above the diagonal are for women; correlations below the diagonal are for their partners; bold correlations on the diagonal are between women and their partners.  
\*= $p < .05$ , \*\*= $p < .01$

### 3.4.2 Associations Between Men's Attitudes and Their Partner's Masturbation

#### Recency

A binary logistic regression was used to examine whether men's attitudes toward women's solo masturbation (in general, not toward their own partner's experience) were associated with their partner's solo masturbation recency. The R-AWMI mean for the men whose partners reported recent solo masturbation was 110.26/135 ( $SD = 12.13$ ) and for those whose partners did not report solo masturbation within the past week was 105.64/135 ( $SD = 16.57$ ). A preliminary analysis suggested that the assumption of multicollinearity was met. The model was not significant,  $B = 0.02$ , 95CI: 0.99 to 1.05,  $p = .121$  [model  $\chi^2$  ( $df = 1$ ,  $N = 104$ ) = 2.60,  $p = .107$ ; Nagelkerke  $R$  square = .03; Hosmer and Lemeshow  $\chi^2$  ( $df = 8$ ) = 4.86,  $p = .772$ ], indicating no significant association between men's attitudes and their partner's solo masturbation recency. Women's attitudes score was associated with their solo masturbation recency,  $B = 0.032$ ,  $Wald = 4.23$ ,  $p = .040$ .  $exp(B) = 1.03$ , CI95: 1.002 to 1.06 [ $\chi^2$  ( $df = 1$ ,  $N = 105$ ) = 4.79,  $p = .029$ ; Nagelkerke  $R$  square = .06; Hosmer and Lemeshow  $\chi^2$  ( $df = 7$ ) = 2.22,  $p = .947$ ]. Women who reported more positive attitudes towards women's solo masturbation were more likely to report recent solo masturbation.

### 3.4.3 Associations Between (Dis)Similarity in Attitudes and Women's Solo

#### Masturbation

Descriptive information about the (dis)similarity groups for the R-AWMI (women's attitudes higher, lower, or similar to their partner) is presented in Table 4. Partners' scores in more than half of all couples (55.8%) differed from each other in one direction or the other. However, there was no significant association between partners' similarity in attitudes and women's solo masturbation recency  $\chi^2$  ( $n = 104$ ,  $df(2) = 0.915$ ,  $p = .633$ ).

**Table 3.4**  
*The (Dis)Similarity Groups for the R-AWMI (n = 104 Couples)*

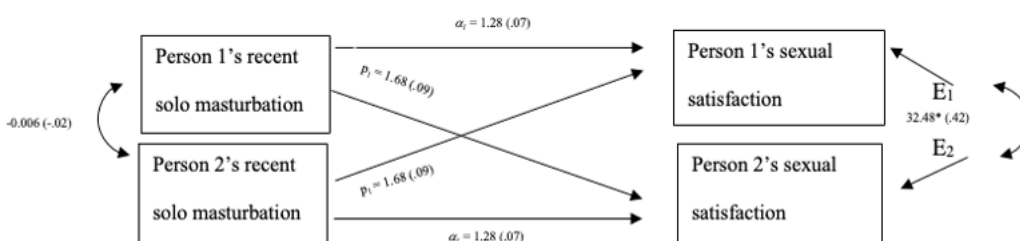
(Dis)similarity groups	n (%)	R-AWMI	
		Women’s means of R-AWMI <i>M (SD)</i>	Partners’ means of R-AWMI <i>M (SD)</i>
Women scored lower than their partners	29 (27.88)	98.69 (16.50)	111.90 (14.58)
Women and men scored similar	46 (44.23)	111.24 (11.67)	111.00 (11.81)
Women scored higher than their partners	29 (27.88)	114.31 (11.39)	98.21 (15.77)

**3.4.4 Associations Between Solo Masturbation and Sexual Satisfaction**

The results for the APIM\_MM for sexual satisfaction for women and their partners are presented in Figure 1 and in online supplementary Table 2. As gender did not make a meaningful difference to distinguish partners, an APIM\_MM analysis with indistinguishable dyads was conducted and the amount of variance explained by the full model was  $R^2 = .004$ .

The actor effects for recent solo masturbation ( $\alpha_1 = 1.28$ ) were not statistically significant ( $p = .300$ ;  $d = .15$ , less than small effect size) nor were the partner effects ( $p_1 = 1.68$ ) ( $p = .175$ ;  $d = .19$ , less than small effect size). For women and their partners, reporting solo masturbation within the past week was not associated with their own or their partner’s sexual satisfaction.

**Figure 3.2**  
*Actor-Partner Interdependence Model with Indistinguishable Dyads for Sexual Satisfaction*



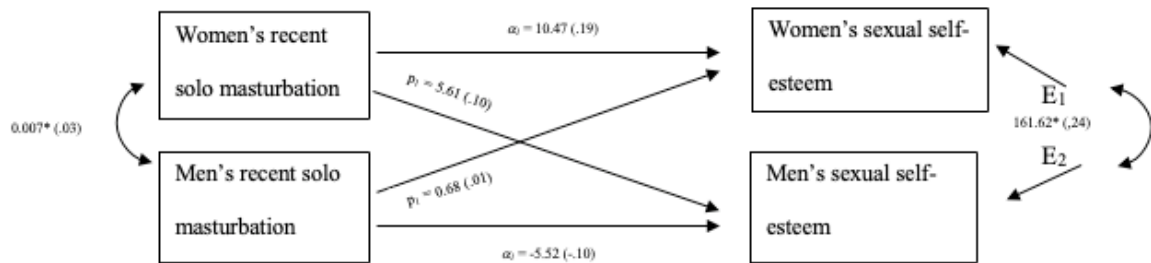
*Note.* Data were organized as dyadic pairwise data ( $N = 210$ ). Paths labelled with “ $\alpha_1$ ” indicate actor effects; “ $p_1$ ” paths indicate partner effects.  $E_1$  and  $E_2$  indicate the residual error of sexual satisfaction for participants and their partners, respectively.

### 3.4.5 Associations Between Solo Masturbation and Sexual Self-Esteem

The results for the APIM\_MM for sexual self-esteem for women and their partners are presented in Figure 2 and in online supplementary Table 3. Gender made a meaningful difference between partners,  $\chi^2(4) = 18.96, p < .001$ ; thus, an APIM with distinguishable dyads was used. The amount of variance explained by the full model for women was  $R^2 = .014$  and  $R^2 = .006$  for men.

**Figure 3.3**

*Actor-Partner Interdependence Model with Distinguishable Dyads for Sexual Self-Esteem*



*Note.* Data were organized as dyadic pairwise data ( $N = 209$ ). Paths labelled with “ $\alpha_1$ ” indicate actor effects; paths labelled with “ $p_1$ ” indicate partner effects.  $E_1$  and  $E_2$  indicate the residual error of sexual self-esteem for women and their partners, respectively.

The actor effects for both women ( $\alpha_1 = 10.47$ ) ( $p = .060$ ;  $d = 0.37$ , a small effect size) and men ( $\alpha_1 = -5.52$ ) ( $p = .270$ ;  $d = -0.24$ , a small effect size) were not statistically significant (Figure 2). The partner effect for women to men ( $p_1 = 5.61$ ) was also not statistically significant ( $p = .227$ ;  $d = .24$ , a small effect size) nor was the partner effect for men to women ( $p_1 = 0.68$ ) ( $p = .910$ ;  $d = 0.02$ , less than small effect size). In sum, for women and their partners, reporting solo masturbation within the past week was not associated with women’s or their partners’ sexual self-esteem.

## 3.5 Discussion

To the best of our knowledge, the current study is the first to report data on men’s attitudes about women’s solo masturbation and partners’ similarities (and differences) in attitudes about women’s solo masturbation. Previous studies demonstrated that some

women report shame and/or concerns regarding their partners' reactions to, or perceptions of, women's masturbation and a tendency to hide their solo self-pleasure experiences from their partner (Fahs & Swank, 2013; Goldey et al., 2016; Huong & Liamputtong 2018; Marcus, 2011). However, women and their partners in our study reported similar and positive attitudes about women's solo masturbation. This is in line with previous research by Herbenick et al. (2011) who reported positive beliefs about women's vibrator use among both women and men. However, neither the current study nor Herbenick et al.'s study evaluated men's attitudes or beliefs about their own partners' self-pleasure but rather general attitudes and beliefs about women's self-pleasure. Future research should also investigate men's attitudes toward their own partner's masturbation and its role within their relationships.

For some women, disclosing masturbation or solo vibrator use to a partner might be difficult (Marcus, 2011; Towne, 2019), but discussing effective self-pleasure techniques with a partner might help to enhance partnered sex, particularly as orgasm experience is more likely when there is greater alignment between the techniques used in masturbation and partnered sex (Rowland, Hevesi et al., 2020). Disclosing does not have to mean that the partner shares in the masturbation experience (e.g., mutual masturbation, partnered vibrator use), or that women tell their partners each time they masturbate because masturbation can also mean "me time" and "sexual freedom" (Bowman, 2014; Goldey et al., 2016). Future research could also explore what reasons are reported by women and men for hiding their masturbation from a partner. Whether this differs by sexual orientation should also be studied, as masturbation has been understudied among partnered sexual minority women (Bohmer et al., 2022; Meiller & Hargons, 2019).

Partners' similarity in their attitudes about women's masturbation was not associated with women's solo masturbation recency. However, regardless of their partner's attitudes, women who reported positive attitudes about masturbation were more likely to also report masturbation within the last week. Because partners were similar in their



attitudes, and women's attitudes were associated with their solo masturbation experience, one might expect a link between men's attitudes and their partners' experience. However, no such association was found.

In line with previous research (Haus & Thompson, 2020), our results demonstrate that women's solo masturbation is acceptable for most women and men in mixed-sex relationships. While some men report negative attitudes toward masturbation in general (Sierra et al., 2022), in the current study, most men reported positive attitudes toward women's masturbation ( $M_{\text{men}} = 107.68/135$ ). Although our results might support a shift toward egalitarian views for women's masturbation, this may not be the case for men's masturbation (Bowman, 2014; Dekker & Schmidt, 2003; Haus & Thompson, 2020). As we did not assess attitudes or beliefs about men's solo masturbation, to better understand possible reverse sexual double standards regarding masturbation, future research exploring couples' attitudes toward men's masturbation would be useful.

### **3.5.1 Self-Pleasure Experience**

Among our participants, solo masturbation was the most common way of experiencing self-pleasure among women and their partners, followed by mutual masturbation, partnered vibrator use, and solo vibrator use. In line with previous research (Frankenbach et al., 2022; Gerressu et al., 2008; Herbenick et al., 2022), although more men than women reported lifetime and last time solo masturbation, for both women and men solo masturbation was a common behaviour. Further, as 62.9% of the sample reported both partnered sexual activity and masturbation over the past four weeks, this might challenge the "compensatory" model of masturbation in which masturbation is a substitute for infrequent partnered sex (Dekker & Schmidt, 2003; Gerressu et al., 2008; Regnerus et al., 2017).

There may be several explanations for men's higher reporting of solitary sexual activity. Saliars et al. (2017) reported that among adolescent girls in their study, masturbation was perceived as easier for men compared to women because the penis is

visible. Alternatively, this gender difference in solo masturbation experience might partly be explained by the SDS. For men, frequent sexual activity has been evaluated more positively and is more expected than for women (Endendijk et al., 2020). And for some women, masturbation may be associated with guilt, shame and stigma (Bowmen, 2014; Carvalheira & Leal, 2013; Kaestle & Allen, 2011), partly because women's pleasure, sex, and bodies are often situated in a partnered sex context (Kaestle & Allen, 2011). This may lead men to overreport their masturbation frequency, while women may underreport it (Frankenbach et al., 2022; Petersen & Hyde, 2010; 2011). Further, when participants were made to believe that their answers were being checked by a lie detector, gender differences in reporting of certain sexual behaviours including masturbation lowered or disappeared (Alexander & Fisher, 2003). However, the sexual script and SDS are changing (Masters et al., 2013). Women's masturbation might be a good example of a reverse SDS in which women are considered "higher quality partners" than men because they masturbate for self- and partner-related motives, whereas men masturbate for self-related motives (Haus & Thompson, 2020).

### **3.5.2 Solo Masturbation and Sexual Satisfaction**

Only two previous studies have assessed solo masturbation and its link with sexual satisfaction at a couple level (Klapilová et al., 2015; Velten & Margraf, 2017). Velten and Margraf (2017), using APIM analysis, reported that frequent masturbation was associated with lower sexual satisfaction in both women and men ( $N = 964$  couples; 18-90 years old). Similar findings were reported by Klapilová et al. (2015) for women but, for men, masturbation frequency had no association with sexual satisfaction ( $N = 85$  couples; 20-40 years old).

In contrast to the above two studies, we found no evidence of a negative association between solo masturbation and sexual satisfaction. For women and their partners, reporting solo masturbation within the past week was not associated with either partner's sexual satisfaction. In fact, although not statistically significant, the mean sexual satisfaction score

of women who reported masturbation within the last week was higher than that of women who did not; for men, the opposite pattern was observed.

### **3.5.3 Solo Masturbation and Sexual Self-esteem**

While Kvaalem et al. (2014) reported no gender difference in sexual self-esteem, consistent with earlier research (Snell et al., 1993), men in our study reported higher sexual self-esteem than women. Sexual self-esteem can range from feeling sexually skilled to unskilled (Mayers et al., 2003). Thus, if women's partners believe that they are sexually skilled in partnered sex, they might also feel more comfortable with their partner's solo masturbation; the positive beliefs and attitudes about women's masturbation in our study might support this. However, in the current study, for women and their partners, reporting solo masturbation within the past week was not associated with their or their partners' sexual self-esteem. Similarly, men's recent solo masturbation was not associated with men's or their partners' sexual self-esteem. These findings contrast with those of Rodríguez-Domínguez et al. (2022). Possible explanations for the different findings are differences in measures and samples recruited.

### **3.5.4 Theoretical Implications**

The current study can improve understanding of how much of the sexual script about masturbation persists at a dyadic level by focusing on women's solo masturbation. Although solo masturbation is usually not included in the traditional sexual script (Kirschbaum & Peterson, 2018), our results show that it is a common sexual behaviour even when individuals are in a relationship. A shared but vague script for masturbation may include the absence of a sexual partner; however, we perhaps need to develop new sexual scripts for solo sexuality when in relationships (Fahs & Frank, 2014; Foust et al., 2022; Kirschbaum & Peterson, 2018). When both members of a couple follow complementary sexual scripts, the sense of predictability may put partners at ease (Wiederman, 2005).

### 3.5.5 Clinical Implications

Masturbation is a validated technique used in sex therapies for women with orgasm problems (Heiman, 2002; Marchand, 2021) and men with ejaculation difficulties (Shirai et al., 2023), but attitudes toward masturbation can influence the effectiveness of these therapies (Heiman & LoPiccolo, 2009; LoPiccolo & Lobitz, 1972). In clinical settings when women's solo masturbation is recommended to those in relationships, couples might also be encouraged to discuss their attitudes towards women's masturbation and this can help to debunk perceived negative reactions from a partner (Kılıç Onar et al., 2020).

As it is normal for couples to experience differences in sexual desire (Marieke et al., 2020), sex and couple therapists can also recommend solo masturbation for problems such as sexual desire discrepancies after exploring attitudes and feelings about self-pleasure. To better understand the role of solo masturbation in relationships, future studies can assess the mediating role of attitudes toward masturbation between masturbation experience and dyadic sexual satisfaction, partnered sexual pleasure, and/or sexual desire discrepancies between partners.

### 3.5.6 Strengths and Limitations

To the best of our knowledge, the current study is the first dyadic study with a focus on attitudes toward women's solo masturbation that recruited women and their partners. Strengths include the use of an anonymous online survey, which is useful in studies on sensitive topics such as masturbation (Carvalheira & Leal, 2013), and the use of scales with good psychometric properties.

However, there were also limitations. First, due to the cross-sectional study design and correlational findings, the causal direction of the associations cannot be determined. We used convenience sampling and thus, the sample was not representative and results cannot be generalized. Second, all participants were in mixed-sex relationships and most reported a White background (69.5%), university education (59.5%), and not attending religious practices (62.4%). Most participants were recruited via Prolific, which meant

they had to have a Prolific account. Couples who are sexually distressed or experiencing relational problems might be less likely to participate in dyadic research on sexual satisfaction (Corsini-Munt et al., 2017). This lack of diversity may have limited the range of responses.

Third, to maintain anonymity, we did not ask country of residency, because convenience snowball sampling was used through researchers' social media accounts, and to create a couple ID and match couples, the survey asked for initials and birthday/month; thus, we could not explore possible cultural differences. Fourth, it is important to note that data collection occurred when COVID-19 restrictions were in place. We did not evaluate COVID-related issues (e.g., lack of privacy) and we do not know how this might have influenced the recruitment process and the data collected.

Lastly, although most men in this study reported positive attitudes about women's solo masturbation, we could not establish how men actually reacted to their own partner's solo masturbation. Partners' actual reactions should be explored, ideally in a prospective study. Studying how partners share and discuss their solo sexuality with their partner might help facilitate understanding of which communication strategies are useful (or not).

### **3.5.7 Conclusions**

The similarity in positive attitudes and beliefs between partners regarding women's masturbation in the current study challenges traditional sexual norms and the SDS regarding masturbation and supports the idea that women's masturbation can be considered less stigmatized than it has been previously.

The role of solo masturbation within romantic relationships is complex but many individuals in relationships do report engaging in masturbation. Self-pleasure can increase sexual self-knowledge for all, across the lifespan, but in particular, can improve women's sexual pleasure during partnered sex (Hite, 2003; Rowland, Hevesi, et al 2020).

Normalising solo sex and including masturbation in the sexual script for those in

relationships may help to reduce difficulties associated with sexual desire discrepancies and can maximize one's own, and one's partner's, pleasure.

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## Chapter 4

### 4 Chapter 4 The Role of Mutual Masturbation within Relationships: Associations with Sexual Satisfaction and Sexual Self-Esteem

#### 4.1 Abstract

**Objectives:** We explored mutual masturbation among women and men and investigated associations with sexual satisfaction and sexual self-esteem.

**Methods:** 117 women and 151 men ( $M_{age} = 29.7$  years), mostly heterosexual, all in current relationships, completed an online survey covering experiences of solo and partnered sexual activities, feelings about mutual masturbation, sexual self-esteem, and sexual satisfaction.

**Results:** Mutual masturbation was common among both genders. Men reported significantly higher positive feelings about mutual masturbation than women. Recent mutual masturbation was positively associated with sexual satisfaction but not with sexual self-esteem.

**Conclusions:** These findings have implications for sex and couple therapy and research.

**Key words:** Mutual masturbation, sexual satisfaction, sexual self-esteem.

## 4.2 Introduction

Masturbation is a conscious physical act of stimulating one's genitals or any parts of one's body with the purpose of orgasm and/or pleasure; it may or may not include the use of sex toys (American Psychological Association (APA), 2023; Bowman, 2017; Kirschbaum & Peterson, 2018). How people define masturbation differs and there is no one universal definition that is used consistently (Kirschbaum & Peterson, 2018), but the term is commonly used for solo masturbation (Bowman, 2017; Kirschbaum & Peterson, 2018). Solo masturbation refers to self-stimulation when individuals are physically alone (Bowman, 2017). In fact, although masturbation does not have a clear script (discussed below), a common script for masturbation is the expectation that "*masturbation happens alone and ends in orgasm*" (Kirschbaum & Peterson, 2018, p. 270). However, Kirschbaum and Peterson (2018) found that approximately 40% of their sample defined stimulation of a partner's genitals with manual stimulation as masturbation. Most published research on masturbation has focused on solitary sexual activity (e.g., Bowman, 2014; Gerressu et al., 2008; Regnerus et al., 2017). When researchers have used the term "masturbation" or "self-stimulation", typically solo sexual activity was assessed, although in some publications, it is unclear whether solo or mutual masturbation was considered (Bridges et al., 2004; Fischer et al., 2022; Rowland, Kolba, et al., 2020).

The aim of the current study was to explore experiences with, and feelings about, mutual masturbation and to investigate any associations between recent mutual masturbation and sexual satisfaction and sexual self-esteem. Although there is no uniformly accepted definition for mutual masturbation, mutual masturbation refers to when two or more people engage in self-stimulation (APA, 2023; Bowman, 2017). Bowman (2017) defined mutual masturbation as "*when two or more people manually stimulate their own body or each other's bodies*", while APA described it as when "*two individuals stimulate each other's genitals at the same time for the purpose of sexual gratification*" and considered mutual masturbation as a type of petting behaviour. As we did not want to



restrict individuals' meanings of mutual masturbation, in the current study, mutual masturbation refers to the presence or involvement of a partner(s) during *self-stimulation*, which may occur before, during, after, or without any other sexual activity (Kılıç Onar et al., 2020). For instance, person A could masturbate while person B watches and/or also masturbates, or person A could stimulate their own body parts/genitals (with or without vibrators) for the purpose of pleasure during partnered penetration. Previous research on mutual masturbation, also referred to as partnered masturbation (Dodge et al., 2016; Herbenick, Rosenberg et al., 2022), has mainly focused on it as a safer alternative to sexual intercourse and as an infection prevention behaviour, primarily among men who have sex with men (Huber & Gillaspy, 2000; Reisner et al., 2009). Very little is known about mutual masturbation and its associations with sexual pleasure, satisfaction, and well-being.

#### 4.2.1 Sexual Script Theory

Sexual scripts provide sexual cues and socially available messages for how one should act or feel in a particular sexual scenario (Gagnon & Simon, 1987; Wiederman, 2005). Sexual norms such as “men’s orgasm signals the end of sex” (Braun et al., 2003; Muehlenhard & Shippee, 2010; Opperman et al., 2014) and “men are the source of (or responsible for) female orgasm” (Fahs, 2011; Muehlenhard & Shippee, 2010; Salisbury & Fisher, 2014) are some of the sexual beliefs that might influence ideas about what are “acceptable” sexual behaviours in mixed-sex relationships. However, established sociocultural sexual scripts often overvalue penile-vaginal intercourse (PVI) and male pleasure (over women’s pleasure) (Klein & Conley, 2022; Laan et al., 2021; Mahar et al., 2020; Mintz, 2017), and only include these sexual behaviours: kissing, partner touching, oral genital contact, PVI, women’s orgasm (real or “faked”), and men’s orgasm (real) which indicates sex is over (Braun et al., 2003; Gagnon & Simon, 1987; Muehlenhard & Shippee, 2010).

Yet, partly because of the traditional sexual norms of “*sex equals intercourse*” and “*orgasm should occur during intercourse*” (Muehlenhard & Shippee, 2010, p. 564), solo

and mutual masturbation are not even included in the traditional sexual script; consequently, any type of masturbation might challenge one's existing scripts. Due to the portrayal of masturbation in popular culture, a common but vague script for masturbation is the expectation that "*masturbation happens alone and ends in orgasm*" (Kirschbaum & Peterson, 2018, p. 270). Another common misconception about masturbation is that only single people masturbate (Kaestle & Allen, 2011; Kılıç Onar et al., 2020). As noted by Fahs and Frank (2014), an advantage of cultural silence and secrecy surrounding masturbation might be freedom from traditional scripts given that there is no single norm about how often one should masturbate, what behaviours occur during masturbation, and/or the method(s) used to masturbate (Fahs & Frank, 2014; Kirschbaum & Peterson, 2018). However, not having norms about masturbation might also be problematic as easily accessed traditional sexual scripts for heterosexual sex which overvalue male pleasure might be internalised and applied to individuals' own meaning and stories of masturbation (e.g., heterosexual women may feel pressured to masturbate in front of their partner to please or provide stimulation for him; Fahs & Frank, 2014; Foust et al., 2022). Gendered sexual practices and scripts limit women's opportunities for sexual pleasure (Laan et al., 2021), while sexual script flexibility has been associated with couples' greater sexual satisfaction (Bouchard et al., 2023). In view of this, perhaps we need new, positive sexual scripts for solo and mutual masturbation to help couples develop a new definition of "sex" (Laan et al., 2021).

#### **4.2.2 Mutual Masturbation**

Mutual masturbation (with or without vibrators) can increase one's partnered sexual repertoire. Previous research has demonstrated a positive link between diverse sexual repertoires (i.e., behaviours beyond PVI), and sexual satisfaction, orgasm, and women's arousal (Frederick et al., 2017; Gillespie, 2017; Herbenick et al., 2010a). However, although in previous studies "using a vibrator (or sex toy) together with a partner" has often been included when assessing sexual repertoires, mutual masturbation

has not (Frederick et al., 2017; Gillespie, 2017). Mutual masturbation can provide visual cues about pleasure triggers and may also help partners openly communicate about sexual needs, likes, and dislikes (Francis, 2004; Heiman & LoPiccolo, 2009; Mintz, 2017); however, as mentioned above, very little is known about this behaviour and its association with sexual pleasure and satisfaction.

Only one qualitative study has explored young women's experiences with partnered and solo masturbation (Foust et al., 2022). While some women in this study reported desire to connect with their partner and improve intimacy as a motivation to engage in mutual masturbation, they also engaged in the behaviour to arouse/stimulate and please their partner, sometimes upon the male partner's request without their own desire to do so or, occasionally, to guarantee their own pleasure during partnered sex. In addition, some women reported feeling awkward and/or embarrassed to masturbate in front of a partner due to the private nature of masturbation and/or body insecurities, while others described feeling powerful, attractive, and empowered from arousing and pleasing their partners. Feelings of guilt and shame were also discussed both in partnered and solo masturbation contexts but were less salient in partnered contexts. While some women talked about normalising solo masturbation, none mentioned the need to normalise partnered masturbation (Foust et al., 2022). Therefore, while partnered masturbation is less commonly reported than solo masturbation (Dodge et al., 2016; Herbenick, Rosenberg et al., 2022), it may be perceived more positively among women due to the sexual scripts and societal norms overvaluing partnered sexual activities (Foust et al., 2022; Muehlenhard & Shippee, 2010).

#### **4.2.3 Sexual Satisfaction and Self-Pleasure**

Sexual satisfaction is an important aspect of sexual health and well-being (Anderson, 2013; Henderson et al., 2009). Rather than the absence of sexual problems, definitions of sexual satisfaction include personal sexual well-being and aspects of the dyadic relationship, such as the presence of mutuality, orgasm, romance, creativity, and

pleasure (Pascoal et al., 2014). Improvements in sexual satisfaction are associated with enhancements in overall romantic relationship satisfaction, and vice versa (Byers, 2002; 2005; Sprecher, 2002). Masturbation only partly contributes to one's satisfaction with overall sex life and research on sexual satisfaction has mainly focused on satisfaction with partnered sex; thus, our understanding of the association between masturbation and satisfaction with one's "own" sexuality is limited (Fischer & Træen, 2022).

For women, higher masturbation frequency has been associated with lower overall and sexual relationship satisfaction, and lower satisfaction during partnered sex, but also less orgasm difficulty and greater orgasmic pleasure during masturbation (Rowland, Kolba et al., 2020). However, when partners are aware of women's masturbation, there may be positive associations between overall and sexual relationship satisfaction and masturbation. In mixed-sex couples, women's masturbation may increase men's pleasure and desire through visual stimulation and thus may improve mutual satisfaction (Fahs & Frank, 2014; Foust et al., 2022). Gauvin et al. (2020) reported greater sexual satisfaction among women who reported using a vibrator in both solo and partnered contexts compared to those who only used a vibrator by themselves. Indeed, partner awareness, involvement or reactions might mediate the relationship between sexual satisfaction and masturbation. However, partners' involvement in women's masturbation (mutual masturbation) has been understudied (Foust et al., 2022; Kılıç Onar et al., 2020) and, to the best of our knowledge, no studies have explored this among mixed-sex and female same-sex couples, particularly the pleasure aspects or sexual enjoyment related to mutual masturbation.

#### **4.2.4 Sexual Self-Esteem and Self-Pleasure**

Sexual self-esteem is one of the important core domains of sexual well-being and may contribute to sexual pleasure (Anderson et al., 2013; Mitchell et al., 2021). Sexual self-esteem has been defined as the person's sense of self as a sexual being, including self-appraisals of sexual feelings, thoughts, and behaviours as well as perceptions of sexual acceptability and sexual identity (Mayers et al., 2003; Zeanah & Schwarz, 1996; 2020).

One's sexual self-esteem can range from sexually skilled to unskilled and from sexually appealing to unappealing (Mayers et al., 2003).

Masturbation is a way to explore and understand one's genital anatomy and might help in developing a positive relationship with one's body (Carvalho & Leal, 2013; Coleman, 2003; Shulman & Horne, 2003). Indeed, higher masturbation frequency has been linked to lower body shame and higher body appreciation (de Lima et al., 2022). Because of the relationship between body image/body satisfaction and sexual self-esteem (Carvalho & Leal, 2013; de Lima et al., 2022; Shulman & Horne, 2003), one might expect a positive link between masturbation and sexual self-esteem. In fact, the frequency of solitary masturbation has been associated with higher sexual self-esteem (Rodríguez-Domínguez et al., 2022). It is plausible that more sexual pleasure contributes to developing higher sexual self-esteem and vice versa, higher sexual self-esteem may increase opportunities for sexual pleasure (Anderson et al., 2013). But we know very little about the associations between mutual masturbation and sexual self-esteem. The current study answers the call from Coleman (2003) to assess the link between masturbation and sexual self-esteem.

#### **4.2.5 Why is it Important to Study Self-pleasure within Relationships?**

Recently, the World Association for Sexual Health's (WAS) declaration on pleasure highlighted the importance of sexual pleasure as an essential part of sexual health, well-being and sexual rights for all (Ford et al., 2021). Biopsychosocial evidence for gender similarities supports the fact that gender differences in sexual pleasure are not biological but are influenced by a societal context that places women at a disadvantage (see Laan et al., 2021). For example, while male masturbation is perceived as acceptable, or even encouraged, girls and young women receive no or negative messages about masturbation while growing up (Kaestle & Allen, 2011; Thorpe et al., 2023). Although women report discovering the pleasures of the clitoris and orgasm primarily through masturbation, gendered scripts can have an influence on the feelings, use, and functions of

masturbation as a pleasure source in relationships (Laan et al., 2021; Towne, 2019; Waskul et al., 2007). In fact, one sexual behaviour that may help with pleasure inequalities is masturbation (solo and mutual) as orgasm rates and orgasm satisfaction do not differ between men and women, and between women in same-sex and women in mixed-sex relationships during self-stimulation (Blair et al., 2018; Wetzel & Sanchez, 2022). Also, although people report various reasons to masturbate, the primary cited motivation is *pleasure* (Carvalheira & Leal, 2013; Herbenick, Fu et al., 2022; Rowland, Kolba, et al., 2020). As sexual pleasure is linked with diverse sexual experiences (Ford et al., 2021; Mitchell et al., 2021; Reis et al., 2021), understanding the joyful aspects of types of masturbation (solo and mutual) in relationships is important. Because Anderson (2013) proposed that the positive aspects of sexuality include sexual satisfaction, self-esteem, and sexual pleasure, we explored the link between mutual masturbation and sexual satisfaction and sexual self-esteem in the current study.

The orgasm gap, the well-established difference between heterosexual women's and men's frequency of orgasm during partnered intercourse, has gained popular media and research attention (Blair et al., 2018; Frederick et al., 2018; Mahar et al., 2020), but how to close the gap remains understudied, partly because of established sexual scripts valuing PVI and other types of penetrative sex. However, as most women do not experience orgasm and/or pleasure from penetration alone, research on masturbation and sexual activities other than penetration can help destigmatize diverse expressions of sexuality, contribute to breaking the cycle of pleasure inequality, and enhance sexual satisfaction (Herbenick et al., 2018; Mahar et al., 2020; Meiller & Hargons, 2019). Knowledge of the clitoris and its pleasure mechanisms, also known as "cliteracy" is associated with sexual pleasure and orgasm in women (Dienberg et al., 2023; Mintz, 2017); thus, incorporating sexual activities with clitoral stimulation, like mutual masturbation, into partnered sex is important to enhance mutual pleasure in relationships.

Within sexual relationships, sharing masturbation experiences might be good practice as information disclosed might facilitate an open discussion between partners regarding the location and stimulation of pleasure points (Francis, 2004; Heiman & LoPiccolo, 2009; Mintz, 2017). Mutual masturbation can also be useful in educating men about women's pleasure and anatomy in heterosexual relationships (Heiman & LoPiccolo, 2009; Klein et al., 2022; Mintz, 2017). Indeed, mutual masturbation has been recommended to increase women's pleasure in partnered sex by improving sexual communication about preferred stimulation techniques (Heiman & LoPiccolo, 2009; Mintz, 2017). A greater alignment between techniques used in women's masturbation and partnered sexual activities has been associated with less difficulty with orgasm and arousal, a greater likelihood of experiencing orgasm and orgasmic pleasure, and longer duration of sexual activities (with adequate arousal) (Rowland, Hevesi et al., 2020).

Mutual masturbation has also been described as a tool to enhance sexual experience by reducing the focus on penetration and a way to help develop couples' relationships (Kaestle & Allen, 2011). However, feelings about mutual masturbation are not well understood. Considering masturbation is one of the most common sources of orgasm and pleasure among women and a technique used in sex therapies for women's orgasm and men's ejaculation difficulties (Kontula & Miettinen, 2016; Laumann et al., 1994; Marchand, 2021; Shirai et al., 2023; Stravynski et al., 1997; Wade et al., 2005), it is important to understand the role of masturbation in relationships. Also, although we do not know how partners communicate about masturbation or how and why one partner initiates mutual masturbation, given the role of mutual masturbation in dyadic sexual communication, it is important to explore experiences of and feelings about mutual masturbation (Heiman & LoPiccolo, 2009; Mintz, 2017).

#### 4.2.6 Aims and Research Questions

The aim of this study was to explore women's and men's feelings about and experiences with mutual masturbation and to investigate any associations between mutual masturbation recency and sexual satisfaction and sexual self-esteem.

**RQ1:** *What feelings and experiences do individuals report about mutual masturbation? Are there any gender differences?*

**RQ2:** *What are the associations between mutual masturbation recency and sexual satisfaction?*

**RQ3:** *What are the associations between mutual masturbation recency and sexual self-esteem?*

### 4.3 Method

#### 4.3.1 Participants

As part of a larger project on women's self-pleasure within relationships, couples were recruited into an online study. However, during data collection, a significant proportion of partners ( $n = 164$ ) did not complete the survey, leaving a large sample of participants who provided only individual data. Consequently, we conducted an individual-level analysis using data from these participants. For the present study, to enhance the individual-level sample with respect to gender and sexual orientation, we also included one randomly selected partner from each female same-sex couple and all male partners from the mixed-sex couples in the larger study. Approximately half of the sample ( $n = 138$ ) was recruited through social media and the remainder ( $n = 130$ ) were recruited through Prolific (see online supplementary material for Participant Recruitment Flow Chart).

To be eligible for the larger study, both partners had to be at least 18 years old, in a relationship with each other for at least one year, and be able to read and understand English. Women of any sexual orientation, and from any country or region, and their partners were eligible. To increase sexual orientation diversity in the sample,



recruitment notices were posted in LGBTQ+ Facebook groups. Initial recruitment via social media was slow so recruitment was expanded to Prolific. However, for these participants, the inclusion criteria of a minimum relationship length of one year was changed and instead, participants were eligible if they had a romantic partner who had a Prolific account and would be willing to take part as a couple.

#### **4.3.2 Procedure**

Convenience and snowball sampling were used to recruit couples between January 2021 and January 2022 via social media (e.g., Facebook, Twitter) and Prolific. Advertisements were posted inviting women and their partners to complete a 20–30-minute survey on couple’s sexual and relational satisfaction. Also, between April and May 2021, advertisements were displayed on callforparticipants.com. For participants recruited via social media, the advertisement gave a brief description of the study and provided a link for more information and to complete the survey. Participants recruited via Prolific received a description of the screening survey prior to the main survey. The screening survey took 1 to 3 minutes to complete and included questions about basic demographics, whether participants had a romantic partner who had a Prolific account, and if so, their partner’s prolific ID. All participants received the same participant information sheet in which the research aim was stated as “investigating different aspects of sex and sexual practices within romantic relationships”. All participants were informed that the project was for couples where both partners were willing to participate and answer the questions independently. A comfortable and private environment was suggested for completion of the survey.

Eligible couples independently accessed the survey link and indicated their consent by clicking a button at the bottom of the participant information sheet before proceeding with the online survey. After providing consent, all participants created a unique partner ID in order for partners to be matched. Then, participants were asked demographic questions followed by questions about romantic relationships, emotional

intimacy, sexual experiences, experiences with masturbation and vibrators, attitudes towards masturbation, beliefs about vibrator use, clitoral self-stimulation during partnered sex, dyadic sexual communication, sexual self-esteem, sexual satisfaction, sexual function, and general attitudes toward sexuality. Both members of the couple completed the same measures.

Upon completion of the survey, participants recruited through social media could enter a prize draw to win one of twenty £20 Amazon gift vouchers. Participants recruited via Prolific received £3.35 to their Prolific account upon completion. The main survey was the same in all recruitment platforms, the only exception being the prize draw question which was not shown to Prolific participants. Research procedures were approved by the University of Southampton Research Ethics Committee.

### 4.3.3 Measures

As this study was a part of a larger project, additional questions and validated scales such as the Emotional Intimacy Scale (Sinclair & Dowdy, 2005, see Procedure) were also included but were not analysed for this article and are therefore not reported here.

#### 4.3.3.1 *Descriptive Characteristics*

Sociodemographic questions included ethnicity, education, employment, household income, occupation, and area of residence (city, metropolitan or town) (for all response options provided, see Table 1).

**Sexual Experiences.** Participants were asked: “Over the past 4 weeks, did you engage in sexual activity of any kind with a partner and/or by yourself (masturbation)?” (Response options: 0 = No sexual activity (neither with a partner nor by myself); 1 = Sexual activity with a partner only; 2 = Sexual activity by myself only; 3 = Sexual activity both with a partner and by myself) (Meyer-Bahlburg & Dolezal, 2007).

#### 4.3.3.2 *Sociodemographic Questions*

To control for variables potentially related to study outcomes, participants were asked about: self-reported gender, age, sexual orientation, relationship status and length, living with a partner, children, long-standing illness, and religious participation. Response options for age were included in a drop-down box showing numbers between 18 and 100 (see Table 1).

#### 4.3.3.3 *Experiences of Solo and Mutual Masturbation*

At the beginning of this section, participants were provided with a broad definition of masturbation (“*Masturbation means stimulating your own genitals to enjoy the pleasurable sensations or experience orgasm*”; Mosher, 2011) and informed that the subsequent questions focused on solo masturbation. Questions were based on previous research (Regnerus et al., 2017) and included participants’ last instance of masturbation (i.e., masturbation recency, “*When did you last masturbate?*”), with nine response options ranging from today to never (“last-instance” approach, see Regnerus et al., 2017).

After completing questions on solo masturbation experiences, a broad definition of mutual masturbation was provided (“*Mutual masturbation is defined as partner involvement or partner presence during self-stimulation, which may occur without, before, during, or after sexual intercourse*”; Kılıç Onar, 2020). As before, participants were asked about last time mutual masturbation experiences (i.e., the wording of the previous questions was changed from “masturbation” to “mutual masturbation”). Participants who reported masturbation between “today” up to “two weeks ago” were recoded as having “reported recent mutual (or solo) masturbation”; participants who reported “almost a month ago” to “never” were recoded as “did not report mutual (or solo) masturbation in the past two weeks.”

#### 4.3.3.4 *Feelings About Mutual Masturbation*

Feelings about mutual masturbation were measured with a revised *feelings about masturbation subscale* taken from the Attitudes Towards Masturbation Scale (F-ATMS; Young & Muehlenhard, 2011). The revised subscale measures satisfaction, anger, guilt, anxiety, and indifference towards mutual masturbation. Two composite scores were used in this analysis: positive-feelings composite (satisfaction subscale score, 8 items) and negative feelings composite scores (the mean of guilt, anxiety, anger, and indifference subscales; 15 items).

For the revision, the wording of the instruction was changed from “masturbation” to “mutual masturbation” (“*People feel many different things when they masturbate mutually. Below is a list of possible feelings. How strongly, if at all, do you usually experience these feelings when you masturbate mutually?*”). The subscale was shortened from 45 feelings to 23 feelings to minimize response fatigue. Participants were asked to rate the strength of each feeling on a 5-point scale ranging from 1 (not at all) to 5 (very strongly); total scores for the positive subscale could range from 0 to 40, and from 0 to 75 for the negative subscale. Higher scores indicate greater intensity of feelings. In the current study, Cronbach’s alpha was good (.89) for the positive feelings subscale and excellent (.95) for the negative feelings subscale.

#### 4.3.3.5 *The New Sexual Satisfaction Scale – Short Form (NSSS-S; Brouillard et al., 2020)*

The NSSS-S was used to assess women’s and their partner’s sexual satisfaction. Twelve items are scored on a 5-point Likert scale ranging from 1 (not at all satisfied) to 5 (extremely satisfied). The NSSS-S has two subscales: *ego-centered* subscale (e.g., “*The quality of my orgasms*”, “*My mood after sexual activity*”), and *partner/sexual activity-centered* subscale (e.g., “*My partner’s ability to orgasm*”, “*My partner’s sexual creativity*”). Total scores (ranging from 12 to 60) are calculated by

summing the items; higher scores indicate higher levels of sexual satisfaction

(Brouillard et al., 2020). For the current study, Cronbach's alpha was excellent (.91).

#### **4.3.3.6 *The Sexual Self-Esteem Inventory – Short Form (SSEI-S; Zeanah & Schwarz, 2020)***

Sexual self-esteem was measured with the SSEI-S, developed to assess affective reactions to self-appraisals of sexual feelings, thoughts, and behaviours (Zeanah & Schwarz, 1996; 2020). The inventory has 35 items assessing five domains of overall sexual self-esteem: skill/experience, control, moral judgment, attractiveness, and adaptiveness. Responses are given on a 6-point Likert scale ranging from 1 (strongly disagree) to 6 (strongly agree). A sample item from the SSEI-S is: “*My sexual behaviours are in line with my moral values.*”. Raw score items for each subscale and overall score are totalled, with the overall score ranging from 35 to 210; higher scores indicate higher sexual self-esteem. For the current study, Cronbach's alpha was excellent (.93).

### **4.3.4 Data Analysis**

#### **4.3.4.1 *Missing Data***

After removing participants who completed less than half of the survey items and/or those who missed at least one of the key outcome variables (e.g., sexual satisfaction) ( $n = 80$ ), all items/variables were missing fewer than 2.2% responses. Six participants (2.2%) did not complete any of the items on the feelings about mutual masturbation measure. Missing data in general were handled using two strategies. Firstly, continuous variables, except feelings about mutual masturbation, were substituted with the mean score for that variable. Secondly, any other missing values (e.g., categorical variables, feelings about mutual masturbation) were deleted pairwise during the analyses.

#### **4.3.4.2 *Statistical Analysis***

To examine gender differences in feelings about mutual masturbation (RQ1), simple and multiple linear regressions were run, using positive- and negative-feelings

composite scores as the outcome variables. In order to test for interaction among the variables (mutual masturbation recency and gender), a moderation analysis using PROCESS v.4.2, Model 1 (Hayes, 2018) was used. Because of the skewed distribution of negative-feelings, analyses including the negative feelings variable were bootstrapped. A chi-square test of independence was run to examine differences in reported recency of mutual masturbation experiences between women and men.

To examine associations between mutual masturbation (independent variable) and sexual satisfaction and sexual self-esteem as the outcome variables (RQ2 and RQ3), multiple linear regressions were conducted. All analyses were conducted with SPSS (Version 28.0.1.1) for Mac. A p-value less than 0.05 was considered significant.

For the analysis, variables were coded as follows: mutual masturbation recency (1 = did not report mutual masturbation in the past two weeks, 2 = reported mutual masturbation in the past two weeks), solo masturbation recency (1 = did not report solo masturbation in the past two weeks, 2 = reported solo masturbation in the past two weeks), gender (1 = women, 2 = men), age (1 = <30 years, 2 = ≥30 years), sexual orientation (1 = heterosexual, 2 = sexual minority), relationship status (1 = married, 2 = all other relationship types), relationship duration (1 = <5 years, 2 = ≥5 years), living with a partner (1 = yes, 2 = no), illness/disability (1 = yes, 2 = no), children (1 = no children, 2 = yes or pregnant) and religious participation (1 = at least some reported, 2 = never or practically never). The age variable was kept as a continuous variable for the analyses.

#### **4.3.4.3 Control Variables**

For demographic variables, simple univariable linear regression analyses were conducted to identify potential relationships with outcome variables. Variables with  $p < .05$  in univariable analyses were included as control variables in the final multiple linear regression models. Also, solo masturbation recency was considered as a key independent variable and was therefore controlled for in multiple regression models regardless of the p-

value in univariable analyses. The results of the univariable analyses are presented in the online supplementary file.

## 4.4 Results

### 4.4.1 Participant Characteristics

268 participants (117 women and 151 men) ranging in age from 18 to 65 years ( $M = 29.7$ ,  $SD = 8.1$ ) completed the survey. Most (60.1%) were in a relationship but not married, 37.7% were married, and 55.6% reported a relationship length between 1-5 years. Most (70.9%) reported having completed a college/university or postgraduate degree and their ethnic background as White (76.1%). Full demographics are reported in Table 1.

**Table 4.1**

*Characteristics of the Study Participants (N = 268)*

	Total N (%)		Total N (%)
Gender $N = 268$		Age $n = 258$	
Women	117 (43.7)		$M = 29.7$ ,
Men	151 (56.3)		$SD = 8.1$
Non-binary	0 (0)		
Other	0 (0)		
Sexual orientation $N = 268$		Ethnicity $N = 268$	
Heterosexual	217 (81.0)	White British	68 (25.4)
Bisexual	31 (11.6)	Any other White background	136 (50.7)
Lesbian/gay	12 (4.5)	Black British	5 (1.9)
Asexual	2 (0.7)	Any other Black background	23 (8.6)
Pansexual	5 (1.9)	Asian or Asian British	11 (4.1)
Other ('Queer')	1 (0.4)	Any other mixed background/Multiracial	19 (7.1)
		Did not state	6 (2.2)
Relationship status $N = 268$		Do you have biological, adopted, foster or stepchildren? $N = 268$	
Married	101 (37.7)	No	205 (76.5)
In a relationship	161 (60.1)	No, but I am (or my partner is) pregnant	5 (1.9)
In a relationship but seeing others	3 (1.1)	Yes	58 (21.6)
Casually dating	2 (0.7)		
Other ('domestic')	1 (0.4)		
Partner gender $n = 267$		Income $N = 268$	
Women	158 (59.0)	Poverty level	4 (1.5)
Men	106 (39.6)	Lower income	31 (11.6)
Non-binary	3 (1.1)	Lower middle income	52 (19.4)
		Middle income	107 (39.9)
		Upper middle income	54 (20.1)
		Upper income	16 (6.0)
		I choose not to answer	4 (1.5)
Relationship duration $N = 268$		Do you have any long-standing illness, disability or infirmity? $N = 268$	
0 to less than 6 months	9 (3.4)		

	Total <i>N</i> (%)		Total <i>N</i> (%)
6 months to less than 1 year	17 (6.3)	Yes	55 (20.5)
1 year to less than 5 years	149 (55.6)	No	213 (79.5)
5 years to less than 10 years	59 (22.0)		
10 years and more	34 (12.7)		
Do you live together with your partner? <i>N</i> = 268		Highest level of education <i>N</i> = 268	
Yes	184 (68.7)	Less than high school	2 (0.7)
No	84 (31.3)	High school or equivalent	53 (19.8)
		Technical or vocational college	22 (8.2)
		College/university	116 (43.3)
		Postgraduate university (MSc/PhD)	74 (27.6)
		Other: ('HND')	1(0.4)
When did you first start living with your current partner? ( <i>n</i> = 184)		Religious participation <i>N</i> = 268	
0 to less than 6 months	30 (11.2)	Once a week or more	24 (9.0)
6 months to less than 1 year	25 (9.3)	Less often but at least once in 2 weeks	12 (4.5)
1 year to less than 5 years	81 (30.2)	Less often but at least once a month	19 (7.1)
5 years to less than 10 years	32 (11.9)	Less often but at least twice a year	29 (10.8)
10 years and more	16 (6.0)	Less often but at least once a year	20 (7.5)
		Less often	22 (8.2)
		Never/practically never	138 (51.5)
		Varies	4 (1.5)
		Occupation (please tick all that apply) <i>n</i> = 277	
		Full-time employed	142 (53.0)
		Part-time employed	49 (18.3)
		Full-time student	58 (21.6)
		Part-time student	9 (3.4)
		Other: Freelancer	1 (0.4)
		Other: Housewife	1 (0.4)
		Other: Unemployed	13 (4.8)
		Other: Retired	1 (0.4)
		Other: Self-Employed	3 (1.1)
Currently live <i>N</i> = 268			
In a city	164 (61.2)		
In another metropolitan or suburban area	64 (23.9)		
In a small town or rural area	40 (14.9)		

#### 4.4.2 Mutual Masturbation Experiences

Across the sample, 50.7% (*n* = 136) reported recent mutual masturbation (i.e., in the past two weeks). Among men, 48.3% (*n* = 73) reported recent mutual masturbation and among women, 53.8% (*n* = 63) did. Table 2 provides data on reported experiences of solo and partnered sexual activities. No associations were identified between gender and recent mutual masturbation ( $p = .334$ , Table 3).



**Table 4.2**  
*Sexual History Background Details (N = 268)*

		Women <i>n</i> = 117 (43.7%)	Men <i>n</i> = 151 (56.3%)	Total <i>N</i> = 268
Any sexual activity (solo or partnered)/last 4 weeks	No sexual activity (neither with a partner nor by myself)	5 (4.3%)	4 (2.6%)	9 (3.4%)
	Sexual activity with a partner only	40 (34.2%)	47 (31.1%)	87 (32.5%)
	Sexual activity by myself only	12 (10.3%)	14 (9.3%)	26 (9.7%)
	Sexual activity both with a partner and by myself	60 (51.3%)	86 (57.0%)	146 (54.5%)
	Total ( <i>N</i> )	117 (100.0%)	151 (100.0%)	268 (100.0%)
Last time solo masturbation	Today	14 (12.0%)	19 (12.6%)	33 (12.3%)
	Yesterday	24 (20.5%)	34 (22.5%)	58 (21.6%)
	Several days ago	28 (23.9%)	42 (27.8%)	70 (26.1%)
	One week ago	12 (10.3%)	15 (9.9%)	27 (10.1%)
	Two weeks ago	12 (10.3%)	12 (7.9%)	24 (9.0%)
	Almost a month ago	8 (6.8%)	8 (5.3%)	16 (6.0%)
	Couple of months ago	10 (8.5%)	9 (6.0%)	19 (7.1%)
	Over a year ago	8 (6.8%)	9 (6.0%)	17 (6.3%)
	Never	1 (0.9%)	3 (2.0%)	4 (1.5%)
	Total ( <i>N</i> )	117 (100.0%)	151 (100.0%)	268 (100.0%)
Last time mutual masturbation	Today	2 (1.7%)	4 (2.6%)	6 (2.2%)
	Yesterday	11 (9.4%)	10 (6.6%)	21 (7.9%)
	Several days ago	20 (17.1%)	32 (21.2%)	52 (19.5%)
	One week ago	22 (18.8%)	18 (11.9%)	40 (15.0%)
	Two weeks ago	8 (6.8%)	9 (6.0%)	17 (6.4%)
	Almost a month ago	10 (8.5%)	14 (9.3%)	24 (9.0%)
	Couple of months ago	16 (13.7%)	22 (14.6%)	38 (14.2%)
	Over a year ago	6 (5.1%)	19 (12.6%)	25 (9.4%)
	Never	21 (17.9%)	23 (15.2%)	44 (16.5%)
	Total ( <i>N</i> )	116 (99.1%)	151 (100.0%)	267 (99.6%)

**Table 4.3**  
*Descriptive Statistics for Key Variables in Regression Models by Gender (N = 268)*

Variable	Total		Women		Men		Bivariate	
	<i>N</i> = 268		<i>n</i> = 117		<i>n</i> = 151		Analysis	
	<i>M</i> (or %)	<i>SD</i>	<i>M</i> (or %)	<i>SD</i>	<i>M</i> (or %)	<i>SD</i>	<i>t</i> (or $\chi^2$ )	<i>p</i>
Sexual satisfaction	45.35	9.52	44.14	9.71	46.30	9.30	-1.85	.065
Sexual self-esteem	159.61	27.97	154.95	28.59	163.22	27.02	-2.42	<b>.016</b>
Positive feelings composite	29.58	7.17	28.11	7.31	30.71	6.87	-2.92	<b>.003</b>
Negative feelings composite	24.41	12.15	25.40	12.07	23.65	12.20	1.16	.240
Mutual masturbation recency	50.7% ( <i>n</i> = 136)		53.8% ( <i>n</i> = 63)		48.3% ( <i>n</i> = 73)		.93	.334
Solo masturbation recency	79.10% ( <i>n</i> = 212)		76.9% ( <i>n</i> = 90)		80.8% ( <i>n</i> = 122)		.59	.439

*Note.* Independent samples *t*-tests between women's and men's scores were conducted for continuous variables (the NSSS-S, SSEI-S) and  $\chi^2$  analysis was done for the categorical variables (e.g., mutual masturbation recency). Mutual/solo masturbation recency referred to mutual/solo masturbation in the past two weeks.

#### 4.4.3 Feelings About Mutual Masturbation

##### 4.4.3.1 Positive Feelings

Across all participants, the mean positive feelings score was 29.58/40 ( $n = 260$ ,  $SD = 7.17$ ; see Table 3). The most commonly reported positive feelings by both women and men were happy ( $n = 123$  reported "very strongly"), good ( $n = 126$  reported "very strongly") and satisfied ( $n = 114$  reported "very strongly"). In a multivariable regression model (including mutual masturbation recency, solo masturbation recency, gender, illness/disability, and religious participation, see Table 4), gender was independently associated with positive feelings ( $B = 2.24$ , 95%CI: .55, 3.94,  $sr^2 = 0.02$ , small effect size). Men ( $M = 30.71/40$ ,  $SD = 6.87$ ) reported significantly higher positive feelings about mutual masturbation than women ( $M = 28.11/40$ ,  $SD = 7.31$ ). The overall model was significant and explained 15% of the variance for positive feelings ( $R^2 = .15$ ,  $F(5,255) = 8.99$ ,  $p < .001$ ). Participants who reported recent mutual masturbation ( $B = 3.59$ , 95%CI: 1.91, 5.28), not having any illness/disability ( $B = 2.23$ , 95%CI: 1.12, 5.34), and not attending religious practices ( $B = 1.76$ , 95%CI: .09, 3.43) were also more likely to report higher positive feelings about mutual masturbation.

**Table 4.4**

*Results of the Multiple Regression Model for Positive Feelings About Mutual Masturbation (Satisfaction Subscale) among Men and Women ( $n = 262$ )*

	Multivariable		Model		
	<i>B</i>	95%CI	<i>p</i>	<i>sr</i>	<i>sr</i> <sup>2</sup>
Mutual masturbation recency	3.59	1.91, 5.28	<.001	.24	.06
Solo masturbation recency	1.29	-.80, 3.38	.227	.07	.005
Gender	2.24	.55, 3.94	.010	.15	.02
Not having any illness/disability	3.23	1.12, 5.34	.003	.17	.03

Not attending religious practices	1.76	.09, 3.43	<b>.039</b>	.12	.01
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*Note.* Mutual/solo masturbation recency referred to mutual/solo masturbation in the past two weeks.

The relationship between mutual masturbation recency and positive feelings about mutual masturbation was moderated by gender ( $B = -3.47$ , 95%CI: -6.78, -0.16,  $p = .040$ ) (after controlling for solo masturbation, gender, illness/disability, and religious participation;  $R^2 = .16$ ;  $F(6, 261) = 8.11$ ,  $p = .0000$ ). For both men ( $B = 2.17$ , 95%CI: .01, 4.34,  $p = .049$ ) and women ( $B = 5.64$ , 95%CI: 3.08, 8.21,  $p = .000$ ), there was a significant association between mutual masturbation recency and positive emotions such that those who reported more recent mutual masturbation reported more positive emotions. The difference was more prominent for women (the slope was steeper) than it was for men because among those who did not report mutual masturbation in the past two weeks, men reported higher levels of positive emotions than women (see Figure 1 in the online supplementary file).

Results indicated a significant effect of gender for people who did not report masturbation in the past two weeks but not for people who reported mutual masturbation in the past two weeks. In other words, among participants who did not report mutual masturbation in the past two weeks, men reported significantly higher positive feelings about mutual masturbation than women ( $t = -3.12$ ,  $p = .002$ ). Among participants who reported mutual masturbation in the past two weeks, no significant gender difference in positive feelings was found ( $t = -1.34$ ,  $p = .183$ ).

#### 4.4.3.2 *Negative Feelings*

Across all participants, the mean negative feelings score was 24.41/75 ( $n = 262$ ,  $SD = 12.15$ ). In general, negative emotions were not endorsed by many people. Only 12 participants reported that they felt “very strongly” that mutual masturbation was “strange” and only nine reported that they felt very “tense” about it. Other negative emotions were even less endorsed. There was no statistically significant difference between men ( $M =$

23.65/75,  $SD = 12.20$ ) and women ( $M = 25.40/75$ ,  $SD = 12.07$ ) in negative feelings about mutual masturbation ( $B = -1.75$ ,  $95\%CI: -4.65, 1.10$ ,  $p = .240$ ).

#### 4.4.4 Associations Between Mutual Masturbation Recency and Sexual Satisfaction

Among all participants, the mean sexual satisfaction score was 45.35/60 ( $SD = 9.52$ ; see Table 3). In multivariable regression (including mutual masturbation recency, solo masturbation recency, age, relationship status, living with a partner, illness/disability, and children; see Table 5), recent mutual masturbation was independently associated with higher sexual satisfaction ( $B = 3.90$ ,  $95\%CI: 1.64, 6.16$ ,  $sr^2 = 0.04$ , small effect size). The overall model was significant and explained 12% of the variance for sexual satisfaction ( $R^2 = .12$ ,  $F(7,259) = 5.07$ ,  $p < .001$ ). Younger age ( $B = -.16$ ,  $95\%CI: -.33, -.006$ ) and not reporting any illness/disability ( $B = 3.79$ ,  $95\%CI: -3.17, 2.94$ ) were also associated with higher sexual satisfaction.

**Table 4.5**

*Results of the Multiple Regression Model for Sexual Satisfaction among Men and Women ( $n = 267$ )*

	Multivariable Model				
	<i>B</i>	95%CI	<i>p</i>	<i>sr</i>	<i>sr</i> <sup>2</sup>
Mutual masturbation recency	3.90	1.64, 6.16	<.001	.20	.04
Solo masturbation recency	-2.44	-5.22, .34	.086	-.10	.01
Age	-.16	-.33, -.006	.042	-.12	.01
Relationship status	.90	-2.10, 3.91	.554	.03	.0009
Living with partner	1.11	-1.68, 3.91	.434	.05	.002
Not having any illness/disability	3.79	.89, 6.69	.011	.15	.02
Child	-.11	-3.17, 2.94	.941	-.004	.00002

*Note.* Mutual/solo masturbation recency referred to mutual/solo masturbation in the past two weeks.

#### 4.4.5 Associations Between Mutual Masturbation Recency and Sexual Self-Esteem

The mean sexual self-esteem score for the total sample was 159.61/210 ( $SD = 27.97$  see Table 3). In univariable analyses, no association was identified between mutual

masturbation and sexual self-esteem ( $p = .797$ ). When tested in multivariable analysis, associations between sexual self-esteem and recent mutual ( $p = .716$ ) or solo masturbation ( $p = .623$ ) remained non-significant.

## 4.5 Discussion

### 4.5.1 Prevalence of Mutual Masturbation

In the current study, recent solo masturbation was more common than recent mutual masturbation. However, mutual masturbation was also prevalent: 48.3% of men and 53.8% of women reported mutual masturbation within the past two weeks. Although consistent gender differences in the prevalence of solo masturbation have been reported in previous research, with men more likely to report masturbation than women (Frankenbach et al., 2022; Gerressu et al., 2008), no associations were identified between gender and recent solo or mutual masturbation in the current study. The high prevalence of solo and mutual masturbation among our partnered sample challenges the idea that only single people masturbate (Kaestle & Allen, 2011; Kılıç Onar et al., 2020).

Similar to our results, in the U.S. National Survey of Sexual Health and Behaviour (NSSHB), solo masturbation was more common than partnered masturbation (assessed as “masturbated with a partner”) (Dodge et al., 2016; Herbenick, Rosenberg et al., 2022).

Among adult participants, 42.0% reported partnered masturbation at least once in the past year in 2009 compared with 33.8% in 2018 (Herbenick, Rosenberg et al., 2022). Similarly, among predominantly heterosexual men in the 2012 NSSHB, Dodge et al. (2016) reported that solo masturbation was more common than partnered masturbation: 92% reported lifetime solo masturbation compared with 52% who reported lifetime partnered masturbation; 57% reported solo masturbation within the past 30 days compared with 16% who reported partnered masturbation during the same time frame. Additionally, in the 2009 NSSHB, partnered masturbation was reported at the most recent sexual event by 28.9% of men and 23.6% of women (Herbenick et al., 2010b).

Using data from the 2020 U.S. Campus Sexual Health Survey (CSHS), prior to the COVID-19 pandemic, Herbenick et al. (2021) reported higher rates of partnered masturbation (compared to NSSHB data) among American undergraduate students, with 46.2% of women, 46.7% of men, and 52% of trans/non-binary individuals reporting partnered masturbation in the past month; these figures are closer to our findings. Previous research has highlighted that partnered masturbation is associated with having a partner and younger age (most common among 25- to 49-year-olds; Dodge et al., 2016; Herbenick et al., 2010b). As our current sample was comprised mainly of young people, all of whom were in relationships, this might be one reason for the differences in frequency of recent mutual masturbation compared with previous studies. Methodological differences (e.g., how the question was asked, the time frame) might also be relevant.

Data collection for the current study lasted one year (2021) and largely occurred while COVID-19 restrictions were in place in most countries (e.g., U.K., U.S., Spain). It is important to acknowledge changes in solitary sexual behaviours related to the global COVID pandemic (Gleason et al., 2023). Although we did not ask about the prevalence of solo/mutual masturbation before COVID-19 restrictions, in our study, similar to pre-COVID surveys, recent solo masturbation was more common than recent mutual masturbation. Mercer et al. (2022) reported that a perceived increase in the frequency of masturbation and using sex toys was more common than a decrease following the initial UK national lockdown in 2020. Similarly, Hensel et al. (2020) found that more participants reported an increase in solo masturbation and some virtual sexual behaviours, but a decrease in partnered masturbation, genital touch with a romantic/sexual partner, and vibrator or sex toy use. A similar decrease in partnered sexual activities but no change in the frequency of masturbation were reported in a study conducted in Spain (Rodríguez-Domínguez et al., 2022). Possible explanations for the increase in sexual behaviours not requiring the physical presence of a partner might be due to being apart or to gain control over the environment (Arafat & Kar, 2021). However, some studies also reported a

reduced frequency of solo and mutual masturbation during lockdown (Lehmiller et al., 2021; Luetke et al., 2020). In sum, depending on the method, time frame, and differences in restrictions, previous research on the effects of COVID on sexual behaviours have reported differing results, and our results might partly reflect the unusual circumstances of the pandemic.

#### **4.5.2 Feelings about Mutual Masturbation**

Both men and women reported more positive than negative feelings about mutual masturbation, although men reported significantly higher positive feelings than women. Similarly, among all participants, “happy”, “good”, and “satisfied” were the most frequently reported feelings about mutual masturbation. Among those who reported no mutual masturbation in the past two weeks, men reported relatively higher positive feelings than women, while among those who reported recent mutual masturbation, there were no gender differences in positive feelings. Women’s lower positive emotions in the not recent group might be explained by the Sexual Double Standard (SDS). The SDS refers to judging men’s and women’s sexual behaviours based on different criteria (Crawford & Popp, 2003; Endendijk et al., 2020). For example, while the SDS places more restrictions on women’s sexual behaviours, men’s sexual freedom, exploration and curiosity are accepted (Endendijk et al., 2020; Kiefer & Sanchez, 2007; Milhausen & Herold, 2002). Consequently, for some, masturbation is perceived as only acceptable for boys and men (Kaestle & Allen, 2011; Thorpe et al., 2023).

For mixed-sex relationships, these results challenge the traditional sexual norms about sexual activities other than PVI (e.g., women’s orgasm is a “gift” they “receive” from a partner, men “give” their partner an orgasm) (Braun et al., 2003; Fahs, 2011). While attitudes toward women’s solo masturbation have shifted towards more liberal and empowering approaches (Bowman, 2014; Dekker & Schmidt, 2003; Fahs & Frank, 2014; Foust et al., 2022), even relatively recent studies have highlighted that some women report secrecy surrounding their own masturbation and feel more stigmatized and reliant on their

partner's approval than do men in mixed-sex relationships (Foust et al., 2022; Kaestle & Allen, 2011; Kılıç Onar et al., 2020). However, our finding of men's positive feelings toward mutual masturbation challenges the partner- and/or relationship-related concerns about women's masturbation that some women hold (Kılıç Onar et al., 2020). While some people may feel awkward or embarrassed to engage in mutual masturbation or to suggest it to a partner (Foust et al., 2022; Heiman & LoPiccolo, 2009), or think their partner would not want to engage in the activity, in reality, the experience is reported as quite positive.

Some of our results (e.g., men's higher scores on positive feelings about mutual masturbation) also suggest that some men might prioritise their partner's pleasure more so than their own. Thus, future research is needed that explores sexual scripts regarding mutual masturbation and women's masturbation in mixed-sex couples. Because women's masturbation is a more reliable method of orgasm compared to PVI alone (Kontula & Miettinen, 2016; Laumann et al., 1994), and women's orgasm is important for men's sexual satisfaction (Leonhardt et al., 2018; Watson et al., 2016), research with mixed-sex couples and qualitative approaches with men is also needed to understand how women navigate the role of masturbation, and how their partner accommodates women's sexual pleasure in their relationships.

### **4.5.3 Mutual Masturbation and Sexual Satisfaction**

One of the most noteworthy findings was that, while solo masturbation may be negatively linked with sexual satisfaction for some women and men (Bridges et al., 2004; Miller et al., 2019), recent mutual masturbation was associated with *higher* sexual satisfaction for both women and men (although the effect size was small). In fact, mutual masturbation was associated with positive emotions and greater sexual satisfaction, while solo masturbation was not associated with sexual satisfaction, either positively or negatively. These results challenge the compensatory model of masturbation in which masturbation is perceived as a substitute for unsatisfactory partnered sex (Gerressu et al., 2008; Regnerus et al., 2017; Rowland, Kolba, et al., 2020).



In a qualitative study exploring women's experiences with solo and partnered masturbation, Foust et al. (2022) suggested that partnered masturbation shares relational features with other partnered sexual activities, while also having similarities with solo masturbation due to the act of self-stimulation. However, previous research on mutual masturbation has mainly focused on it as a safer sex practice and infection prevention behaviour among men who have sex with men (for example, see Reisner et al., 2009). It is surprising how little research attention has been given to the positive aspects of mutual masturbation, despite the fact that sex educators and sex therapists have created guides and techniques for mutual masturbation (most recently, mainly published in online magazines or as posts on social media e.g., Harris & Girdwain, 2021; Morse, 2022; 2023). To the best of our knowledge, the present study is the first to report associations between recent mutual masturbation and higher sexual satisfaction.

Conflicting findings regarding the link between masturbation and sexual satisfaction might be because most studies did not specify or define masturbation, or note whether it was solo or partnered, and some participants might not consider masturbation with a partner present to "count" as masturbation (Bridges et al., 2004). Alternatively, some might consider stimulating their partner's genitals for pleasure (a behaviour which does not include self-stimulation) to be masturbation (Kirschbaum & Peterson, 2018). The term masturbation can include many different behaviours depending on the person asked and how the question is asked, and it does not have a universal definition (Kirschbaum & Peterson, 2018). Our results support the idea that the association between sexual satisfaction and masturbation might differ depending on the context (solo vs. mutual) and we encourage future researchers to specify whether solo or partnered masturbation is being asked about in their questions to participants.

#### **4.5.4 Sexual Self-Esteem**

Although previous research has not investigated mutual masturbation and its associations with sexual self-esteem, Foust et al.'s (2022) study highlighted that the

performative nature of mutual masturbation for women might influence women's sexual self-esteem. In their study, partnered masturbation triggered some women's existing insecurities about their bodies along with concerns about "putting on a show", sometimes resulting in feeling awkward and embarrassed, but also sometimes resulting in feeling sexually skilled by being able to arouse their partner. However, in the current study, no association was found between mutual masturbation and sexual self-esteem for either women or men.

#### **4.5.5 Implications of Findings**

Because many people know exactly what type of stimulation they like, mutual masturbation can be considered an important source of education about one's own and one's partner's sexual likes/dislikes. Mutual masturbation can also help partners understand their own and their partner's sexual pleasure and learn (and teach) new stimulation techniques. Sex and couple therapists can recommend mutual masturbation to enhance sexual satisfaction after exploring personal feelings and values about solo and partnered masturbation.

Sexuality does not have to follow a traditional sexual script and broadening one's sexual repertoire with mutual masturbation can create diverse sexual opportunities with a partner that may uncover new pleasure resources and help to close the orgasm gap. Individuals can improvise and translate cultural sexual scripts to fit their unique situations at an individual- and/or dyadic-level because sexual norms and sexual scripts can change over time and place (Carpenter, 2010; Masters et al., 2013; McCabe et al., 2010; McCormick, 2010). As a case in point, our findings challenge the traditional expectation that "masturbation happens alone" (Kirschbaum & Peterson, 2018).

Additionally, as mutual masturbation is a form of non-verbal communication which provides cues such as physical demonstration, facial expression, and sound about pleasure triggers (Séguin, 2022; Towne, 2019), it can enhance sexual communication between partners. Better sexual communication might in turn increase the likelihood of women's

orgasm and/or pleasure in relationships (Jones et al., 2018; Mallory et al., 2019). Specifically, communication during sexual activity can increase sexual pleasure and emotional intimacy (Séguin, 2022). Although dyadic sexual communication was not analysed in the current study, it is important to consider that improved sexual communication may enable couples to try new sexual activities and conversely, the experience of mutual masturbation may help them to open a discussion about sexual preferences and thus improve sexual satisfaction. The mediating role of sexual communication should be explored in future research.

#### **4.5.6 Strengths and Limitations**

To the best of our knowledge, the current study is the first to report data on both women's and men's experiences of mutual masturbation through a positive lens. The current findings help to close the gap in previous research about the link between masturbation and sexual satisfaction as most studies have only assessed sexual satisfaction within a dyadic context (partnered intercourse and sexual satisfaction) (Fischer & Træen, 2022). And, when masturbation was assessed, most researchers did not make a clear distinction between solo and mutual masturbation (Bridges et al., 2004; Regnerus et al., 2017).

However, the current study also had limitations. Due to the nature of cross-sectional data, interpretations and generalizability of the results should be made with caution. The causal direction of the associations cannot be determined and as such, the experience of mutual masturbation may increase sexual satisfaction or people who are sexually satisfied might be more likely to engage in mutual masturbation, or both. Additionally, the sample consisted mainly of White, highly educated, and predominantly young individuals who reported low attendance at religious services.

The influence of social desirability, especially in relation to partner-related and sexual satisfaction questions (Bridges et al., 2004), should be considered. However, as this was an anonymous online survey and participants were advised to complete the survey

when alone, social desirability is less likely than in interview-based studies or if completing questionnaires in the presence of a partner.

The questionnaire used in the current study was also subject to interpretation bias. Mutual masturbation was defined as “*partner involvement or partner presence during self-stimulation...*” but we did not differentiate between the online vs. physical presence of a partner. Future qualitative research exploring the meanings and definitions of mutual masturbation would be useful to better understand the functions of mutual masturbation among mixed- and same-sex couples.

Also, because the survey asked for initials and birthday/month to create a couple ID and match couples, and snowball sampling was used through researchers’ social media accounts, to maintain anonymity we did not ask the country of residency, and thus could not examine possible cultural differences. Data collection took place during the COVID-19 pandemic but we did not include any questions related to lockdown restrictions. It is therefore unknown how pandemic-related restrictions may have influenced the results.

Finally, we did not measure participants’ own attitudes towards their own masturbation which potentially could be a relevant variable. Future research can investigate attitudes towards and motivations for mutual masturbation, and the possible mediating role of an individual’s own feelings and attitudes about their masturbation in the relationships between attitudes toward mutual masturbation, mutual masturbation behaviour and sexual satisfaction.

#### **4.5.7 Conclusion**

The current findings suggest that mutual masturbation is common among couples and many people report positive feelings about the behaviour. Engaging in mutual masturbation might increase couples’ sexual repertoire and enhance sexual satisfaction. Clinical practitioners could use these findings to debunk myths about partners’ negative views of self-pleasure in relationships. Future research is needed to further clarify the nature of the relationship between mutual masturbation and sexual satisfaction. Dyadic and

mixed method approaches would be useful to explore partners' experiences, ideas, and interactions about solo and partnered self-pleasure and to better understand sexual scripts at a couple level.

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## Chapter 5

### 5 Chapter 5: General Discussion

#### 5.1 Discussion

Within this thesis, I have presented one systematic review and two empirical studies to further our understanding of partner and/or relationship influences on women's understanding, meanings, perceptions, attitudes, feelings, experiences of, and behaviours (avoided or engaged) related to women's self-pleasure. Types of self-pleasure considered included solo masturbation, and mutual masturbation as well as solo vibrator use and/or partnered vibrator use in the systematic review. The research was also an attempt to fill the gap between the associations between women's self-pleasure experiences, during both solo and mutual masturbation, and sexual satisfaction and sexual self-esteem. In line with chosen theoretical frameworks (Sexual Script Theory, Bronfenbrenner's Ecological Systems Model, Couple Interdependence Theory), this thesis was structured in a way that would reflect couples' interdependence and the sequence of scripting: the interpersonal level, the intrapsychic level, and cultural scenarios (Crawford & Popp, 2003; Endendijk et al., 2020; Lewis et al., 2006; Simon & Gagnon, 1986).

In the research, I reconsidered widely held views about women's masturbation, with a particular focus on the influence of partners and/or relationship-related factors. To date, previous research has suggested societal explanations for women's less frequent (in comparison with men) masturbation (Frankenbach et al., 2022) but has focused more on the individual level aspects of solo masturbation rather than relational aspects (see Bohmer et al., 2022) and its associations with orgasm (e.g., Rowland et al., 2018, 2019; Rowland, Kolba et al., 2020; Sierra et al., 2022). In part because of the mutual aspect of sexual satisfaction (Brouillard et al., 2020; Pascoal et al., 2014), the link between masturbation and sexual satisfaction is particularly understudied and still unclear (Fischer & Træen, 2022). Similarly, the relationship between masturbation and sexual self-esteem has received little research attention. Therefore, the current thesis explored women's

perspectives, motivations and societal expectations related to a partner's views of women's masturbation and/or women's expectations about how to behave sexually in relationships. A second aim was to investigate how these partner- and/or relationship-influences might be associated with women's masturbation experience, sexual satisfaction, and sexual self-esteem.

Paper 1, the systematic review, provided an overview of what qualitative research has revealed about women's self-pleasure in the relationship context and highlighted some changes in women's masturbation habits. The review identified gaps in the literature about women's partnered masturbation and partners' *actual* attitudes, feelings and reactions about women's masturbation rather than women's perceptions of their partners' attitudes. The findings from Paper 1 emphasised that because of previous reactions from a partner, societal expectations (learning from society/peers/parents), and/or assumptions of how a partner may think or react, some women reported experiencing difficulties and concerns about how to disclose and communicate with their partner about their masturbation experience, without upsetting the partner. However, importantly, the findings of Papers 2 and 3, and other findings from Paper 1 highlighted changing sexual norms and beliefs about women's self-pleasure being stigmatised and supported the idea that women's masturbation is now more normalised than previously thought – and may be an acceptable addition to the sexual script. Another interesting finding of Paper 1 was that some women reported changing their self-pleasure habits when in a relationship. For some, this resulted in less frequent masturbation or an effort to hide the behaviour. Those who acknowledge the existence of a stigma around masturbation but do not believe it applies to them might use avoidance tactics, such as separating themselves from the stigma, hiding stigmatising characteristics, avoiding places where stigma is present, stopping stigmatising behaviour, and drawing positive social comparisons (theory of stigma management communication - SMC-; Meisenbach, 2010). On the other hand, for others, mutual masturbation was added to their sexual repertoire when in relationships. Further, some women cited mutual



masturbation as their communication tool to demonstrate sexual pleasure triggers to a partner. However, mutual masturbation is not well understood.

### 5.1.1 Gaps in the Literature on Women's Masturbation

The findings from the systematic review in Chapter 2 highlighted two areas as gaps in the literature. First, the lack of geographical diversity in studies about masturbation, which were mostly conducted in middle-to-upper income countries with mostly White, Christian, and Western samples, limits understanding of cultural differences (for a review of WEIRD -Western, Educated, Industrialised, Rich, and Democratic- samples in sex research, see Klein et al., 2022). Despite some evidence suggesting more stigmatised attitudes toward women's masturbation (Hogarth & Ingham, 2009; Kaestle & Allen, 2011; Thorpe et al., 2023), very little is known about women's masturbation in low-to-middle income and non-Christian countries. Second, older women and, LGBTQ+ individuals are also understudied in both solo and partnered masturbation contexts (Bohmer et al., 2022; Meiller & Hargons, 2019). However, it is important to learn about the experiences of these groups. For example, traditional sexual scripts combined with the idea that *men are responsible for women's orgasm* may be less visible among women who have sex with women and gender diverse people with vulvas (Meiller & Hargons, 2019; Séguin, 2022). In fact, Meiller and Hargons (2019) found that an emphasis on the partner's pleasure was unique to queer and bisexual women: masturbation was considered a tool to learn about one's own anatomy in order to transfer sexual knowledge and build skills to pleasure a partner. To address the identified gap regarding LGBTQ+ representation, in Papers 2 and 3, I attempted to boost recruitment amongst these groups. However, due to low number of matched couples in Paper 2, I was unable to include same-sex couples (11 female and 2 male same-sex couples; 9.3% female same-sex).

Additionally, to address the identified gap regarding representation of older women, in Papers 2 and 3, I intended to boost recruitment of older couples. Unfortunately, despite initial efforts such as asking for age in the screening to monitor and boost older

participants, after slow progress with recruiting matched couples, the priority became reaching both partners rather than monitoring any demographics. I was therefore unable to boost recruitment targeting older couples. Below, I discuss why it is important to explore older women's self-pleasure.

Since the 1940s, misconceptions about masturbation have been challenged in general (Bullough, 2003; Kinsey, 1948, 1953; Kontula & Haavio-Mannila, 2003). From the 1960s and 1970s, efforts have been made to improve women's sexuality, pleasure and masturbation beginning with "sexual liberation", the Hite report, Betty Dodson's workshops/books, feminist porn, and more recently, with websites (such as OMGYES.com and the Pleasure Project), social media blogs, posts or podcasts by sex educators and/or researchers (Fahs, 2020, p. 179; Dodson, 1974; Ford et al., 2021; Hite, 1976; Hensel et al., 2022; Kontula & Haavio-Mannila, 2003; the Pleasure Project, 2021; Stewart, 2019).

However, gendered sexual inequities persist regarding pleasure along with gendered social scripts for masturbation (Fahs, 2014; Ford et al., 2021; Herbenick, Fu, et al., 2022; Laan et al., 2021), and this may be more visible among older women (Fileborn et al., 2015).

Previous research found that older people tend to hold more negative attitudes toward masturbation and masturbate less frequently, especially in Western countries (Fischer et al., 2022; Hodson & Skeen, 1994; Kontula & Haavio-Mannila, 2003; Sierra et al., 2022). This is likely related to religious and historical Victorian ideals such as "masturbate and you'll go insane/blind" (men and women) and "masturbating women develop penis-like clitoris" (Bullough, 2003; Engelhardt, 1974; Zachar & Kendler, 2023). Parents were also advised on how to recognise and control masturbation (Bullough, 2003; Hodson & Skeen, 1994). Considering efforts to "treat" masturbation, such as the chastity devices dating back from the 18<sup>th</sup> and 19<sup>th</sup> century that were developed to stop masturbation -even breakfast cereals were designed to reduce masturbation (Kellogg's corn flakes)-, misinformation about masturbation seemed even worse for previous generations (Bullough, 2003; Engelhardt, 1974; Hodson & Skeen, 1994; Kontula & Haavio-Mannila, 2003; Zachar &

Kendler, 2023). When there are high levels of stigma and taboo about the behaviour, talking about masturbation with others, including partners, will be difficult and can contribute to women (and men) having negative feelings toward the behaviour.

Also, older women (aged 60 and over) are less likely to have a permanent sexual partner compared to men, and relationship status is associated with sexual satisfaction in later life (Carpenter et al., 2006; DeLamater, 2012; Kontula & Haavio-Mannila, 2009). Re-partnering and/or dating in later life has a positive influence on sexual well-being, yet research highlights that some older women may be unwilling to start new relationships because it may mean sacrificing their freedom (Fileborn et al., 2015). Consequently, normalising solo masturbation among older women and gaining a better understanding of older women's meanings, experiences of, communication about, and changes in masturbation is important. Qualitative research with older women may help to clarify their experiences of years of learning and unlearning assumptions, misinformation, and societal expectations regarding women's masturbation.

### **5.1.2 Synthesising Key Contributions Across Three Studies**

Paper 1, the systematic review, identified gaps in knowledge regarding women's masturbation within relationships from an in-depth analysis of previous qualitative research. Paper 2 challenged the negativity surrounding women's solo masturbation by demonstrating the high prevalence of recent solo masturbation (more than half of the sample, 56.67%,  $n = 119$ , reported solo masturbation in the past week) among both women and their partners and highlighting similar and positive attitudes about women's solo masturbation between partners. Paper 3 demonstrated the high prevalence of recent mutual masturbation (half of the sample, 50.7% ( $n = 136$ ), reported mutual masturbation in the past two weeks), and reported on the first evidence-based research exploring associations between mutual masturbation recency and sexual satisfaction and sexual self-esteem. Considering the data collection for the current thesis took place during a global pandemic (COVID-19), the ecological systems model has relevance when interpreting the results

(Bronfenbrenner, 1979, 1986). For example, in Paper 2, almost half of the women in the sample engaged in solo masturbation within the last week, and a similar trend was reported for mutual masturbation in Paper 3, which was higher than expected. Because previous studies have reported higher solo masturbation during lockdown/pandemic (Hensel et al., 2020; Mercer et al., 2022), I believe that one of the reasons for the higher solo masturbation reports in the current thesis might be the timeline of the study as the data collection took place during COVID-19 restrictions.

Altogether, the findings from this thesis contribute to our understanding of women's masturbation and the role of women's masturbation in relationships. The vague script pertaining to masturbation expects that it happens *alone* (Kirschbaum & Peterson, 2018), considers it to be more "normal" for *single* individuals than for those in relationships and as acceptable solely for boys and men but not girls and women (Hogarth & Ingham, 2009; Kaestle & Allen, 2011; Thorpe et al., 2023; Yuxin & Ying, 2009). However, the current findings challenge these common misconceptions and also highlight the need for further development of sexual script theory to incorporate solo and mutual masturbation regardless of gender and relationship status. This may better enable pleasure to be considered as an essential part of sexual and overall health (Ford et al., 2021; Klein et al., 2022) and help individuals to unlearn years of gendered and negative messages related to masturbation (Kaestle & Allen, 2011; Thorpe et al., 2023).

#### **5.1.2.1 Masturbation and Sexual Satisfaction**

In line with previous research (Bowman, 2014; Dekker & Schmidt, 2003; Goldey et al., 2016; Kaestle & Allen, 2011), Papers 1, 2 and 3 demonstrated that feelings about and attitudes toward masturbation are more positive than previously believed; thus, one might expect that masturbation experiences would be positively associated with sexual satisfaction. However, in some past research, negative associations between (solo) masturbation and sexual satisfaction (within relationships) have been reported (Bridges et al., 2004; Brody & Costa, 2009; Miller et al., 2019; Philippsohn & Hartmann, 2009; Phuah

et al., 2023; Rowland, Kolba et al., 2020; Velten & Margraf, 2017). Some researchers, however, have reported that the frequency or quality of women's masturbation is associated with *greater* sexual satisfaction (de Lima et al., 2022; Fischer & Træen, 2022; Hurlbert & Whittaker, 1991). In the current research, however, among women and their partners (Paper 2) and women and men in relationships (Paper 3), solo masturbation had no association, either positive or negative, with sexual satisfaction. Yet, in Paper 3, a positive link between mutual masturbation and sexual satisfaction was found. While solo masturbation may be perceived more negatively among women (and men) due to sexual scripts and societal norms overvaluing partnered sex, mutual masturbation partly aligns with traditional sexual norms where sexuality is situated in a partnered context (Foust et al., 2022; Hargons et al., 2023; Muehlenhard & Shippee, 2010; Thorpe et al., 2023).

These results support the idea that the association between masturbation and sexual satisfaction might differ depending on the context (solo vs. mutual). Conflicting findings in past research regarding the link between masturbation and sexual satisfaction might be because most researchers did not clarify in their questions whether masturbation was solo or mutual (partnered). The term masturbation does not have a universal definition and it can include many different behaviours depending on the person asked and how the question is phrased (Kirschbaum & Peterson, 2018; Regnarus et al., 2017). For example, some participants might not consider *masturbation with a partner present* to “count” as masturbation (Bridges et al., 2004). Others might “count” *stimulating their partner's genitals for the partner's pleasure* as masturbation which is, in fact, a behaviour which does not include self-stimulation or self-pleasure (Kirschbaum & Peterson, 2018) (for a discussion of mutual masturbation definition, see “Terminology: Framing types of Masturbation” section below). I encourage future researchers to specify the type of masturbation in their questions to participants (solo vs. mutual; solo vs. partnered vibrator use).

**Challenging Complementary and Compensatory Models.** The relationship between sexual satisfaction and masturbation experience has previously been studied, although the findings have been complex and somewhat inconsistent (Fischer & Træen, 2022). Previous research has demonstrated that women's solo masturbation may be perceived more negatively than partnered masturbation, often owing to traditional sexual norms which favour partnered sex and limit women's sexual freedom (Foust et al., 2022). Recently, a systematic review on the relationship between solo masturbation and sexual satisfaction reported that, in men, 71.4% of the studies included in the review showed a negative correlation between masturbation and sexual satisfaction, 21.4% found no correlation, and 7.2% reported a positive correlation (Cervilla et al., 2024). In women, 33.3% of the studies found a negative correlation, 40% reported no association, and 26.7% showed a positive correlation between masturbation and sexual satisfaction (Cervilla et al., 2024). While most recent studies, using individual- and/or couple-level analyses, report a negative link between (solo) masturbation and sexual satisfaction, particularly when in relationships (Bridges et al., 2004; Brody & Costa, 2009; Fischer et al., 2022; Huang et al., 2022; Miller et al., 2019; Philippsohn & Hartmann, 2009; Phuah et al., 2023; Rowland, Kolba et al., 2020; Velten & Margraf, 2017), some studies have found positive associations (de Lima et al., 2022; Fischer & Træen, 2022; Hurlbert & Whittaker, 1991). In contrast, findings in Paper 2 were in line with Zamboni and Crawford's (2003): reporting solo masturbation within the past week was not associated with sexual satisfaction, for either partner. Similarly, Klapilová et al. (2015) reported that for men, masturbation frequency was not associated with sexual satisfaction, but for women, the authors reported a negative association between women's masturbation and sexual satisfaction.

In combination with previous research findings (de Lima et al., 2022; Fischer & Træen, 2022; Hurlbert & Whittaker, 1991), results of the current research may partly challenge the compensatory model where women's masturbation is perceived to compensate for unsatisfactory partnered sex (Dekker & Schmidt, 2003; Gerressu et al.,

2008; Regnerus et al., 2017; Rowland, Kolba et al., 2020). However, it is important to note that among studies exploring the relationship between masturbation and sexual satisfaction, almost all researchers have used the term “masturbation” or “self-stimulation”. While it seems that solo sexual activity was assessed, in most studies it was unclear if solo or mutual masturbation were considered. As found in Paper 3 and discussed above, a clear distinction between solo and mutual masturbation is important in future studies.

In fact, and in line with Foust’s study, one of the most noteworthy findings in Paper 3 was that mutual masturbation was associated with positive emotions and sexual satisfaction, while solo masturbation showed no association with sexual satisfaction. Mutual masturbation is not a new concept (e.g., Bruijn, 1982; Saghir et al., 1969), but joyful aspects of mutual masturbation have to date received little research attention. Although Gauvin et al. (2020) reported similar findings in relation to vibrator use, i.e., greater sexual satisfaction among women who reported both solo and partnered vibrator use compared to those who only used a vibrator on their own, I could not identify previous research exploring the link between mutual masturbation and sexual satisfaction. Future research could shed light on similarities and differences in solo and partnered masturbation in the context of sexual satisfaction, pleasure, motivation, and attitudes.

Notably, relationship quality (or inequality, as discussed below in the section Freedom from Women’s Sexual Emotional Labour vs. Inequalities in the Bedroom), might mediate the association between masturbation and satisfaction. Recently, Rowland, Kolba et al. (2020) reported that for women, higher masturbation frequency was associated with lower overall and sexual relationship satisfaction, lower satisfaction during partnered sex, but also less orgasm difficulty and greater orgasmic pleasure ( $N = 2,215$ ). One limitation of this study was that the researchers measured sexual and relationship satisfaction as covariates with one-item questions; participants were asked to consider their level of satisfaction with their primary sexual relationship and their level of overall relationship

satisfaction (i.e., beyond sexual issues) within the previous 12 months on a 0–5 scale. Whether partners were aware of women’s masturbation was also not assessed (Rowland, Kolba, et al., 2020); however, the link between overall and sexual relationship satisfaction and women’s self-pleasure may shift when partners are aware of such experience. Similarly, in a study of 596 coupled heterosexual men with low sexual desire, low relationship intimacy significantly increased the likelihood of men reporting frequent masturbation (Carvalheira et al., 2015). However, this study failed to assess sexual communication that can facilitate or hinder intimacy in romantic relationships (Yoo et al., 2014). Although research indicates negative associations between masturbation and relationship satisfaction, no previous studies have attempted to quantify the associations between disclosure of self-pleasure and the level of agreement between partners regarding attitudes toward self-pleasure, and relational satisfaction. Thus, the role of women’s masturbation and its function in the context of romantic relationships, and the possible mediating role of relationship quality (including inequality) in the link between masturbation and sexual satisfaction, need further exploration.

### ***5.1.2.2 Types of Masturbation and Sexual Self-Esteem***

Many years ago, Coleman (2003) encouraged researchers to investigate the relationship between masturbation and self-esteem. Some research has explored solo masturbation and sexual self-esteem (e.g., Hurlbert & Whittaker, 1991; Rodríguez-Domínguez et al., 2022; Zamboni & Crawford, 2003); however, to the best of my knowledge, no studies have yet explored its link with mutual masturbation. In the current thesis (Paper 3), no associations were found between mutual masturbation recency and sexual self-esteem. Also, solo masturbation recency was not associated with sexual self-esteem, for either partner in Paper 2. Although not statistically significant, similar to sexual satisfaction, the mean sexual self-esteem score of women who reported masturbation within the last week was higher than that of women who did not; for men, the opposite pattern was observed Paper 2. Not finding a significant association between types of



masturbation and sexual self-esteem is surprising as women often cite masturbation as a way to build up their sexual skills (Foust et al., 2022; Paper 1). And in fact, in previous research, the frequency or quality of solo masturbation has been associated with higher sexual self-esteem (Hurlbert & Whittaker, 1991; Rodríguez-Domínguez et al., 2022; Zamboni & Crawford, 2003). Possible explanations for the differences between findings of the current thesis and these previous studies are differences in measures, samples recruited, and the study timeline. Rodríguez-Domínguez et al. measured sexual self-esteem with a subscale of the Brief Sexuality Scale (Wiederman & Allgeier, 1993) and Zamboni and Crawford used the 30-item Sexuality Scale (Snell & Papini, 1989). The sample in this thesis was relatively older than the college student sample in Zamboni and Crawford's (2003) study and Rodríguez-Domínguez et al. (2022) recruited their sample from Spain. Hurlbert and Whittaker (1991) recruited a sample of married women from Texas, USA approximately three decades ago. Future research with larger and more diverse samples can shed more light on the possible relationship between mutual and solo masturbation and sexual self-esteem, with satisfaction with one's genital self-image as a possible mediator (Schick et al., 2010).

### **5.1.3 Terminology: Framing Types of Masturbation**

Although the Hite report (1976) is considered methodologically problematic, it provided insights into women's sexuality in the 1970s and promoted female masturbation (Hinchliff, 2006). The book became a bestseller and was translated into 13 languages but received negative reviews as some men felt threatened due to their perceived responsibility to "give" pleasure to women –with their own body parts- (this is also tied with men's masculinity, and sexual insecurities) (Braun et al., 2003; Chadwick & van Anders, 2017; Fahs, 2011; Lehmilller, 2023; Savoury et al., 2022). Accounts of sex that characterise it as giving and receiving "pleasure" manifest a discourse of reciprocity; as orgasms were the most common way in which this pleasure was expressed, reciprocity essentially meant exchanging orgasms (Braun et al., 2003). Gendered inequality may be discussed in relation

to reciprocity in heterosexual sex in the sense that taking and giving may be unevenly distributed based on gender (Braun et al., 2003). Given that women are the recipients of male giving, men are seen as the active givers, providing women with sexual pleasure using their skills and methods (Braun et al., 2003; Fahs, 2011); masturbation thus challenges the reciprocity in heterosexual sex. Solo masturbation compared to mutual masturbation might be even more challenging due to the absence of the partner.

Considering we still see some myths and misinformation about women's masturbation years after the publication of the Hite report (Hogarth & Ingham, 2009; Kaestle & Allen, 2011; Thorpe et al., 2023; Yuxin & Ying, 2009), one might question the report's success regarding women's self-pleasure. But, what if, Hite had used the term "mutual masturbation"?

Similarly, what if I had used the term "hand sex" rather than mutual masturbation, or if I asked specifically whether partnered masturbation was stimulating the *other* partner (not one's self)? These changes in terminology might have changed how people reported their experiences and views about mutual masturbation. The term *hand-sex* is not often used in sex research in part due to its assonance to hand-jobs. Hand-jobs can be defined as *giving or receiving* manual stimulation in practice in health promotion (Haar et al., 2022). However, the key part of my definition of mutual masturbation in this thesis is that it requires *self*-stimulation (receiving stimulation from the partner is not mutual masturbation, but can be considered as genital stimulation/touch by a partner) and it matters whose hands do what. The key distinction is whether masturbation is experienced solo versus partnered and the self- versus other manual stimulation. However, as discussed in the Chapter 4 Discussion (Strengths and Limitations section), my definition of mutual masturbation needs improvement (clarifying the *physical* presence of the partner). Exploratory qualitative studies on people's meanings of mutual masturbation might be useful due to the lack of research on this topic.

**Freedom from Women's Sexual Emotional Labour vs. Inequalities in the Bedroom.**

Orgasm is one important aspect of sexual pleasure and well-being, but it is not the only aspect of healthy sexual relationships. In fact, the importance of women's orgasm in their sexuality varies depending on age, previous experiences, and/or culture (Bell & McClelland, 2017; Graham, 2010; Gusakova et al., 2020). For some women, their partner's pleasure might be more important than their own pleasure (Goodman, et al., 2017; Klein & Conley, 2022; Salisbury & Fisher, 2014). Within romantic and sexual relationships, women may perform greater emotional labour than their partners, and may be more prone than men to de-prioritise their needs to improve the well-being of others (because of gendered expectations) (Dean et al., 2022; Fahs & Swank, 2016; Hochschild, 1983; Umberson et al., 2015). Emotional labour in relationships can be experienced in different forms (e.g., housework-related, finance-related, child-related), including sexuality-related experiences (Fahs & Swank, 2016; 2021; Oschatz & Klein, 2023; Wayne et al., 2023).

Briefly, sexual emotional labour (or sexual compromise) can be defined as a vital, but often hidden, element of gender inequalities in sexuality and as actions that prioritise one's partner well-being over one's own emotions or sexual satisfaction (Elliott & Umberson 2008; Fahs & Swank, 2016; Fahs & Swank, 2020; Oschatz & Klein, 2023). For example, previous research has shown that more women than men report engaging in sexual activity for the sake of their partner's desire rather than their own sexual pleasure, desire or satisfaction (Fahs & Swank, 2011; Foust et al., 2022; Oschatz & Klein, 2023). Also, women experience sex-related pain far more frequently than men do, and it can take many different forms (pain during sex, cultural associations between women's sexual debut and pain/bleeding) (Conley & Klein, 2022).

Although men also report faking orgasm, women have been found to be more likely to fake orgasm than men (Goodman et al., 2017; Muehlenhard & Shippee, 2010; Séguin & Milhausen, 2016). One view is that women fake orgasm to reinforce their

partners' positive feelings and experiences (Fahs, 2014; Goodman, et al., 2017; McCoy, et al, 2015). Women with a sense of responsibility for their partners' emotions may want to reassure their partner, and avoid hurting their feelings. In addition, women may fake orgasms to obtain a positive outcome such as pleasing the partner (Fahs, 2014b). This can partially be explained through traditional sexual scripts for heterosexual sex, which overvalue male pleasure, as some women report prioritising their partners' pleasure and/or satisfaction in sexual relationships (Goodman, et al., 2017). Alternatively, Fahs (2014b) argued that when the absence of orgasm is seen as a problematic dysfunction, faking orgasm might also serve as an emotional management strategy by some women in order to overcome feelings of inability and abnormality. While solo masturbation can be an experience without any attached sexual emotional labour, some women report masturbating or using sex toys during partnered sex (mutual masturbation) for male partner desire and/or pleasure, rather than for their own pleasure or orgasm (Fahs & Swank, 2013; Foust et al., 2022). However, we know very little about the possible link between mutual masturbation and sexual emotional labour. For example, who initiates mutual masturbation and for what reasons (male arousal vs. women's pleasure); how common is faking orgasm during mutual masturbation? Does it differ by gender or sexual orientation?

#### **5.1.4 Implications**

The findings have important implications for individuals, clinical practice, sexual health educators, activists, and for research. Collective findings highlight the need for counselling and sexual health materials on strategies about how to communicate with partners about masturbation, on the possible sexual knowledge that can be gained from masturbation (e.g., preferred sexual stimulation), and how to incorporate what was learned/discussed into partnered sex. Involvement of the partner in women's masturbation and sharing self-discoveries with a partner can improve dyadic sexual communication (Heiman & LoPiccolo, 2009). Understanding the experiences of both partners and the mutual influence between partners is essential for developing any intervention that aims to

improve sexual health and sexual satisfaction among couples (Pascoal et al., 2018; Reed et al., 2013). Results of the current thesis may be helpful for sex educators to create the pleasure content of such intervention.

Sexual double standards are changing and appear less persistent for certain sexual behaviours such as premarital and casual sex (Bordini & Sperb, 2013; Crawford & Popp, 2003; Endendijk et al., 2020), and perhaps, masturbation (Haus & Thompson, 2020). Indeed, masturbation can be a good example of changing sexual double standards as findings of the present thesis, overall, indicated a fairly high prevalence of women's solo and mutual masturbation, shifting attitudes toward positive views about women's solo masturbation, and positive feelings about partners' masturbation as well mutual masturbation. Moreover, although men report more frequent masturbation, recent studies have found that they also report more negative attitudes towards masturbation compared to women, and women are more accepting toward masturbation than men (Haus & Thompson, 2020; Sierra et al., 2021, 2022). A recent study has found that perceptions of men's masturbation, and men's masturbation experience, might be more likely to be influenced by partner-related factors (Herbenick, Fu et al., 2022). However, future research is needed to fully understand the possible reverse SDS and changing sexual scripts regarding masturbation. To understand possible reverse SDS regarding masturbation, attitudes towards men's masturbation can be explored among couples and singles. Qualitative studies with men or an online survey with couples may help shed light on the role of men's masturbation in relationships. Additionally, the importance of cultural factors was discussed throughout the thesis; however, due to the lack of geographical and cultural diversity in the research on masturbation, exploring differences related to culture and religion would also be valuable. This may then help with reducing discomfort with sex at macro (cultural) levels (Bronfenbrenner, 1979, 1986).

Solo masturbation was prevalent, with half of the sample in Paper 2 reporting masturbation in the past week and this was not linked with lower or higher sexual

satisfaction, for either partner. Although women's assumptions of their partners' views about female masturbation are rather negative, as uncovered in the systematic review, this mostly stems from societal expectations rather than their own experiences with male partners. Paper 2 found that both women and their partners reported similar positive attitudes toward women's solo masturbation. These findings, combined with positive emotions in Paper 3, can be used in clinical settings where therapy is provided for women's orgasm difficulties to debunk partner-related myths about women's masturbation when discussing solo and mutual masturbation.

It is normal for couples to experience sexual desire discrepancies and this is a common reported sexual problem among partnered individuals (Marieke et al., 2020). Masturbation can also be used in therapeutic settings for sexual arousal and desire problems (Foust et al., 2022; Hurlbert & Whittaker, 1991; Zamboni & Crawford, 2003). If solo masturbation is normalised in all contexts (single vs. partnered), and included in sexual scripts, this might also help couples to deal with differences in sexual desire. For example, couples might be recommended to increase sexual arousal and desire via solo and mutual masturbation (Zamboni & Crawford, 2003). Alternatively, if the negativity surrounding masturbation is challenged, solo masturbation can fulfil the sexual desire of one partner when the partners' sexual desires diverge.

Most couples consider both their partners' and their own sexual satisfaction as one of the most important aspects of their relationships (Byers, 2005; Fallis et al., 2016). Consequently, mutual masturbation may also enhance relationship satisfaction. In clinical settings, mutual masturbation can be recommended to maximise both sexual satisfaction and relationship satisfaction in couples. Sex and couple therapists can explore attitudes, feelings, and assumptions about masturbation and then can recommend solo and mutual masturbation to increase couples' sexual repertoire, and eventually, sexual pleasure.

Additionally, findings of the current research can be useful to create easily accessible and free, or affordable, evidence-based content on sexual pleasure and can

support sex educators and (pleasure) activists (e.g., the Pleasure Project, 2021) to help women and men unlearn the negativity surrounding women's masturbation and sexual pleasure and may increase women's opportunities for sexual pleasure (Kaestle & Allen, 2011; Klein et al., 2022; Laan et al., 2021; Thorpe et al., 2023).

**What are the Possible Implications if Masturbation Replaced Partnered Sex at a Population Level?** Sexless couples are those in committed relationships who report no sexual activity with the partner (including kissing and lying on the bed naked) for more than a month (Konishi et al., 2022; Pacher, 2022). Although sexual desire is a popular topic in sex research in Western countries, the meaning of sexlessness or its difference from lack of sexual desire is not clear (Pacher, 2022). For example, *sexless* is not a used terminology in German-speaking countries and it is more commonly referred to as “no sexual desire” (Pacher, 2022, p.165).

The phenomenon of sexlessness is unique to Japan, although this might be due to terminology differences across different countries (Pacher, 2022). Several explanations are proposed to explain the lack of interest in sex in romantic relationships, including sexlessness after childbirth, tiredness from work, and being bothered from sex (mendokusai) (Pacher, 2022; Tsuji, 2018). In contemporary Japanese culture, discourse change in women's sexual consciousness might also play an important role in increasing rates of sexlessness as women's social status has empowered them to refuse undesired partnered sex (Pacher, 2022; Tsuji, 2018). Also, a recent representative national survey conducted in Japan highlighted that a considerable number of participants in the 20–29 age range—11% of men and 15% of women—reported being asexual (Ghaznavi et al., 2023). As pointed out by Ghaznavi et al., this trend is higher than the prevalence of asexuality (<1%) reported in upper-income Western countries (e.g., Britain and Sweden; Aicken et al., 2013; Public Health Agency of Sweden, 2017). Given that low fertility due to sexless marriages in Japan may cause some concerns at a population level (Konishi et al., 2022;

Tsuji, 2018), promoting solo and mutual masturbation as a healthy sexual behaviour and attaining emotional intimacy from masturbation might also cause some concerns.

One of the ideas in this thesis is that masturbation (especially if shared with a partner) can boost emotional intimacy between partners (see below section 5.1.5 Future Directions). This does not mean that we need to separate sex from intimacy, but the idea offers a conceptual link between non-traditional sexual activities and intimacy. Separating sex from intimacy can have various implications, both positive and negative. A major worry is the possibility of emotional distancing, which might result in a lack of deep connection and understanding between sexual partners (Birnbaum et al., 2006). On the other hand, decoupling the association between intimacy and sex might help decrease the stigma that society attaches to non-traditional relationships and sexual behaviours; in other words, separating sex from intimacy may allow focus on physical pleasure and satisfaction without the emotional complexities (Umberson et al., 2015). Individuals may feel more liberated and autonomous in their choices regarding sexual expression (and preferences) without the expectation of emotional attachment (Birnbaum et al., 2006; Umberson et al., 2015).

### **5.1.5 Future Directions**

Although research demonstrates women's masturbation and/or vibrator use as a way to enhance partnered sexual activities, we know little about women's disclosure of self-pleasure to their partners (Paper 1). In a follow up study, using dyadic analysis, I hope to clarify whether disclosing self-pleasure to a partner through dyadic sexual communication is associated with couples' sexual and relational satisfaction. Additionally, future qualitative research can clarify exactly how women disclose their solo masturbation to a partner. How comfortable do women feel talking to their partner about their self-pleasure experiences? What kind of communication and which aspects of it (e.g., the topic, timing) are perceived as helpful or unhelpful by couples? Investigating communication strategies used to share sexual preferences learned from masturbation with partners, and



understanding positive and negative reactions from partners, will be helpful to create counselling and sexual health materials.

Emotional intimacy is defined as one's perceptions of closeness to another, including caring, self-disclosure, acceptance, affirmation, and support (Sinclair & Dowdy, 2005). The positive associations between intimacy, sexual satisfaction, and relationship satisfaction have been well-established (Montesi et al., 2013; Yoo et al., 2014). Coleman (2003) proposed that self-pleasure can be a tool to establish intimacy with others. Mutual masturbation in particular can be an important source of sexual knowledge about partners' sources of pleasure and their sexual likes and dislikes. Mutual masturbation might also be associated with emotional intimacy as it provides disclosure, sharing, and an affirmation about sexual likes between partners. More research is needed to understand the associations between types of self-pleasure and emotional intimacy. Generally, very little is known about sexual enjoyment associated with partner involvement in masturbation (mutual masturbation). Also, we know little about how people define mutual masturbation, what motivates them to engage in the behaviour, and who initiates it. The mediating role of motives (e.g., for female pleasure, for men's or women's arousal) in the associations between mutual masturbation and sexual pleasure and satisfaction can be explored further to understand SDSs and scripts for mutual masturbation. Mixed method approaches can be useful to clarify all of these questions.

The traditional sexual script prescribes a sequence of women's orgasm first (real or fake), then men's orgasm, and then sex is over (Braun et al., 2003; Gagnon & Simon, 1987; Gusakova et al., 2020; McCormick, 2010; Muehlenhard & Shippee, 2010). Some individuals believe that simultaneous orgasm is ideal (Séguin & Blais, 2021). However, during PVI alone, most women do not experience orgasm (Herbenick et al., 2018; Leonhardt et al., 2018; Mahar et al., 2020; Mintz, 2017; Richters et al., 2006; Wade et al., 2005). As Nicolson and Burr (2003, p. 1740) argued "...*while orgasm may be an important outcome, it is not necessary to 'have it' during sexual intercourse...*".

Masturbation, in contrast to PVI, is an easier and more reliable way for women to orgasm (Brewer & Hendrie, 2011; Kontula & Miettinen, 2016; Laumann et al., 1994; Rowland et al., 2018; Philippsohn & Hartmann, 2009; Wade et al., 2005). If sex is not over after men's orgasm and mutual masturbation is engaged in by couples, or solo masturbation by the woman, it may break the cycle of pleasure and orgasm inequality. This encourages us to question how mutual masturbation can be added to the sexual script and investigate the orgasm experience in the context of mutual masturbation. Qualitative and mixed-method approaches can help us to understand possible scripts for mutual masturbation. What is the most common type of mutual masturbation (simultaneous or by turns; before, during or after PVI)? Do women's attitudes and experiences of masturbation differ when they are alone vs. with a partner? Do reactions from partners to women's masturbation (with and without a vibrator) differ when women masturbate alone vs. when they masturbate with a partner?

An important finding from the systematic review was that sometimes the use of vibrators seemed more challenging than self-pleasure without vibrator use. If it was not requested by a male partner for his pleasure or arousal, vibrators may be perceived as a "dick substitute" for some women and men (Fahs & Swank, 2013; Mayr, 2021; Waskul & Anklan, 2020). For women, this may result in them feeling insecure about incorporating vibrators into partnered sexuality (Herbenick et al., 2010; Waskul & Anklan, 2020) and leading some women to hide use from their partner and limit vibrator use to solo pleasure (Marcus, 2011; Mayr, 2021). While most women (more than 80%), stimulate their clitoris by hand, vibrator use is another common technique for masturbating (Carvalheira & Leal, 2013; de Lima et al., 2022; Rowland, Kolba et al., 2020). In future analysis, I aim to investigate how (dis)similar are partners in their beliefs about women's vibrator use and whether recent partnered vibrator use is associated with emotional intimacy, relationship satisfaction, and sexual satisfaction among people in relationships, using both individual and dyadic analysis. This will be written up in a forthcoming paper.

**Mutual Masturbation's Possible Benefit on Relationship Wellbeing: A**

**Neurophysiological Mechanism.** Some researchers have proposed that unconscious bonding mechanisms may be activated during sexual stimulation in women if there is greater regular recruitment of the ventromedial pallidum and caudate head in the brain, two important areas influencing emotional and social attachment (Poepl et al., 2016). As discussed in the General Introduction, sexual arousal leading up to orgasm, both during masturbation and partnered sex, increases oxytocin. Previous studies have found that oxytocin enhances the reward-related brain response to partner (vs. other) in the relationship context among men and women; however, among women, this was observed in women who are not on hormonal birth control (not among those who are on hormonal birth control) (Kreuder et al., 2017; Scheele et al., 2013; 2016). By interacting with the brain's dopamine reward systems, oxytocin is associated with the development of partner bonds (e.g., continuing attachments between sexual partners) (Scheele et al., 2013). These studies suggest the possibility that masturbation (via increased oxytocin) may amplify reward-related brain responses to one's partner. These effects may be enhanced for mutual masturbation. Although a study reported that among women, the same brain regions are activated during self-stimulation and partnered stimulation (Wise, 2020; Wise et al., 2017), women's subjective orgasm experiences differ between self-stimulation and partnered stimulation (Goldey et al., 2016; Foust et al., 2022). For example, while intimacy, trust, and giving pleasure are crucial components of partnered pleasure, autonomy is key to descriptions of solitary pleasure (Goldey et al., 2016). Future research can provide insights into the neurophysiological mechanisms for relational well-being effects of mutual masturbation.

**Porn is for Masturbation, or Is It?** Some researchers have argued that the primary function of porn/sexual media is for masturbation (Prause, 2017). This might be the reason for the inclusion of the "*I can only experience orgasm from watching porn, and I'm trying to stop watching porn*" response option when asking reasons why people do not

masturbate, although in a large U.S. national survey, very few people ( $n = 8$ ) chose this option ( $N = 1233$ ; Herbenick, Fu et al., 2022). Particularly among men, watching porn/sexual media frequently occurs concurrently with masturbation (Bóthe et al., 2021; Prause, 2017). For women, porn use seems more nuanced (e.g., for arousal, to enhance partnered sex and intimacy) (Litsou et al., 2021). Whilst men's primary reason for using sexual media was masturbation, for some women, the main reason was to enhance or to accompany partnered sex (Bridges & Morokoff, 2011). As discussed in the General Introduction, the sex difference in brain response to *visual* sexual stimuli (VSS) might explain the gender differences in sexual media use (Poepl et al., 2016).

Similar to women's motives for masturbation, women report diverse techniques of, and aids for, masturbation depending on their motivation. During masturbation, some women use vibrators, some read erotica, others fantasise or use porn/sexual media, and finally, some use nothing and just want to be *in the moment* (Fahs & Frank, 2014; Kraus, 2017). Considering the timeline of the data collection in this thesis (chronosystem in the ecological model), with the increasing availability of pornographic materials and sex toys, sexual behaviours not requiring a partner (e.g., vibrator use, watching pornography) might have increased for some during the COVID-19 pandemic restrictions (Gleason et al., 2023; Hensel et al., 2020; Mercer et al., 2022). The increasing availability of pornographic materials and vibrators may (or may not) be changing masturbation behaviour and/or attitudes to masturbation. However, porn use or other aids (e.g., reading erotica) used to enhance masturbation were not assessed in this present research. When investigating the link between mutual masturbation and sexual satisfaction, future research can explore the possible mediating role of different aids used *during mutual masturbation* (e.g., the use of pornography, sexual fantasy). Also, future research with larger and more diverse samples can elucidate the possible relationship between women's solo masturbation and sexual self-esteem, and how these are associated with the use of different aids *during solo*

*masturbation* (e.g., the use of pornography, vibrator use). This may help to identify useful techniques to enhance women's sexual self-esteem.

### **5.1.6 Strengths and Limitations**

Using broad operationalisations of both solo and mutual self-pleasure, the current thesis examined an individual-level sexual behaviour, masturbation, and framed it in a relationship context using both individual-level and dyadic analysis. When studying sexual relationships, examining the influence of one partner's responses/characteristics on the other partner's adjustment is important to understand how partners in relationships influence each other (Muise et al., 2018). Consequently, the current thesis benefited from theories (Couple Interdependence Theory) and methods (APIM) used in relationship research (Muise et al., 2018).

Additionally, the richness of secondary qualitative data and in-depth analysis in the review paper in Chapter 2 provided an in-depth understanding of feelings and meanings of women's experiences and perceptions about masturbation. The secondary thematic analysis enabled us to go beyond reviewing previous research, elucidated what quantitative analyses in previous research actually mean, and answered a new research question.

Another strength was that a clear distinction between solo and mutual masturbation was made in this thesis. This was important because a clear definition of masturbation has not often been included in past research which makes the interpretation of previous findings difficult. Also, the clear distinction was important because the link with sexual satisfaction differed in Paper 3 depending on the context: while solo masturbation recency was not associated with sexual satisfaction, recent mutual masturbation was associated with higher sexual satisfaction. The collective findings contribute to the limited literature on women's masturbation in a partnered context.

However, the current thesis also had limitations. First, the cross-sectional design precluded making any conclusions about causation. Second, volunteers for studies on sexuality are more likely to have positive attitudes toward sex (Dawson et al., 2019;

Wiederman, 1999); thus, possible volunteer bias should be taken into account. Third, because of the length of questionnaire completion, incomplete responses may have been more likely ( $n = 80, 15.9\%$ ).

Fourth, although in the systematic review (Paper 1) perceived societal views and sexual norms related to women's masturbation were identified as important, social aspects such as social norms (feminist ideology, SDSs or sexual scripts) were not assessed in Papers 2 and 3. Also, data collection lasted one year (2021) and took place during a global pandemic while some Covid-19 restrictions still were in place in most countries, but I did not ask any Covid-19- related questions. Other studies have reported changes in solitary and partnered sexual behaviours during the pandemic (Gleason et al., 2023; Lehmler et al., 2021; Mercer et al., 2022). For example, one study found that individuals who reported conflict with a romantic partner due to COVID-19 and its related restrictions were more likely to report reduced frequency of solo masturbation, partnered masturbation, and PVI compared to those reporting no conflict (Luetke et al., 2020).

Fifth, participants were only asked about their own and their partner's self-reported "gender" (with the response options: men, women, non-binary, and other), but I did not ask about "sex". As such, any trans/non-binary individuals in the sample may have completed an inappropriate sexual function measure (i.e., the FSFI or IIEF) based on gender, rather than physical characteristics.

Finally, convenience sampling was used and thus, the sample was not representative and consisted mainly of White, highly educated, and predominantly young individuals who were in mixed-sex relationships, and who reported low attendance at (or not attending) religious services. Approximately half of the participants were recruited via Prolific, which meant they had to have a Prolific account. This lack of diversity and the WEIRD -Western, Educated, Industrialised, Rich, and Democratic- samples in the current thesis may have limited the range of responses (see Klein et al., 2022). For example, the sample was not representative regarding age and sexual orientation. But, as discussed in

the “Gaps in the Literature on Women’s Masturbation” section in Chapter 5, vague sexual scripts combined with the SDSs related to masturbation may be more visible among older women (Fileborn et al., 2015) than among women who have sex with women and gender diverse people with vulvas (Meiller & Hargons, 2019; Séguin, 2022). Consequently, generalisability is limited to participants’ characteristics in the current thesis.

Also, previous research has found that women who report masturbating are more likely to be highly educated (Gerressu et al., 2008), and most women in our sample had high levels of education. Thus, some of the current findings (e.g., higher prevalence of solo/mutual masturbation, the association between mutual masturbation and sexual satisfaction) might differ in societies where gender equality is lower (e.g., women are less likely to go to higher education). Similarly, the sample in the current thesis mainly included those who reported middle income (for example, very few participants reported poverty level in Paper 2 and Paper 3,  $n = 3$  and  $n = 4$ , respectively). However, as discussed in the General Introduction, previous research has found a strong link between sexual response (and behaviour) and socio-economic level (Higgins et al., 2022). Accurate sexual health knowledge is not always accessible as some sexual health education podcasts and/or websites are not free and affordable for all (e.g., OMGYes). If there is an issue with access to housing and sexual spaces, how might this influence one’s behaviours of, and attitudes toward, masturbation? How do we understand people from lower-income countries’ sexual satisfaction, attitudes towards masturbation, masturbation behaviour and possible challenges in access to sexual health materials for pleasure (e.g., vibrator)? These questions remain unclear.

Additionally, although sexuality has universal biological roots, sexual behaviours and practices are socially created and differ greatly among cultures (Conley & Klein, 2022; Hall, 2019; Klein et al., 2022; Laan et al., 2021). For example, the systematic review in Chapter 2 found differences between US and non-US cultures: masturbation tends to be more stigmatized and/or silenced in some non-US cultures (e.g., Asian; Huong &

Liamputtong, 2018). However, due to a lack of research in non-Western or Global South countries, it is difficult to discuss how characteristics such as geography and ethnicity might have impacted the current findings without having explored those variables and the particular culture in which participants live. Although most sex and masturbation research lacks religious diversity (Adamczyk & Hayes, 2012; Schnabel et al., 2022), religious (and mostly negative) messages are the most important source of (mis)information regarding masturbation (Hargons et al., 2023; Thorpe et al., 2023). In the current research, religious attendance was asked (and controlled for, in Paper 3), but religious affiliation (e.g., Christian, Muslim) was not assessed. There is a need for further exploration into potential culture-specific influences, in particular, research from non-Christian cultures (Schnabel et al., 2022).

### **5.1.7 Conclusions**

Women's masturbation within relationships is complex. However, findings of the present thesis support the idea that women's masturbation is now less stigmatized than commonly thought and highlight that societal negativity around how one's partner perceives women's masturbation may not be discernible at the couple level. In fact, if experienced with a partner, masturbation can create diverse sexual opportunities with the partner that may uncover new pleasures. Sexuality does not have to follow traditional sexual scripts. Sex and couple therapists can recommend mutual masturbation to enhance sexual satisfaction after exploring personal feelings and values about solo and partnered masturbation (Heiman & LoPiccolo, 2009; Mintz, 2017). Normalising solo and mutual masturbation, and including types of self-pleasure in the sexual scripts while in relationships, may help maximise one's own, and one's partner's, sexual pleasure, sexual satisfaction, and eventually, overall sexual well-being.



## Appendices

### 6 Appendix A: Online Supplementary File Used in Paper 1 (Systematic Review)

#### List of Articles Chosen for Full-Text Reading

**Table 1**

*List of Papers Identified for Full Text Reading with Reasons Why Excluded*

Article	Database(s)	Included / excluded	Why excluded
Atwood, J. D. (1981)	ProQuest	Excluded	Descriptive results, did not use qualitative analysis
Bakker et al. (2015)	Embase, Medline, PsychInfo	Excluded	Different outcome of interest, adherence with dilator use after pelvic radiotherapy
Barnese, J. L. (2019)	ProQuest	Excluded	MSc dissertation
Blanchard, R. (2008).	Embase	Excluded	Commentary
Bowman, C. P. (2017)	ProQuest, PsychInfo	Included	
Clifford, R. (1978)	Embase, Medline, PsychInfo	Excluded	Descriptive results, did not use qualitative analysis
Cullen et al. (2012)	Embase, Medline, ProQuest, PsychInfo	Excluded	Different outcome of interest: difficulties and concerns associated with use of vaginal dilators following radiation treatment with women who were prescribed a vaginal dilator
Fahs, & Frank (2014)	Embase, Medline, PsychInfo	Included	
Fahs & Swank (2013)	PsychInfo	Included	
Frank, E. (2014)		Included	
Goldey et al. (2016)	Cinahl, Embase, Medline, PsychInfo	Included	
Hogarth & Ingham (2009)	Embase, PsychInfo	Excluded	Participants aged between 16-18
Hong, A. (2004)	ProQuest	Included	
Huong & Liamputtong (2018)	Cinahl, Embase, Medline, PsychInfo	Included	
Kaestle & Allen (2011)	Embase, Medline, PsychInfo	Included	
Marcus, B. S. (2011)	Embase, Medline, PsychInfo	Included	

<b>Article</b>	<b>Database(s)</b>	<b>Included / excluded</b>	<b>Why excluded</b>
Morales et al. (2016) <i>women and men</i>	PsychInfo	Excluded	Did not report partner-related factors or experience
Morales et al. (2016) <i>women</i>	Embase, PsychInfo	Excluded	Did not report partner-related factors or experience
Morin et al. (2017)	Embase	Excluded	Journal supplement, abstract from a meeting and not a full-length article
Olsen, J. (2012)	Embase	Excluded	MSc dissertation
Towne, A. (2019)	Embase, ProQuest, PsychInfo	Included	
Yuxin & Ying (2009)	Cinahl, Medline, PsychInfo	Included	

### The Search Strategy

**Table 2**

*The Key Terms* were Searched under the Default Field, which Searches Abstracts, Authors, Subject Headings, Titles and Keywords.

*Search strategy for PsycINFO via EBSCO Narrowed by academic journals & dissertations;*

*language, English; age: +18; Gender: female*

*Cinahl via EBSCO Narrowed by academic journals & dissertations; language, English; age: +18*

*Medline via EBSCO Narrowed by language, English; age: +19*

*Embase via Ovid*

- 
1. solo-sex
  2. self pleasur\*
  3. Masturba\*
  4. sex toy\*
  5. vibrator\*
  6. self stimulation
  7. self-stimulation
  8. solo masturba\*
  9. self-touching
  10. 1 OR 2 OR 3 OR 4 OR 5 OR 6 OR 7 OR 8 OR 9
  11. wom?n or female\*
  12. qualitative
  13. ethnograph\*
  14. phenomenol\*
  15. ethnonurs\*
  16. grounded theor\*
  17. purposive sample
  18. hermeneutic\*
  19. heuristic\*
  20. semiotics
  21. lived experience\*
  22. narrative\*
  23. life experiences
  24. cluster sample
  25. action research

26. observational method
  27. content analysis
  28. thematic analysis
  29. constant comparative method
  30. field stud\*
  31. theoretical sample
  32. discourse analysis
  33. focus group\*
  34. ethnological research
  35. ethnomethodolog\*
  36. interview\*
  37. 12 OR 13 OR 14 OR 15 OR 16 OR 17 OR 18 OR 19 OR 20 OR 21 OR 22 OR  
23 OR 24 OR 25 OR 26 OR 27 OR 28 OR29 OR 30 OR 31 OR 32 OR 33 OR  
34 OR 35 OR 36
  38. 10 AND 11 AND 37
-

**Table 3**

*ProQuest Dissertations & Theses Global Narrowed by doctoral dissertations; language, English. The key terms were searched under, which searches abstracts (AB) and titles (TI) as the default field revealed too many result (37,126 articles when searching under default field).*

1. (solo-sex OR self pleasur* OR masturba* OR sex toy* OR vibrator* OR self stimulation OR self-stimulation OR solo masturba* OR self-touching) AB
2. (solo-sex OR self pleasur* OR masturba* OR sex toy* OR vibrator* OR self stimulation OR self-stimulation OR solo masturba* OR self-touching) TI
3. 1 OR 2
4. (wom?n or female*) AB
5. (wom?n or female*) TI
6. 4 OR 5
7. (qualitative OR ethnograph* OR phenomenol* OR ethnonurs* OR grounded theor* OR purposive sample OR hermeneutic* OR heuristic* OR semiotics OR life experiences OR cluster sample OR action research OR observational method OR content analysis OR thematic analysis OR constant comparative method OR field stud* OR theoretical sample OR discourse analysis OR focus group* OR ethnological research OR ethnomethodolog* OR interview*) AB
8. (qualitative OR ethnograph* OR phenomenol* OR ethnonurs* OR grounded theor* OR purposive sample OR hermeneutic* OR heuristic* OR semiotics OR lived experience* OR narrative* OR life experiences OR cluster sample OR action research OR observational method OR content analysis OR thematic analysis OR constant comparative method OR field stud* OR theoretical sample OR discourse analysis OR focus group* OR ethnological research OR ethnomethodolog* OR interview*) TI
9. 7 OR 8
10. 3 AND 6 AND 9

**Final Coding Manual**

**Table 4**

*Final Coding Manual*

Analytical Themes	Descriptive themes	Description	Illustrative quotes
<b>Women’s masturbation or use of sex toys might affect current or potential relationships</b>		Beliefs and perceptions regarding potential negative affect of women’s masturbation on (current or future) partner’s feelings and/or relationship	<p>“But then below that [in acceptability]—I don’t know—I am thinking, is sex with the vibrator. I guess the vibrator would be lower for him. I have to admit that even for me [it would be lower in] the hierarchy. Yes, I would agree that I have a stereotypical understanding that great sex should include intercourse, not exclusive of the stimulation, but sure actually part of it.” (Marcus, 2011)</p> <p>“[L]ike, when we were...when we first had sex, he used to count [how many times I would orgasm]! It used to really irritate me because it didn’t matter like how many to me. But yeah. I would say an orgasm is an important part. But for me, just having one - like, im less it’s really kinky sex - just having one is okay with me. ... [My boyfriend also] wasn’t very good [at oral sex]. Considering I’d been like masturbating for like two years! Ya know, like that kinda puts a damper on things later when.... (voice &amp;des and gets more hushed) he wasn’t - he was just like, agh! I don’t know. ... I kinda -I knew he knew what he was doing. It just wasn’t good enough! (laughs) ... I knew he had like done it before. And I didn’t wanna like hurt his feelings. Cuz guys are so like.... touchy about that! And I didn’t wanna say anything to him or anything like that. ... Honestly, now that I think about it? I’ve probably just assumed that everybody had the same deal. Or just like - it was just never something like I thought about really. It’s just something that was.” (Winnie, aged 18-22) (Hong, 2014)</p> <p>“I had a fear of orgasming, because I thought that it was something I should save to do with, like, someone I cared about. That was definitely a message I got somehow. I don’t know exactly how. That was not in Seventeen [laugh]. ... I remember, like, focusing a lot just on how it felt, and trying different things, and I wasn’t really thinking about anything other than just, like, the sensation, but then also, like feeling like, “oh, I am, like, I read and saw this graph of how the energy builds, and I’m experiencing it, like, maybe I should stop, ‘cause then I could have an orgasm, and I don’t want to waste it, when it could be special or something.” (Asha, South Asian/White, Bi/Pansexual, 30) (Bowman, 2017)</p> <p>“... , I tried to do so much for others all the time, ya know? ... I think that low self-esteem had a bit to do with it, ya know? Cuz I just really wanted to please other people. I wasn’t thinking about pleasing myself ya know? So therefore, I didn’t -I didn’t - I didn’t want to, ya know, please myself when somebody else was there.” (Jackie) (Hong, 2004)</p>

Analytical Themes	Descriptive themes	Description	Illustrative quotes
			<p>“I’d heard plenty of people say that individuals only masturbate if they can’t get a real boyfriend or girlfriend, and since I’ve yet to have a boyfriend, I felt that applied directly to me.” (Velma) (Kaestle &amp; Allen, 2011)</p> <p>“For example, Huyen said that she sometimes did touch herself only when her husband ‘was not around’ because she did not want to destroy his sense of sexual prowess.” (Huong &amp; Liamputtong, 2018)</p> <p>“When guys masturbate it’s like blowing off steam, but when women do it ... if they have a partner, [guys] are like, ‘Oh, I’m not good enough for you?’” (Charlotte, 18, white, heterosexual, atheist Catholic) (Frank, 2014)</p> <p>“Naomi (21, white, heterosexual, agnostic Catholic) similarly shares the belief that guys feel “left out of the process” and “threatened” if their female partner uses a vibrator for self-stimulation, for example.” (Frank, 2014)</p> <p>“Yeah! Exactly, but I guess when we use paraphernalia then [I feel as though there is an] underlying dysfunction [and the question] is, why do we need it? There [must be] some- thing wrong, that we need it. Do you know what I mean?” (Marcus, 2011)</p> <p>“I, like, if I think about it, masturbating in your relationship shouldn’t be n-, should be no big deal, but I think my reaction would be, like, “if you, w-, like, why don’t you just, why didn’t we just go have sex? [laugh] Like, why aren’t we having sex? Why are you masturbating?” Um, I, I think it is understandable, because I’m just trying to wrap my head around wh-, uh, what would be the bonus of masturbating when you can have sex. When it’s there, and it’s just, like, there’s, you could have, you could put them both together! And like [laugh] Un-, unless it’s just, like, quick and, like, I’m in the sh-, sh-, I don’t, yeah. I, it’s a weird thing. I think I would feel bothered by, like, we’d have to have a conversation [laugh] about what’s going on in our relationship, where, uh, you’re masturbating and we’re not having sex. [laugh] ... Because, uh, obviously I’m just like, why is it wrong? Or why would it be bothersome to? ‘Cause I think, for me, it just, it signals that there’s some reason why you guys aren’t being intimate together, and, and, and yeah. Like, if I had a regular sex partner who was there with me all the time, I probably would not masturbate.” (Alice, Black/Asian, Heterosexual, 29) (Bowman, 2017)</p> <p>“I’ve tried masturbating, and it doesn’t do anything for me. I don’t know if it’s because I’m afraid that I’m not going to get the same satisfaction that I would from having a penis in me. What I did, I just got some K-Y and just rubbed it on my hand and put my hand down there and started to rub. You know, I was visualizing porno flicks and people I would like to have sex with, and it just didn’t happen for me, so I was like, “Oh well.’” (Patricia, a 28year-old African American heterosexual woman) (Fahs &amp; Frank, 2014)</p> <p>“I remember thinking, like, “Oh my God. How am I supposed to do this with a guy?” Which was interesting, because, um, I don’t think that should be the first thought. [giggle] You know what I mean? Like, it should be, like “How can I do this? How can I do this again?” Versus, like, “How can I do</p>

Analytical Themes	Descriptive themes	Description	Illustrative quotes
			<p>this with a boy?” You know? [giggle] Like “I like Barry. You know? [giggle] How’s he going to do this – with his penis? But how, like, you know? How does he, you know, hit the clitoris? How’s this going to happen?”” (Cici, White, Straight, 30) (Bowman, 2017)</p> <p>“Sometimes when my boyfriend is sleeping, I’d sneak downstairs early in the morning to masturbate with my vibrator on the couch. I didn’t want to offend him but knew that it would be so much easier and faster for me to do it alone over doing it during sex.” Nora (29, Arab-American, heterosexual, Christian) (Frank, 2014)</p> <p>“I think he would be happier that I had the orgasm, but I think he would try to figure out what the vibrator is doing [to produce orgasm] that he wasn’t.” (Marcus, 2011)</p> <p>“It’s easy to get pleasure from masturbation. People just know it. It’s an instinct. I don’t need it as I always have men around. Some men are skillful but some men don’t know how to perform in bed. Women should teach them. A skillful woman can always make her man feel good by teaching him to satisfy her.” (Fei Fei) (Yuxin &amp; Ying, 2009)</p>
<p><b>Balancing sexual needs with self and partners</b></p>		<p>Women’s motives to masturbate due to sexual relationship or partner related factors</p>	<p>[Masturbation] definitely was an important part [of my sexuality], but I was trying to see if it &amp;ctored into me maybe having sex more or less? But it definitely was, because maybe if I didn’t do that, I would have sex even more than what I did maybe? Um, I did have that sexual tension. Because.. .that was just - I mean, masturbation was just something that I enjoyed doing. It’s like, maybe like I was playin’ a sport or something. Um, or something that...that I did on a regular basis and so therefore it was part of me, part of my life! Part of what made me happy, ya know. So.. .maybe I wouldn’t have been such a happy person or something. I don’t know? I’m just - I’m usually happy anyway. But ya know, I don’t let things get to me and maybe that has something to do with it. Um...so yeah. Definitely it was important. It probably makes me I guess, kinda the sexual person that I am. Maybe I would never figure out that - if I didn’t ever have orgasms - that there even was such a thing - or it was just something for guys! I mean, maybe just over time, it’s helped me correlate things to sex! (Jackie) (Hong, 2004)</p> <p>“I have never [self-pleasured]. I think it is not a big deal [if a woman satisfies herself] .... If it is a pathological issue, it is not good. However, if it is a matter of physiology, a way to spice up her life and an aid to make her more satisfied, it should not be criticised or reprimanded. I know many people who have done that stuff because their partners couldn’t [satisfy] them or because of other health and physiological reasons .... [Why haven’t you tried it?] Because, as my friends often say, I am brimful with that stuff [sex]. I have never felt that I don’t have enough [pleasurable sex].” (Huong &amp; Liamputtong, 2018)</p>
	<p><i>Substitute for partnered sex</i></p>	<p>Situations where women’s masturbation</p>	<p><i>If a woman did not reach orgasm with a partner:</i></p> <p>“There are times when I do have a sex partner and he hasn’t made me have an orgasm, so I’ll go make myself have one.” Leticia (Fahs &amp; Frank, 2014)</p>



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		occurred due to lack of orgasm after partnered sex, unavailability of partner (due to time and distance) or being single	<p>“it’s really just by myself that I get ... anything out of [sex].” Jess (19, white, heterosexual, Episcopalian), (Frank, 2014)</p> <p>“I always feel like I can give myself one better ... because obviously I know where I like it ... It feels good ... when other people do it, but somehow never as good as when I can do it.” Chelsea (22, white, heterosexual, spiritual) (Frank, 2014)</p> <p>“The sex was amazing, but I didn’t get off. It was just him having sex and, when we’re done, he left. I was still really aroused, but I had to finish myself off... Normally I don’t really enjoy masturbating.” (Shantele, a 30-year-old African American heterosexual woman) (Fahs &amp; Frank, 2014)</p> <p>“A heterosexual woman in the 18-24 group stated that she had used solitary masturbation to supplement partnered activity when her ex-partner “was just very concerned about his own pleasure and not about mine.”” (Heterosexual woman in the 18–24 age group) (Goldey et al., 2016)</p> <p>“I have only reached orgasm when I have masturbated which sometimes sucks. I want to be able to orgasm when I am having sex ... the guys I’ve been with have only spent a minimal amount of time on my clitoris ... Although I am capable of reaching orgasm myself, [that] doesn’t mean I would prefer it.” (Mandy, 22, white, heterosexual, Methodist), (Frank, 2014)</p> <p>“Maybe I’m in the mood and he’s not around, or maybe I just feel like doing it. I think it started one time when I was washing down there with a showerhead and it seemed to feel really nice. It became an easy way for me to orgasm. Compared to other girls I don’t orgasm easily, so that’s why I can’t say I orgasm from oral sex or using fingers. It’s just easier when I masturbate.” (Mei, a 22-year-old Asian American heterosexual woman) (Fahs &amp; Frank, 2014)</p> <p>“By myself, I know what I like ... I know what sensation and feelings feel good to me, so that’s why it’s pleasurable. But then with other people ... they’d just really experiment ... those experiences aren’t really pleasurable.” (Kayla, 21, black, heterosexual, non-denominational Christian) (Frank, 2014)</p> <p>I don’t have to be mentally telegraphing, ‘no, go to the other nipple’ [heterosexual woman, 41?]. (Goldey et al., 2016)</p> <p>“You can be like selfish. You don’t have to worry if your partner’s enjoying himself” [heterosexual woman, 18–24]. (Goldey et al., 2016)</p> <p>“You don’t have to put on this image or bolster somebody else’s ego” [heterosexual woman, 41?]. (Goldey et al., 2016)</p> <p>“I was just like “Oh, I can do that during sex. That’s amazing. That’s super cool.” So now I’m like really possessive of my clitoris. The guys like to do that thing where they reach around and try to rub it with their thumb ... I’m just like, “Don’t touch it. It’s mine. I know what to do with it. You just do your thing and I’ll do my thing and we’ll get to the same place. I don’t really need your help ... Just leave my vagina alone.”” (Jordan, 21, white, straight/lesbian, culturally Jewish), (Frank, 2014)</p>

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			<p><i>If a partner was not around:</i></p> <p>“I think I started probably gaining experience – like, on my own? Not – that had nothing to do with [my partner]. Because it was kind of weird – it seemed – like, when I guess when I think about it? It seemed like it would be weird for me to masturbate in front of him? So it was more something that I experienced on my own when he wasn’t around or when I couldn’t see him or when we had to go a long time without being able to see each other – that kind of thing.” (Violet) (Hong, 2004)</p> <p>“for me it’s definitely a substitute, because it’s mostly the time or the distance [from my partner]” [heterosexual woman, 18–24]) (Goldey et al., 2016)</p> <p>“If you’re a teenager and you can’t find someone. Or if you’re in a long-distance relationship and you don’t want to go and sleep with someone else ... you do it over the phone ... Or if you really just can’t find somebody.” (Samira, 22, Iraqi-American, heterosexual, Muslim) (Frank, 2014)</p> <p>“I put my hand between my legs, compressing, twisting and rolling my thighs ... I achieve orgasm within one minute all by myself. That’s why even after three years of living apart in different cities from him [her boyfriend, now her husband] we are still together ... Now he is always around me and our sex life is harmonious, but I still do it [masturbate]. I am just so used to doing it. He is very understanding. Most of time I do it after lovemaking. I tell him: ‘Hey! I am going to do a bad thing’. He knows what I mean. He lies down beside me and lets me do it by myself. If he is not tired he helps me by kissing me or touching my breasts. It is really nice.” (Phoenix, twenty-six-year-old) (Yuxin &amp; Ying, 2009)</p> <p>“for me it’s definitely a substitute, because it’s mostly the time or the distance [from my partner]” [heterosexual woman, 18–24]) (Goldey et al., 2016)</p> <p><i>If a woman is not in a relationship:</i></p> <p>“I haven’t had sex since mid-February. The partner I was with then started ignoring me and it really hurt my feelings, so I’ve decided that I don’t want to date again for a while. Instead I’ve been concentrating on masturbating, and it’s surprising how much more pleasure I feel when I’m masturbating, than when I am with a partner ... Masturbating is a great part of my life in which I know I can take some alone time and make myself feel better.” (Bianca, 22, Hispanic, bisexual, non-practicing Catholic) (Frank, 2014)</p> <p>“Tasha (22, African-American, “unlabelled” sexual identity, Baptist) similarly finds masturbation to be “a good way to get energy out” without being emotionally “vulnerable.”” (Frank, 2014)</p> <p>“If you don’t even have a ‘honey’, you don’t feel the need to go out and find some stranger whenever you’re horny ... You’re fine with it ... It’s no longer a necessity to be sexually fulfilled by</p>

Analytical Themes	Descriptive themes	Description	Illustrative quotes
			<p>another person. You can do it yourself. And that's empowering." (Naomi, 21, white, heterosexual, Catholic/agnostic). (Frank, 2014)</p> <p>"Kara (18, white, heterosexual, spiritual) finds it "easier" to say "no" to a potentially emotionally "painful" sexual experience. For her, coming to the realization that she "can do it way better [her]self than in some shallow hooking up experience with some guy" was "huge." (Frank, 2014)</p> <p>"Shanna (20, white, queer, atheist), for instance, finds it "easier" to decide who or who not to "sleep with" because she knows how to "bring" herself pleasure. Morgan (21, white, heterosexual, atheist) similarly feels that she would have a harder time saying "no" to partnered sex if she did not masturbate, that she "would want to have sex more and then regret it later." Camille (27, white, heterosexual, spiritual) also believes that masturbation has "postponed" her "first one-night stand." She says, "I think probably [masturbation] has decreased my desire to be like, 'oh, I really need to have sex tonight,' because I knew the majority of what I wanted to get out of having sex with someone that night I can do myself." Bianca (22, Hispanic, bisexual, nonpracticing Catholic) even refers to her vibrator as a "good-decision maker" because it allows her to satisfy her sexual desires without engaging in casual sex." (Frank, 2014)</p> <p>"when I just don't want to have casual sex" [bisexual woman, 18-24], (Goldey et al., 2016)</p> <p>"Barb disclosed that she used to "sleep around" but that "now I have a couple vibrators that I enjoy using instead." (Kaestle &amp; Allen, 2011)</p> <p>"I no longer have a boyfriend! And hey! Sistah has needs! So... I don't know. You do what you gotta do. Cuz I mean, sometimes rolling over and going to sleep does not help! Cuz then you dream about it and then you wake up and you're like, "Dear god! Help me!" So. And you don't wanna just like randomly go off and have sex with anybody cuz it's a bad thing!" (Samantha) (Hong, 2004)</p> <p>"Piper (21, Native American/white, lesbian, atheist), for instance, says "The fact that I can masturbate and please myself affects the fact that I don't have relationships unless they're emotionally based." (Frank, 2014)</p> <p>"Women who engage in masturbation are much cleverer than those who don't because they would not give up their (game) rules just for sex." Guan, twenty-seven-year-old (Yuxin &amp; Ying, 2009)</p> <p>"I think maybe once, ya know, I'm completely comfortable with pleasuring myself, I won't...need that [using sex as a way to build a foundation of a relationship and I'll be like taken care of What do you have to offer? Ya know? I won't see you as sexual intercourse. I will see you as a friend or a possible mate - not a mate, but vun, ya know, a relationship. A boyfriend, ya know. A fiancé. Something along those lines. Whereas my perception of men will definitely have to change. And um, not that I wasn't looking for that stuff - that I was purely looking for a sexual partner, but I think.. .when - if I knew that maybe there wasn't gonna be the relationship, that is when the focus changed to, "Okay, well, if we don't wanna have a relationship, you can still [have sex]. So um, yes - moving the change of</p>

Analytical Themes	Descriptive themes	Description	Illustrative quotes
			<p>being - knowing that I can...obtain that physical pleasure on my own and definitely don't need a man to do it. And won't harbour a relationship around something whereas I think if I already have it [sexual pleasure on my own], then the priority list changes. And that - and that's very difficult, but it's...having the list [of partner preferences] was just not always the best thing but a way to insure ideals and values will be met. Um...but instead of going down the list and saying, "Okay, well, you're not this and you're not this. And you don't this." And then, "But there's still (in a more flippant tone) the sex that we can have." And I can deal with that and really settling for it. I think um, knowing that I...am okay with it myself then I can ya know...well look and say, "I have sexual pleasure. What do you have to offer me?" Ya know, I don't need you for that. So I'll really look for all the other exponential things that are really necessities in a relationship that I've been so quick to say, "Okay, well, we don't really need all this if we can have this [sex]." (Cassie) (Hong, 2004)</p>
	<p><i>A tool to enhance partnered sex and partnered intimacy</i></p>	<p>Motives and intentions to learn how to achieve pleasure by herself then communicating about preferred techniques with her partner to enhance partnered sex</p>	<p><i>Exploration and intention to experience pleasurable partnered sex:</i>                      "Brittany (21, white, heterosexual, atheist) says, 'I know how my body is now, so I know how to receive pleasure.'" (Frank, 2014)                      "I learnt about masturbation from a very good girlfriend. She told me that we women have five holes in our bodies. If you don't know your body, you don't know how to love yourself. And then, how can you let your partners love you? I learnt a lot from her ... I even taught my boyfriend about masturbation. We both felt good." (Linda) (Yuxin &amp; Ying, 2009)                      "Chelsea (22, white, heterosexual, spiritual) similarly feels that if she had never 'explored [her] vagina' that she would have never 'learned how to have an orgasm.'" (Frank, 2014)                      "We tried to use it together because it's one of those couple vibrators, like the U-shaped one. I don't know if it's the strength or the continuous buzzing, but it eventually makes you numb. We tried it a few times and we were like, 'This doesn't really add much.' Since then, I've used it once or twice alone but I don't like it that much. I prefer my fingers." (Mei, a 22-year-old Asian-American heterosexual woman) (Fahs &amp; Swank, 2013)                      "As Shreya (22, Indian, bisexual polyamorous, cultural Hindu/Muslim) says, "Being a woman, it makes it easier to hook up with other women if you know ... your own anatomy." (Frank, 2014)                      "I've used masturbating toys while we're having sex. He liked it quite a bit and thought it was hot. He was fine with it, 'cause I still fake it and he gets what he wants out of it anyway." (Angelica, a 32-year-old Mexican-American heterosexual woman) (Fahs &amp; Swank, 2013)                      "Christina (21, Cuban, bisexual, atheist), for example, credits masturbation for her ability to have an orgasm during her first time engaging in sexual intercourse. Given that her partner "didn't know what he was doing,"" (Frank, 2014)</p>
			<p><i>A step to communicating successfully with their partner:</i></p>

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			<p>“Like, it’s kind of a problem that’s foreign to me - guys like having trouble pleasuring a woman or...or, um...I’ve always thought that it’s kind of weird that they don’t know what they’re doing or something. Because I know everything about me! And it’s - it’s different that they wouldn’t know like all that stuff. So... I think - I don’t know. Maybe more women need to like...talk to their guys - like, ya know, um...I know I’ve read in like Cosmo and stuff. Like, how to get your guy to make you orgasm and it’s like, ya know, talk to your mate or whatever. And talk to your partner. And tell them what you want. So... I think that...more women will do that [masturbate] to... have their guy like know what they’re doing or whatever.” (Winnie) (Hong, 2004)</p> <p>“a lesbian woman in the 25–40 group said of solitary sexuality, ‘it kinda gives me an opportunity to explore more of what I like so maybe I can direct my partner there.’” (Goldey et al., 2016)</p> <p>“Wang, for instance, said masturbation was a ‘habit’ for her and that she was so good at pleasuring herself, she had taught her husband how to give her pleasure too.” (Yuxin &amp; Ying, 2009)</p> <p>“[Before I experienced my first orgasm using a vibrator] I didn’t know what I was striving for, I guess. Like, because now at this point, I know like...it’s so weird to think of it as like a skill (laughing a little). But like it truly is! ... I’m very much a directive type person [during sex] (laughing a little). Like, “You stop there!” (laughs) “You do this!” Like, and so., .um... I know what I want. Like, and I think it’s - and that is a tot - a big part of the vibrator is because I found out where it felt good. I knew like...um...so...that’s something everyone should experience. ... Like I said, I’d never really touched myself. I had no idea what I was supposed to be feeling. Like, ya know, he’s touching me! But, is this the part that’s supposed to feel good? Like...and (sighs and laughs a little) the part that you probably really don’t wanna know about me that much is that I am a nowadays - I can’t look you in the eye even I say this - um, just like an incredibly orgasmic person! Like, off the charts. And I think a lot of that has to do with the vibrator. Like, a lot of it! Because I became completely aware of like when to concentrate and like...so...I (laughs a little) - and nowadays I tell people that. I’m like, “Just get it. Just get it. Just do it!” Just because ya know...yeah, it’s cool if you don’t have a boyfriend but even when you do...I mean, I just - I’m - I’m attributing that’s why because like I know like...like, what to think and how I should concentrate and like all of that!” (Nicky) (Hong, 2004)</p> <p>“I think it’s been important for me to masturbate and to think about what works for me in terms of how I like to be touched and how I can help other people touch me in the right way...I think it has contributed to the general trajectory of more orgasms as I’ve gotten older.” (Towne, 2019)</p>
<b>Changes in women’s masturbation behaviours and</b>		Behavioural changes regarding sex toys and/or masturbation	<p>“Sometimes when my boyfriend is sleeping, I’d sneak downstairs early in the morning to masturbate with my vibrator on the couch. I didn’t want to offend him but knew that it would be so much easier and faster for me to do it alone over doing it during sex.” Nora (29, Arab-American, heterosexual, Christian) (Bowman, 2017)</p>

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experiences with a partner	<i>Women modified their masturbation behaviour when in a relationship</i>	when in a relationship  Alteration of women's masturbation and/or sex toy use when with a partner	<p>“...I didn't masturbate much during my marriage because I didn't wanna get caught, because if I was gonna have an orgasm he wanted to be there for it, so, um, so that was something that was nice to reclaim after that.” [25–40 age group, heterosexual] (Goldey et al., 2016)</p> <p>“I would like to [use it for masturbation], but sometimes I feel guilty about—I felt bad about it and, like, I was having an affair with it. I even stopped masturbating altogether because I want to save all of my orgasms for him, and, like, I want to keep building up until we are together and until he can enjoy it with me.” “Yes, I almost did not want to take away his role in our making love because he gives me pleasure, and I didn't want to say, ‘Ha ha, I want something that give[s] me more pleasure.’” (Marcus, 2011)</p> <p>“I'm not at all proud of the things I've done or gone through, or the struggles I've had since childhood ... but I feel for now, I'm being more mature and being more controlled. Just last night I was really stressed and pulled an almost all-nighter. And I was really stressed and I was like, “You know what, I just need to get out some of the frustration.” And I wanted to do what I normally would do. And I was like, “No, you're dating such a great guy. You haven't done this since dating him. Why would you ruin that now?” ... I literally laid down on my floor and said, “You're going to sit here and not do it.” And it was one of the hardest things I've ever done. I was just so stressed. I was so overwhelmed. It was three in the morning and I had to get up at five ... and I was just, “You are going to lay here and not do it, and you are going to be able to control your thoughts. And you are going to think about doing it, but you are not going to do it, because you don't have to do everything that you think about.” And I sat there and it was really hard ... I must've sat there for ten minutes. And then I sat up and was like, “You haven't done it. The moment of weakness has passed. Instead of succumbing to it, you fought through it, and now instead of doing something you shouldn't be doing for a half hour, you can go back to your homework and be productive.” And so I woke up this morning and was like, “Wow, good job.” The fact that I haven't done it in three months of dating my boyfriend, and the fact that I passed last night when it was really hard; it's just like I think I'm finally on the road to doing what I know I need to do.” (Shalene, 19, white, heterosexual, LDS) (Frank, 2014)</p> <p>“Well I love that I can think anything that I want. Like, I actually find that I don't think about the same things. I, I'm always fantasizing even when I'm having sex with a girlfriend, but I think about different things when I'm alone because it feels less wrong...” (a lesbian woman in the 25–40 group) (Goldey et al., 2016)</p> <p>“So, I really, I really liked it—with sex [with intercourse with my husband].” (Marcus, 2011)</p>

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			<p>“I think I started probably gaining experience - like, on my own? Not - that had nothing to do with [my partner]. Because it was kind of weird - it seemed - like, when I- I guess when I think about it? It seemed like it would be weird for me to masturbate in front of him? So it was more something that I experienced on my own when he wasn't around or when I couldn't see him or when we had to go a long time without being able to see each other - that kind of thing.” (Violet) (Hong, 2014)</p> <p>“It was on Thursday last week ... when my boyfriend's jealousy got us angry at each other. I thought, “Hey! Sex is the best medicine, so I'm going to masturbate with my vibrator.” ... To “get back at him” I said I wasn't going to masturbate to him and just focus on my own pleasure ... It felt great and all, but with my mentality not being there, I wasn't achieving anything. Finally I called it quits ... I felt lame for not being able to orgasm without him. At some point during my attempts I even said, “okay, well think of some guy who you think is hot and uhh imagine him going down on you!” I imagined a guy but before I made him do anything, I stopped myself since it felt so weird masturbating to a stranger.” Celia (18, Hispanic, heterosexual, no religion) (Frank, 2014)</p>
	<i>How to discuss/communicate with a partner?</i>	<p>Uneasiness and lack of knowledge on communication strategies on women's masturbation and/or sex toy use or comfort discussing sexual preferences with a partner</p>	<p>“In Carmen's (22, Latina, queer, atheist) case, masturbation helped her to learn to appreciate her body for “what it can do” rather than “how it looks.” Hence, she feels more comfortable to “navigate sexual experiences with other people.”” (Frank, 2014)</p> <p>“Now I'm at a point where if you're not pleasing me, I'll let you know. I'm not going to fake an orgasm. I'm not going to tell you that you did all these things that you didn't.” Nikki (19, African-American, heterosexual, non-denominational Christian) (Frank, 2014)</p> <p>“I guess I should [tell him] because I do not usually keep things from him, but I felt like I—I guess the other thing is that I kind of did not know how to bring it up. You know what I am saying?” (Marcus, 2011)</p> <p>“Sometimes it's hard cause it's like, “Move over a centimetre;” but then like, “No, I meant half a centimetre and a little bit more up and then wider; now do it harder.” Yeah, it's very tricky to pinpoint exactly what I want.” (Towne, 2019)</p> <p>“You're making out, doing foreplay, touching, and then somebody's asking, “Hey, do you want to have sex?” or “Do you have a condom?” and then that's usually when there's a consensual “Okay let's go through with it” and then “What do you need? And “What do I need?”” She spoke of taking a break from physical activity to introduce her vibrator either by asking to go to the bathroom or saying, “Hold on. Let me go get some things.”” (Towne, 2019)</p> <p>“It's complicated for me” and explained to her partners, “I like it when little circles are made on my clitoris, and I also like it at the same time when my nipples are stimulated.” (Towne, 2019)</p> <p>“Three women mentioned taking a man's hand and setting it on her clitoris. When I asked, “How does he know what to do with his hand?” One woman said she usually does not explain but lets him know if it hurts.” (Towne, 2019)</p>

Analytical Themes	Descriptive themes	Description	Illustrative quotes
			<p>“Here is my question. How do you work a vibrator into a conversation? He is sitting there and [I say,] ‘I was doing the laundry today. Hey, I got a vibrator.’ How do you work that into the conversation? How do you think you do? I have no idea. That is part of my problem.” (Marcus, 2011)</p> <p>“Carmen (22, Latina, queer, atheist) says that it is only because she “know[s] [herself] so well” as a result of masturbation that she knows “how to communicate that to other people.”” (Frank, 2014)</p>
	<i>Partner’s reactions</i>	Reported reactions of a partner to women’s masturbation and/or sex toy use	<p>“I haven’t started - I didn’t start experiencing - or like even remotely experiencing with masturbation until like months ago. Like, very recently. And um...it really was fostered a lot more by my sexual partner at the time and he wasn’t like, you should do it, it’s amazing. But, ya know, it was like, ya know we were on the phone, ya know, away from each other. It was like well, why don’t we both, ya know. And so, ya know...and I’m so new at it, so I’m like trying to feel it out. Go with the flow.” (Frances) (Hong, 2004)</p> <p>“It wasn’t until my first sexual encounter, which was at the end of my sophomore year of high school, that I began really learning about female masturbation. The boy I was with told me about the clitoris and how it was supposed to be the most sensitive part for a girl. I was fascinated and wanted to learn more about that.” (Ila) (Kaestle &amp; Allen, 2011)</p> <p>“because Brittany’s (21, white, heterosexual, atheist Catholic) boyfriend knew she was “naïve” and “ignorant” about pleasure and wanted to “help [her] out,” he told her, “It’s important that you feel good too, and you shouldn’t feel like [masturbation’s] any negative or bad thing.”” (Frank, 2014)</p> <p>“Dakota (20, white, straight/bisexual, agnostic) similarly learned that girls masturbate from her first boyfriend. Resentful that no one “sat [her] down and told [her] how to masturbate” earlier, she writes, “Finding your clitoris isn’t exactly easy but no one talks about it to girls and we’re just supposed to figure it out ourselves ... People assume girls don’t want to touch themselves and we assume they are right.”” (Frank, 2014)</p> <p>“Generally, we do the missionary style position but sometimes I would be on top. When I would be on top—generally I don’t have an orgasm during intercourse—I have to have my vibrator on hand so that he can do what my husband can’t ... My partner is very accommodating. He allows me to have an orgasm and it’s important for him that I have one.” (Jane, a 59-year-old white heterosexual woman) (Fahs &amp; Swank, 2013)</p> <p>“one woman reported trying masturbation once but abandoned it specifically because her partner expressed jealousy over the behaviour”. (Hong, 2014)</p> <p>“Had he not shown me that touching myself could feel good and had he not have been so accepting of it, I don’t think I ever would have started masturbating.” Anna (Kaestle &amp; Allen, 2011)</p> <p>As Casey (21, white, heterosexual, non-denominational Christian) told me, ‘We bought it together and used it together and then I used it on my own too.’” (Frank, 2014)</p>



Analytical Themes	Descriptive themes	Description	Illustrative quotes
			<p>“Generally we do the missionary style position but sometimes I would be on top. When I would be on top—generally I don’t have an orgasm during intercourse—I have to have my vibrator on hand so that he can do what my husband can’t ... My partner is very accommodating. He allows me to have an orgasm and it’s important for him that I have one.” Jane, a 59-year-old white heterosexual woman, (Fahs &amp; Swank, 2013)</p> <p>“Some of the men I’ve chatted with about (my vibrator) become jealous that they can’t perform the same act as the vibrator does, so I try to shy away from speaking to them about it. When I can’t have an orgasm during sex with them, they become, you know, kind of self-conscious because I tell them that I can with a vibrator. Now I just don’t talk about it at all with them.” a 25-year-old white heterosexual woman (Fahs &amp; Swank, 2013)</p>

## 7 Appendix B: Participant Information Sheet and Consent Form for Screening (Papers 2 and 3)

### Participant Information Sheet-Screening (The Prolific)

#### Combined Participant Information Sheet and Consent Form for Anonymous Online Screening for Adult Participants

**Study Title:** Couple's sexual and relational satisfaction

**Researcher(s):** Dilan Kılıç Onar; Supervisors: Prof. Cynthia Graham and Dr. Heather Armstrong

**University email:** dk1u17@soton.ac.uk

**Ethics/ERGO no:** 62245

**Version and date:** Version 3 (24/06/2021)

#### What is the research about?

My name is Dilan Kılıç Onar and I am a PhD student at the University of Southampton in the United Kingdom.

I am inviting you to participate in a screening survey for a study regarding sexual and romantic relationships. This screening is aimed to find eligible participants.

This study was approved by the Faculty Research Ethics Committee (FREC) at the University of Southampton (Ethics/ERGO Number:62245).

#### What will happen to me if I take part?

This screening involves completing an anonymous screening questionnaire which should take approximately 3 minutes of your time. As part of the screening, you will answer five questions to assess your eligibility.

When you start completing the survey your answers will be saved.

If eligible, you will be invited to complete an anonymous online survey (PART 2). You will be contacted via your Prolific IDs to participate in PART 2. We are inviting women of any sexual orientation and their partners who are both willing to participate in the study and answer the questions independently. After your partner approved that they would be willing to take part, you will receive the main survey separately (Part 2).

If you are happy to complete this survey, you will need to tick (check) the box below to show your consent.

#### Why have I been asked to participate?

You have been asked to take part because you and your partner are aged 18 and over, currently in a romantic relationship, and can read and understand English. This survey is inviting couples from around the world and you have been recruited through the Prolific website. I am aiming to recruit approximately 60 couples for this study.

#### What information will be collected?

You will complete five questions to assess your eligibility.

#### What are the possible benefits of taking part?

At the end of the survey, you will be directed to the Prolific website. You will receive £0.25 for your current participation (irrespective of your eligibility status) and an additional £3 per half an hour for your participation upon the completion of the main survey (Part 2) study.

#### Are there any risks involved?

The screening includes five questions to assess your eligibility for the main survey study. If you feel uncomfortable or wish to withdraw from the study you can do so before the end of the questionnaire by closing the internet window. As this study is anonymous, data cannot be withdrawn after it has been submitted.

**What will happen to the information collected?**

All information collected for this study will be stored securely on a password protected computer and backed up on a secure server. In addition, all data will be pooled and only compiled into data summaries or summary reports. Only the researcher and their supervisor will have access to this information.

The University of Southampton conducts research to the highest standards of ethics and research integrity. In accordance with our Research Data Management Policy, data will be held for 10 years after the study has finished when it will be securely destroyed.

**What happens if there is a problem?**

If you are unhappy about any aspect of this study and would like to make a formal complaint, you can contact the Head of Research Integrity and Governance, University of Southampton, on the following contact details: Email: [rgoinfo@soton.ac.uk](mailto:rgoinfo@soton.ac.uk), phone: + 44 2380 595058.

Please quote the Ethics/ERGO number above. Please note that by making a complaint you might be no longer anonymous.

More information on your rights as a study participant is available via this link:

<https://www.southampton.ac.uk/about/governance/participant-information.page>

**Thank you for reading this information sheet and considering taking part in this research.**

Please tick (check) here to indicate that you have read and understood information on this form,

are aged 18 or over and agree to take part in this survey.

*If consent given,*

## Screening Survey (STUDY 1 & 2)

**Header:** Screening for a **couple study on** sexual and relational satisfaction (PART 1)

Few questions in this screening will identify if you are eligible for the survey.

**Question 1)** Do you have a romantic partner who has a Prolific account and would you be willing to take part as a couple?

**Responses:**

Yes, I have a romantic partner who has a Prolific account and we would be willing to take part as a couple

No, I either do not have a romantic partner or we would not be willing to take part as a couple

Rather not to say

If yes to question one,

**Question 1a)** Can you provide your partner's Prolific ID? **Responses:** text box

**Question 2)** Age **Responses:** (drop down menu from 18 to 100)

**Question 3)** Gender **Responses:** Women/Men/Non-binary/Other

**Question 4)** Sexual orientation **Responses:**

Heterosexual/Bisexual/Lesbian/Gay/Asexual/Pansexual

Other: \_\_\_\_\_

**If not eligible:** Ineligible participants will receive “Screening Debriefing Form A – if NOT eligible” (see attached).

**If eligible:** Eligible participants will receive “Next step information” at the end of Screening.

Next step information:

Next Step

Thank you for completing the survey.

You will shortly receive a message to your inbox in the Prolific from the researcher.

We will send a screening survey to your partner via the **partner id** you provided. Please make sure that you will receive the study link via the Prolific after your partner approved that they would be willing to take part as a couple.

Please make sure that the participants will not have access to their partner’s data in any period of the research. The linking will be done only by the primary researcher, Dilan Kılıç Onar, and on a completely confidential base.

Now please click the arrow below to end the survey.

## 8 Appendix C Participant Information Sheet and Consent Form for Main Survey (Papers 2 and 3)

### To Prolific Participants

#### **Combined Participant Information Sheet and Consent Form for Anonymous Online Surveys for Adult Participants**

**Study Title:** Couple's sexual and relational satisfaction

**Researcher(s):** Dilan Kılıç Onar; Supervisors: Prof. Cynthia Graham and Dr. Heather Armstrong

**University email:** dk1u17@soton.ac.uk

**Ethics/ERGO no:** 62245

**Version and date:** Version 3 (08/06/2021)

#### **What is the research about?**

My name is Dilan Kılıç Onar and I am a PhD student at the University of Southampton in the United Kingdom.

I am inviting you to participate in a study regarding sexual and romantic relationships. This research is aimed at investigating different aspects of sex and sexual practices within romantic relationships to improve our understanding of women's and couples' sexual and relational satisfaction. As part of an online survey, you will answer questions about your attitudes, beliefs and experiences on some sexuality-related topics, including solo and partnered sexual practices.

This study was approved by the Faculty Research Ethics Committee (FREC) at the University of Southampton (Ethics/ERGO Number:62245).

#### **What will happen to me if I take part?**

This study involves completing an anonymous questionnaire which should take approximately 20 to 30 minutes of your time. When you start completing the survey your answers will be saved.

This project is targeted at couples who are both willing to participate in the study and answer the questions independently. Due to the sensitive nature of the survey, a comfortable and private environment is suggested to ensure your privacy.

If you are happy to complete this survey, you will need to tick (check) the box below to show your consent. As this survey is anonymous, the research team will not be able to know whether you have participated, or what answers you provided.

#### **Why have I been asked to participate?**

You have been asked to take part because you and your partner are aged 18 and over, currently in a romantic relationship of at least one year, and can read and understand English. This survey is inviting couples from around the world and you have been recruited through social media (Facebook, Tweeter, Instagram).

I am aiming to recruit approximately 150 couples for this study.

#### **What information will be collected?**

The questions in this survey ask for information in relation to your demographics (e.g. age, gender), your romantic relationship as well as your attitudes, experiences and opinions on the topic of sexual practices (partnered sex, sexual pleasure, and women's masturbation/self-pleasuring); there are no right or wrong answers to the questions. Some of the questions are considered sensitive, for

example, questions about sexual activities including masturbation experiences, sex toy use, and attitudes towards self-pleasure.

Some of the survey questions contain textboxes where you will be asked to type in your own answers. Please note that in order for this survey to be anonymous, you should not include in your answers any information from which you, or other people, could be identified.

### **What are the possible benefits of taking part?**

If you decide to take part in this study, your participation will contribute to knowledge in this area of research.

At the end of the survey, you will be directed to the Prolific website. After the researcher confirms your survey responses and duration, you will receive your credit via the Prolific based on the estimated study completion time spent on the main survey; this is approximately £3 for 30 minutes.

### **Are there any risks involved?**

Due to the nature of the survey topic and the personal questions involved, there is a possibility that taking part in this study could cause you some psychological discomfort and/or distress; however, we expect that if this occurs, it would be unlikely to be more than mild and short-lived. If this happens, you can contact your GP/ Family doctor for support or to discuss options that are available in your area, and/or you can explore some of the web sources for further information:

NHS choices: <https://www.nhs.uk/Livewell/Goodsex/pages/masturbation.aspx>

Planned

<https://www.plannedparenthood.org/learn/teens/sex/masturbation>

Parenthood:

If you feel uncomfortable or wish to withdraw from the study you can do so before the end of the questionnaire by closing the internet window. You will not be entered into the prize draw, if you withdraw from the survey before submission. As this study is anonymous, data cannot be withdrawn after it has been submitted.

### **What will happen to the information collected?**

All information collected for this study will be stored securely on a password protected computer and backed up on a secure server. In addition, all data will be pooled and only compiled into data summaries or summary reports. Only the researcher and their supervisor will have access to this information.

The information collected will be analysed and written up as part of the researcher's dissertation, and it is likely to be published in a journal and presented at conferences, etc.

The University of Southampton conducts research to the highest standards of ethics and research integrity. In accordance with our Research Data Management Policy, data will be held for 10 years after the study has finished when it will be securely destroyed.

### **What happens if there is a problem?**

If you are unhappy about any aspect of this study and would like to make a formal complaint, you can contact the Head of Research Integrity and Governance, University of Southampton, on the following contact details: Email: [rgoinfo@soton.ac.uk](mailto:rgoinfo@soton.ac.uk), phone: + 44 2380 595058.

Please quote the Ethics/ERGO number above. Please note that by making a complaint you might be no longer anonymous.

More information on your rights as a study participant is available via this link:  
<https://www.southampton.ac.uk/about/governance/participant-information.page>

**Thank you for reading this information sheet and considering taking part in this research.**

Please tick (check) here box to indicate that you have read and understood information on this form,  
are aged 18 or over and agree to take part in this survey.

**To Social Media participants**  
**Combined Participant Information Sheet and Consent Form for Anonymous  
Online Surveys for Adult Participants**

**Study Title:** Couple's sexual and relational satisfaction

**Researcher(s):** Dilan Kılıç Onar; Supervisors: Prof. Cynthia Graham and Dr. Heather Armstrong

**University email:** dk1u17@soton.ac.uk

**Ethics/ERGO no:** 62245

**Version and date:** Version 1 (14/12/2020)

**What is the research about?**

My name is Dilan Kılıç Onar and I am a PhD student at the University of Southampton in the United Kingdom.

I am inviting you to participate in a study regarding sexual and romantic relationships. This research is aimed at investigating different aspects of sex and sexual practices within romantic relationships to improve our understanding of women's and couples' sexual and relational satisfaction. As part of an online survey, you will answer questions about your attitudes, beliefs and experiences on some sexuality-related topics, including solo and partnered sexual practices.

This study was approved by the Faculty Research Ethics Committee (FREC) at the University of Southampton (Ethics/ERGO Number:62245).

**What will happen to me if I take part?**

This study involves completing an anonymous questionnaire which should take approximately 20 to 30 minutes of your time. When you start completing the survey your answers will be saved.

This project is targeted at couples who are both willing to participate in the study and answer the questions independently. Due to the sensitive nature of the survey, a comfortable and private environment is suggested to ensure your privacy. If you are using a tablet computer or smartphone, it is easier to turn your device round so the screen is horizontal so that you have a wider view and easier response options.

If you are happy to complete this survey, you will need to tick (check) the box below to show your consent. As this survey is anonymous, the research team will not be able to know whether you have participated, or what answers you provided.

**Why have I been asked to participate?**

You have been asked to take part because you and your partner are aged 18 and over, currently in a romantic relationship of at least one year, and can read and understand English. This survey is inviting couples from around the world and you have been recruited through social media (Facebook, Tweeter, Instagram).

I am aiming to recruit approximately 150 couples for this study.

### **What information will be collected?**

The questions in this survey ask for information in relation to your demographics (e.g. age, gender), your romantic relationship as well as your attitudes, experiences and opinions on the topic of sexual practices (partnered sex, sexual pleasure, and women's masturbation/self-pleasuring); there are no right or wrong answers to the questions. Some of the questions are considered sensitive, for example, questions about sexual activities including masturbation experiences, sex toy use, and attitudes towards self-pleasure.

Some of the survey questions contain textboxes where you will be asked to type in your own answers. Please note that in order for this survey to be anonymous, you should not include in your answers any information from which you, or other people, could be identified.

### **What are the possible benefits of taking part?**

If you decide to take part in this study, you will not receive any direct benefits; however, your participation will contribute to knowledge in this area of research.

At the end of the survey, you will be asked whether you would like to enter a prize draw for the chance to win 1 of 20 £20 Amazon vouchers after submission of the survey. If you choose to be entered into the prize draw, at the end of the survey, you will be directed to a second survey link (prize draw sign-up form) to enter your email address for the draw. The purpose of this second survey link is to keep your survey responses anonymous. As soon as data collection is complete, we will organise the prize draw and delete email addresses from our records.

Once the survey is submitted by both you and your partner, both of you will be added to the prize draw list three times as a bonus.

### **Are there any risks involved?**

Due to the nature of the survey topic and the personal questions involved, there is a possibility that taking part in this study could cause you some psychological discomfort and/or distress; however, we expect that if this occurs, it would be unlikely to be more than mild and short-lived. If this happens, you can contact your GP/ Family doctor for support or to discuss options that are available in your area, and/or you can explore some of the web sources for further information:

NHS choices: <https://www.nhs.uk/Livewell/Goodsex/pages/masturbation.aspx>

Planned

<https://www.plannedparenthood.org/learn/teens/sex/masturbation>

Parenthood:

If you feel uncomfortable or wish to withdraw from the study you can do so before the end of the questionnaire by closing the internet window. You will not be entered into the prize draw, if you withdraw from the survey before submission. As this study is anonymous, data cannot be withdrawn after it has been submitted.



**What will happen to the information collected?**

All information collected for this study will be stored securely on a password protected computer and backed up on a secure server. In addition, all data will be pooled and only compiled into data summaries or summary reports. Only the researcher and their supervisor will have access to this information.

The information collected will be analysed and written up as part of the researcher's dissertation, and it is likely to be published in a journal and presented at conferences, etc.

The University of Southampton conducts research to the highest standards of ethics and research integrity. In accordance with our Research Data Management Policy, data will be held for 10 years after the study has finished when it will be securely destroyed.

**What happens if there is a problem?**

If you are unhappy about any aspect of this study and would like to make a formal complaint, you can contact the Head of Research Integrity and Governance, University of Southampton, on the following contact details: Email: [rgoinfo@soton.ac.uk](mailto:rgoinfo@soton.ac.uk), phone: + 44 2380 595058.

Please quote the Ethics/ERGO number above. Please note that by making a complaint you might be no longer anonymous.

More information on your rights as a study participant is available via this link:

<https://www.southampton.ac.uk/about/governance/participant-information.page>

**Thank you for reading this information sheet and considering taking part in this research.**

Please tick (check) here to indicate that you have read and understood information on this form,  
are aged 18 or over and agree to take part in this survey.

## 9 Appendix D: Example Recruitment Materials (Papers 2 and 3)

### Social Media Advert



***Participate in Sexuality Research!***

My name is Dilan Kiliç Onar and I am a doctoral student in psychology at the University of Southampton. I am conducting a study on different aspects of sexual and romantic relationships to improve our understanding of women's and couples' sexual and relational satisfaction and inviting **couples** to take part. The study involves an online survey about your attitudes, beliefs and experiences on some sexuality-related topics, including solo and partnered sexual practices.

***Who is eligible to participate?***

- **women** of any sexual orientation (heterosexual, lesbian, or bisexual) **and their partners**,
- who are aged **18 and over**,
- in a **current relationship** of at least one year and
- can read and understand **English**

***What does participation involve?***

You are invited to take part in an **anonymous online survey** that would last approximately **20 to 30 minutes**. We are inviting **couples** who are both willing to participate in the study and answer the questions independently. Due to the sensitive nature of the survey, a comfortable and private environment to complete the survey is suggested to ensure your privacy.

- We are offering 20 people the chance to win a £20 Amazon gift voucher. Once the survey is submitted by you and your partner, as a bonus, both of you will be added to the prize draw list three times instead of two.

If you have any questions, please contact me at [dk1u17@soton.ac.uk](mailto:dk1u17@soton.ac.uk)

***Thank You!***

Primary researcher: Dilan Kiliç Onar  
Supervisors: Prof. Cynthia A. Graham, Dr. Heather Armstrong

Project title: Couple's sexual and relational satisfaction  
Ergo number: 62245 (Version no: 1, 14/12/2020)

**10 Appendix E: Debriefing Form (Papers 2 and 3)****Couple's sexual and relational satisfaction****Debriefing Statement 2** (*written*) (Version no: 1, date: (14/12/2020))**ERGO ID:** 62245

The aim of this research was to investigate how couples influence each other around women's masturbation experience and vibrator use and how this might be associated with women's and their partner's sexual self-esteem, sexual satisfaction and relationship satisfaction. It was expected that more positive attitudes towards women's self-pleasure (masturbation, clitoral self-stimulation, and vibrator use) would be associated with current experience of (solo and/or mutual) self-pleasure and, discourse of self-pleasure experience to a partner. Additionally, it was expected that women's disclosure of self-pleasure and self-pleasure frequency would be associated with higher relational and sexual satisfaction in women and their partners. Your data will help our understanding of the role of women's masturbation (and/or vibrator use) in women's and couple's sexuality. Once again results of this study will not include your name or any other identifying characteristics. The research did not use deception. You may have a copy of this summary if you wish. Once the project is completed, you may request a summary of the research findings by contacting me in September 2021.

If you have any further questions please contact me, Dilan Kiliç Onar, at [dk1u17@soton.ac.uk](mailto:dk1u17@soton.ac.uk).

Thank you for your participation in this research.

Signature \_\_\_\_\_ Date \_\_\_\_\_

Name \_\_\_\_\_

If you have questions about your rights as a participant in this research, or if you feel that you have been placed at risk, you may contact the University of Southampton Research Integrity and Governance Manager (023 8059 5058, [rgoinfo@soton.ac.uk](mailto:rgoinfo@soton.ac.uk)).

Due to the nature of the survey topic and the personal questions involved, **you might have questions that you would like to discuss or explore further, you can contact your GP/ Family doctor for support** or to discuss options that are available in your area. We have **listed** some online websites that provide information on sexual health and masturbation.

**Here are some websites that might be helpful to find sexual health-related information:**

NHS choices: <https://www.nhs.uk/Livewell/Goodsex/pages/masturbation.aspx>

Planned Parenthood:

<https://www.plannedparenthood.org/learn/teens/sex/masturbation>

[the below text is shown to participants recruited via social media only -to those who reported yes to enter the prize draw, not to Prolific participants as they received the incentive via Prolific website]

Please click the below **link to be directed to the page FOR THE PRIZE DRAW** for the chance to win 1 of 20 £20 Amazon gift vouchers:

\*\*\* <https://www.isurvey.soton.ac.uk/38839>\*\*\*

## 11 Appendix F: Questionnaire Used in Papers 2 and 3

# Screening 1 - A

---

**Start of Block: consent**

Q11 Your Prolific ID is automatically recorded. Please click on the arrow to continue. If you decide not to take part, you can close the web browser now.

---

**End of Block: consent**

---

**Start of Block: demographics**

Q8 Few questions in this screening will identify if you are eligible for the survey.

---

Q2 Do you have a romantic partner who has a Prolific account and would you be willing to take part as a couple?

- Yes, I have a romantic partner who has a Prolific account and we would be willing to take part as a couple (1)
- No, I either do not have a romantic partner or we would not be willing to take part as a couple (2)
- Rather not to say (3)
- 

**Display This Question:**

*If Do you have a romantic partner who has a Prolific account and would you be willing to take part a... = Yes, I have a romantic partner who has a Prolific account and we would be willing to take part as a couple*

Q3 Can you provide your partner's Prolific ID?

---

Q4 Age

▼ select (1) ... 89 (73)

## Q5 Gender

- Women (1)
- Men (2)
- Non-binary (3)
- Other (4)

## Q6 Sexual orientation

- Heterosexual (1)
- Bisexual (2)
- Lesbian (3)
- Gay (4)
- Asexual (5)
- Pansexual (6)
- Other (7) \_\_\_\_\_

**End of Block: demographics****Start of Block: if not eligible/if eligible***Display This Question:*

*If Do you have a romantic partner who has a Prolific account and would you be willing to take part a... = Yes, I have a romantic partner who has a Prolific account and we would be willing to take part as a couple*

## Q7 Next Step

Thank you for completing the survey. You will shortly receive a message to your inbox in the Prolific from the researcher.

We will send a screening survey to your partner via the partner id you provided. Please make sure that you will receive the study link via the Prolific after your partner approved that they would be willing to take part as a couple.

Please make sure that the participants will not have access to their partner's data in any period of the research. The linking will be done only by the primary researcher, Dilan Kılıç Onar, and on a completely confidential base.

Now please click the arrow below to end the survey.

*Display This Question:*

*If Do you have a romantic partner who has a Prolific account and would you be willing to take part a... != Yes, I have a romantic partner who has a Prolific account and we would be willing to take part as a couple*

Q9 Couple's sexual and relational satisfaction

Debriefing Statement Form A (*written*) (Version no: 3, date: 07/06/2021)

ERGO ID: 62245

Thank you for your interest in participating in our research. On this occasion, you have not met all of the study inclusion criteria and you will not be asked to participate further. You will still receive £0.25 for your current participation.

The aim of this research was to investigate how couples influence each other around women's masturbation experience and vibrator use and how this might be associated with women's and their partner's sexual self-esteem, sexual satisfaction and relationship satisfaction. It was expected that more positive attitudes towards women's self-pleasure (masturbation, clitoral self-stimulation, and vibrator use) would be associated with current experience of (solo and/or mutual) self-pleasure and, discourse of self-pleasure experience to a partner. Additionally, it was expected that women's disclosure of self-pleasure and self-pleasure frequency would be associated with higher relational and sexual satisfaction in women and their partners. Your data will help our understanding of the role of women's masturbation (and/or vibrator use) in women's and couple's sexuality. Once again results of this study will not include your name or any other identifying characteristics. The research did not use deception. You may have a copy of this summary if you wish. Once the project is completed, you may request a summary of the research findings by contacting me in September 2021.

If you have any further questions please contact me, Dilan Kılıç Onar, at [dk1u17@soton.ac.uk](mailto:dk1u17@soton.ac.uk).

Thank you for your participation in this research.

Signature \_\_\_\_\_

Date \_\_\_\_\_

Name

If you have questions about your rights as a participant in this research, or if you feel that you have been placed at risk, you may contact the University of Southampton Research Integrity and Governance Manager (023 8059 5058, [rgoinfo@soton.ac.uk](mailto:rgoinfo@soton.ac.uk)).

Due to the nature of the survey topic and the personal questions involved, you might have questions that you would like to discuss or explore further, you can contact your GP/ Family doctor for support or to discuss options that are available in your area. We have listed some online websites that provide information on sexual health and masturbation.

Here are some websites that might be helpful to find sexual health-related information:

NHS choices: <https://www.nhs.uk/Livewell/Goodsex/pages/masturbation.aspx>

Planned Parenthood: <https://www.plannedparenthood.org/learn/teens/sex/masturbation>

**End of Block: if not eligible/if eligible**



## The Main Survey

**Ergo number:** 62245

(Version no: 2, 05/01/2021)

### Couple id section

Couple id:

Please enter the following information as a unique code, so that we can match your survey responses with your partner's.

birth month - birth day - your initials - your partner's initials - your partner's birth month - your partner's birth day

Please enter these by responding to the questions below.

- 1- What is your birth month? (enter a number between 01 and 12)
- 2- What is your birthday? (what day in that month - enter a number between 01 and 31)
- 3- What are your first and last initials?
- 4- What are your partner's first and last initials?
- 5- What is your partner's birth month? (enter a number between 01 and 12)
- 6- What is your partner's birthday? (what day in that month - enter a number between 01 and 31)

### Section 1 [Demographics]: Some questions about you

In order for us to learn about the range of people taking part in this research, I would be grateful if you could answer the following questions. Please either write your answer in the space provided, or click the answer (or answers) that best applies to you.

Please specify your ethnicity	White British Any other White background Black British Any other Black background	Asian or Asian British Any other mixed background/ Multiracial Do not state			
How old are you?	(drop down menu from 18 to 100)				
Gender		Woman	Man	Non-binary	Other
How would you describe your sexual orientation?	Heterosexual Bisexual Lesbian/Gay Asexual Pansexual Other:				
How would you describe your relationship status?	Married In a relationship In a relationship but seeing others Casually dating Single Other: _____				
If you are currently in a relationship, what gender does your partner identify with?	I am not in a relationship Women Men				

	Non-binary Other			
How long have you been in your romantic relationship?	<input type="checkbox"/> 0 to less than 6 months <input type="checkbox"/> 6 months to less than 1 year <input type="checkbox"/> 1 year to less than 5 years <input type="checkbox"/> 5 years to less than 10 years <input type="checkbox"/> 10 years and more			
Do you live together with your current partner?	Yes No			
If yes, when did you first start living with your current partner?	<input type="checkbox"/> 0 to less than 6 months <input type="checkbox"/> 6 months to less than 1 year <input type="checkbox"/> 1 year to less than 5 years <input type="checkbox"/> 5 years to less than 10 years <input type="checkbox"/> 10 years and more			
Do you have biological, adopted, foster, or step children?	No No, but I am (or my partner is) pregnant Yes			
If you have children, what are the ages of your children and do they live with you? (mark all that apply)		They do not live with me	They do live with me part-time	They do live with me full-time
	Preschool (birth to 5 years old)			
	Elementary (6 to 13 years old)			
	Adolescent (14 to 18 years old)			
	Adult Children (19+ years old)			
What is the highest level of education you have completed?	Less than high school High school or equivalent Technical or vocational college College/university Postgraduate university degree (MSc or PhD) Other (specify): _____			
What is your current occupation? (please tick all that apply)	Full-time employed Part-time employed Full-time student Part-time student Other: _____			
Which of the following best describes your current household income?	Poverty level (1) Lower income (2) Lower middle income (3) Middle income (4) Upper middle income (5) Upper income (6) I choose not to answer (7)			
Do you have any long-standing illness, disability or infirmity?	<input type="checkbox"/> Yes (1) <input type="checkbox"/> No (2)			
Apart from special occasions such as weddings, funerals and baptisms, how often do you attend religious services or meetings?	<input type="checkbox"/> Once a week or more (1) <input type="checkbox"/> Less often but at least once in 2 weeks (2)		<input type="checkbox"/> Less often but at least twice a year (4) <input type="checkbox"/> Less often but at least once a year (5)	

	<input type="checkbox"/> Less often but at least once a month (3)	<input type="checkbox"/> Less often (6) <input type="checkbox"/> Never or practically never (7) <input type="checkbox"/> Varies
Where do you currently live?	<input type="checkbox"/> In a city (1) <input type="checkbox"/> In another metropolitan or suburban area (2) <input type="checkbox"/> In a small town or rural area (3)	

## Section 2: Relationship Assessment Scale

**Reference:** Hendrick, S. S., Dicke, A., & Hendrick, C. (1998). The relationship assessment scale. *Journal of Social and Personal Relationships*, 15(1), 137-142. Doi: <https://doi.org/10.1177%2F0265407598151009>

Scored on a scale from 1 (low) to 5 (high). Items 4 and 7 are reverse-scored.

**Instructions:** Please click the letter for each item which best answers that item for you regarding your romantic relationship.

Click your answer	A	B	C	D	E
1. How well does your partner meet your needs?	A Poorly	B -	C Average	D -	E Extremely Well
2. In general, how satisfied are you with your relationship?	A Unsatisfied	B	C Average	D	E Extremely Satisfied
3. How good is your relationship compared to most?	A Poor	B	C Average	D	E Excellent
4. How often do you wish you hadn't gotten in this relationship?	A Never	B -	C Average	D -	E Very Often
5. To what extent has your relationship met your original expectations?	A Hardly at All	B	C Average	D	E Completely
6. How much do you love your partner?	A Not Much	B	C Average	D	E Very Much
7. How many problems are there in your relationship?	A Very Few	B	C Average	D	E Very Many

**Section 3: The Emotional Intimacy Scale**

**Reference:** Sinclair, V. G., & Dowdy, S. W. (2005). Development and validation of the Emotional Intimacy Scale. *Journal of Nursing Measurement, 13*(3), 193-206. Doi: 10.1891/jnum.13.3.193

**Instructions:** Please click your answer with **your romantic partner in mind.**

		Strongly disagree 1	2 3	4	Strongly agree 5
1	This person completely accepts me as I am.				
2	I can openly share my deepest thoughts and feelings with this person.				
3	This person cares deeply for me.				
4	This person would willingly help me in any way.				
5	My thoughts and feelings are understood and affirmed by this person.				

**Section 4: Sexual experiences**

A - How old were you the first time you engaged in... (Put a zero if you have never engaged in this activity)? (please write in age in years): (Adapted from Haus & Thompson, 2018)

Oral sex ____
Vaginal sex ____
Anal sex ____
Masturbation ____

B -Over the past 4 weeks, did you engage in sexual activity of any kind with a partner and/or by yourself (masturbation)?

(Response options: 0 = No sexual activity (neither with a partner or by myself); 1 = Sexual activity with a partner only; 2 = Sexual activity by myself only; 3 = Sexual activity both with a partner and by myself)

**Section 5: Experiences of solo masturbation**

The next questions focus on experiences of solo masturbation. Masturbation means stimulating your own genitals to enjoy the pleasurable sensations or experience orgasm.

1a - Have you ever masturbated? (yes/no)

1b - When did you last masturbate? (Nine response options ranged from today to never)

Today (8) Yesterday Several days ago One week ago Two weeks ago Almost a month ago Couple of months ago Over a year ago Never (0)

**2 - A Shortened Version of The Attitudes Towards Masturbation Scale (feelings)**  
[Young & Muehlenhard, 2011]

Check which set of statements applies to you:							
<b>If you masturbate:</b> people feel many different things when they masturbate. Below is a list of possible feelings. <i>How strongly, if at all, do you usually experience these feelings when you masturbate?</i>							
<b>If you don't masturbate:</b> people feel many different things when they masturbate. Below is a list of possible feelings. <i>How strongly, if at all, do you think you would usually experience these feelings if you did masturbate?</i>							
How strongly do you experience these feelings when you masturbate? OR How strongly would you experience this feeling when if you did masturbate?	0 = Not at all	1	2	3 = Somewhat	4	5	6=Very strongly
1. Happy 2. Guilty 3. Pathetic 4. Healthy 5. Strange 6. Embarrassed 7. Tense 8. Awkward 9. Good 10. Calm 11. Frustrated 12. Angry 13. Nervous 14. Attractive 15. Immoral 16. Disgusted 17. Relaxed 18. Satisfied 19. Sinful 20. Indifferent 21. Relieved 22. Ashamed 23. Regretful							

**Perceived Effects of masturbation (on sexual pleasure)**

3 - How often do you experience **sexual pleasure** during solo masturbation? [on a 5-point scale; almost always or always to almost never]

4 - How often do you experience **orgasm** during solo masturbation? [on a 5-point scale; almost always or always to almost never]

**Partner's masturbation experiences:**

1 - How often do you believe your partner masturbated on average in the past 4 weeks?  
*Click the answer that best applies.*

<input type="checkbox"/> Never	<input type="checkbox"/> Less than once a month	<input type="checkbox"/> Once a month ago	<input type="checkbox"/> Biweekly	<input type="checkbox"/> Once a week	<input type="checkbox"/> Several times a week	<input type="checkbox"/> Almost every day	<input type="checkbox"/> Several times a day
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Or other response option – I do not know if my partner masturbates.

2- How does your partner’s masturbation experience makes you feel?

**OR** if clicked ‘I do not know if my partner masturbates.’ to question 2, display question as: If you found out that your partner masturbates, **how would that make you feel?**

	<u>Click all that apply</u>
1. Happy	
2. Guilty	
3. Pathetic	
4. Healthy	
5. Strange	
6. Embarrassed	
7. Tense	
8. Awkward	
9. Good	
10. Calm	
11. Frustrated	
12. Angry	
13. Nervous	
14. Attractive	
15. Immoral	
16. Disgusted	
17. Relaxed	
18. Satisfied	
19. Sinful	
20. Indifferent	
21. Relieved	
22. Ashamed	
23. Regretful	



**Section 6: Experiences of Mutual masturbation**

Mutual masturbation is defined as partner involvement or partner presence during self-stimulation, which may occur without, before, during, or after sexual intercourse.

1 – Have you ever engaged in mutual masturbation? (yes/no)

2 - When did you last engage in mutual masturbation?

- Today (8) Yesterday Several days ago One week ago Two weeks ago Almost a month Couple of months ago  
Over a year ago Never (0)

3 -

	<b>If you experience mutual masturbation:</b> people feel many different things when they masturbate mutually. Below is a list of possible feelings. <i>How strongly, if at all, do you usually experience these feelings when you masturbate mutually?</i>
	<b>If you don't masturbate mutually:</b> people feel many different things when they masturbate mutually. Below is a list of possible feelings. <i>How strongly, if at all, do you think you would usually experience these feelings if you did masturbate mutually?</i>
	0 = Not at all 3 = Somewhat 6=Very strongly
1. Happy [Satisfaction subscale] 2. Guilty [Guilt subscale] 3. Pathetic [Guilt subscale] 4. Healthy [Satisfaction subscale ] 5. Strange [Guilt subscale] 6. Embarrassed [Guilt subscale] 7. Tense [Anxiety subscale] 8. Awkward [Anxiety subscale] 9. Good [Satisfaction subscale] 10. Calm [Satisfaction subscale] 11. Frustrated [ANGER subscale] 12. Angry [ANGER subscale] 13. Nervous [Anxiety subscale] 14. Attractive [Satisfaction subscale] 15. Immoral [Guilt subscale] 16. Disgusted [Guilt subscale] 17. Relaxed [Satisfaction subscale] 18. Satisfied [Satisfaction subscale] 19. Sinful [Guilt subscale] 20. Indifferent [Indifferent subscale] 21. Relieved [Satisfaction subscale] 22. Ashamed [Guilt subscale] 23. Regretful [Guilt subscale]	

**Perceived Effects of mutual masturbation (on sexual pleasure)**

4 - How often do you experience **sexual pleasure** during mutual masturbation experience with your current partner? [ on a 5-point scale; almost always or always to almost never]

5 - How often do you experience **orgasm** during mutual masturbation with your current partner? [on a 5-point scale; almost always or always to almost never]

**Section 7: Experiences of sex toys/ and vibrator use**

Sex toys are defined as all products that are intended for sexual stimulation alone (e.g., masturbation) or during sex with a partner, which includes sex toys of all kinds, erotic lingerie and other accessories, sex furniture, lust pills, lubricants, etc.

**Specific sex toy use:** vibrators and dildos

The following questions are about sex toys for the stimulation of body parts (e.g., for *vagina and vulva*: vibrators and dildos).

1 – Have you ever used a vibrator (and/or dildo) during solo masturbation? (yes/no/prefer not to answer)

2 - When did you last use a vibrator (and/or dildo) during solo masturbation?

- Today (8) Yesterday Several days ago One week ago Two weeks ago Almost a month Couple of months ago
- Over a year ago Never (0)

3 - Have you ever used a vibrator (and/or dildo) during sex with a partner? (yes/no/prefer not to answer)

4 –When did you last use a vibrator (and/or dildo) during sex with a partner?

Never	Over a year ago	Couple of months ago	Almost a month	Two weeks ago	One week ago	Several days ago	Yesterday	Today
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**Perceived Effects of vibrator use (on sexual pleasure)**

5 - How often do you experience **sexual pleasure** when using a vibrator (and/or dildo) **alone**? [on a 5-point scale; almost always or always to almost never]

6 - How often do you experience **orgasm** when using a vibrator (and/or dildo) **alone**? [on a 5-point scale; almost always or always to almost never]

7 - How often do you experience **sexual pleasure** when using a vibrator (and/or dildo) with your current **partner**? [on a 5-point scale; almost always or always to almost never]

8 - How often do you experience **orgasm** when using a vibrator (and/or dildo) with your current **partner**? [on a 5-point scale; almost always or always to almost never]

**Partner’s use of vibrators:**

9 - How often do you believe **your partner used a vibrator** (and/or dildo) alone on average in the past 4 weeks? [1 (none) to 6 (almost every day)]

Never	Less than once a month	Once a month	Biweekly	Once a week	Several times a week	Almost every day	Several times a day
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*And* other response option – I do not know if my partner **used a vibrator** (and/or dildo).

10 - How does your partner’s vibrator (and/or dildo) use make you feel?

{**OR**, if clicked ‘I do not know if my partner masturbates.’ to question 15, ask: If you found out that your partner masturbates **how would that make you feel?**}

<ol style="list-style-type: none"> <li>1. Happy</li> <li>2. Guilty</li> <li>3. Pathetic</li> <li>4. Healthy</li> <li>5. Strange</li> <li>6. Embarrassed</li> <li>7. Tense</li> <li>8. Awkward</li> <li>9. Good</li> </ol>	Click all that apply.
---	-----------------------

10. Calm	
11. Frustrated	
12. Angry	
13. Nervous	
14. Attractive	
15. Immoral	
16. Disgusted	
17. Relaxed	
18. Satisfied	
19. Sinful	
20. Indifferent	
21. Relieved	
22. Ashamed	
23. Regretful	

**Section 8: The Revised Sexual Self-Disclosure Questionnaire**

Adapted from the Sexual Self-Disclosure Questionnaire (SSDQ; Byers & Demmons, 1999).

**Reference:** Byers, S.E., & Demmons, S. (1999). Sexual satisfaction and sexual self-disclosure within dating relationships. *The Journal of Sex Research*, 36(2), 180-189. doi: 10.1080/00224499909551983

In a relationship, partners may communicate with each other about what they like and dislike about their sexual interactions (and/or their solo sexual activities).

**Instructions:** Think of your sexual relationship [*with yourself and*] with your partner. For each question below, choose the number that best describes how much you communicated with your partner about your sexual likes and dislikes.

[Items rated on a 7-point scale from 1 (Nothing at all) to 7 (Everything).]

- 1- How much have **you** told your partner about your masturbation habits?
- 2- 2a- How much have **you** told your partner about the way(s) {stimulation(s)} you **like** when masturbating **solo (alone)**?  
2b- How much have **you** told your partner about the way(s) {stimulation(s)} you **don't like** when masturbating **solo (alone)**?
- 3- 3a- How much have **you** told your partner about the way(s) {stimulation(s)} you **like** when masturbating **with a partner (mutual)**?  
3b- How much have **you** told your partner about the way(s) being stimulated you **don't like** when masturbating **with a partner (mutual)**?
- 4- How much have **you** told your partner about your vibrator use habits?
- 5- 5a- How much have **you** told your partner about the way(s) {stimulation(s)} you **like** when using a vibrator **alone**?  
5b- How much have **you** told your partner about the way(s) {stimulation(s)} you **don't like** when using a vibrator **alone**?
- 6- 6a- How much have **you** told your partner about the way(s) you **like** to be touched when using a vibrator **with your partner**?  
6b- How much have **you** told your partner about the way(s) you **don't like** being touched when using a vibrator **with your partner**?

(A new dimension on partner disclosure) Please click your answer.

- 7- How much has **your partner** told you about his/her masturbation habits?
- 8- How much has **your partner** told you about the way(s)/stimulation(s) she/he likes when masturbating?
- 9- How much has **your partner** told you about his/her vibrator use habits?
- 10- How much has **your partner** told you about the ways she/he like to be touched when using a vibrator?

(A new dimension on comfort of disclosure and partner's self-pleasure) Please click your answer.

	Not at all comfortable	Somewhat uncomfortable	Neither comfortable nor uncomfortable	Somewhat comfortable	Completely comfortable
1- I feel comfortable discussing masturbation with my partner.					
2- My partner feels comfortable with my masturbation habits.					
3- My partner feels comfortable discussing masturbation with me.					

4-I feel comfortable with my partner’s masturbation habits.					
5- I feel comfortable discussing vibrator (and/or dildo) use with my partner.					
6-My partner feels comfortable with my vibrator (and/or dildo) habits.					
7-My partner feels comfortable discussing vibrator (and/or dildo) use with me.					
8- I feel comfortable with my partner’s vibrator (and/or dildo) habits.					

**Section 9: Attitudes towards women’s solo masturbation**

**Revised- Negative Attitudes Toward Women’s Solo Masturbation Scale (Adapted from Mosher, 2011)**

**Reference:** Mosher, D. L. (2011). Negative attitudes toward masturbation. In T. D. Fisher, C. M. Davis, W.L. Yarber & S. L. Davis (Eds.), *Handbook of sexuality-related measures* (3<sup>rd</sup> ed.) (pp. 487-488). New York: Routledge.

**Instructions:** The following items sample diverse opinions and attitudes towards women’s solo masturbation. Please click your answer.

		Not at all true for me	Somewhat untrue for me	Undecided	Somewhat true for me	Extremely true
1.	Women masturbate to escape feelings of tension or anxiety.					
2.	Women who masturbate will not enjoy sexual intercourse as much as those who refrain from masturbation.					
3.	Women’s masturbation is a private matter which neither harms nor concerns anyone else.*					
4.	Women’s solo masturbation is a sin against themselves.					
5.	Masturbation in childhood can help a woman develop a natural, healthy attitude towards sex*.					
6.	Masturbation in an adult woman is juvenile and immature.					
7.	Women’s solo masturbation can lead to homosexuality.					
8.	Excessive masturbation is a needless worry, as it is physically impossible to masturbate “too much”.*					
9.	If women enjoy masturbating too much, they may never learn to relate to their partner.					
10.	After masturbating, a woman feels degraded.					

11.	Experience with masturbation can potentially help a woman become orgasmic in sexual intercourse.*					
12.	Women feel guilty about masturbating.					
13.	Women's solo masturbation can be a "friend in need" when there is no "friend indeed".*					
14.	Women's solo masturbation can provide an outlet for sex fantasies without harming anyone else or endangering oneself.*					
15.	Excessive masturbation can lead to frigidity in women.					
16.	Masturbation is an escape mechanism which prevents a women from developing a mature sexual outlook.					
17.	Women's solo masturbation can provide harmless relief for sexual tension.*					
18.	Playing with your own genitals is disgusting.					
19.	Excessive masturbation is associated with neurosis, depression, and behavioural problems.					
20.	Any masturbation is too much.					
21.	Women's solo masturbation is a compulsive, addictive habit which once begun is almost impossible to stop.					
22.	Women's solo masturbation is fun.*					
23.	A pattern of frequent masturbation is associated with introversion and withdrawal from social contracts.					
24.	Excessive masturbation leads to mental dullness and fatigue.					
25.	Women's solo masturbation is a normal sexual outlet.					
26.	Women's solo masturbation is caused by an excessive preoccupation with thoughts about sex.					
27.	Masturbation can teach women to enjoy the sensuousness of their own body.*					

**Section 10: Beliefs about women's vibrator use****The Beliefs About Women's Vibrator Use Scale (Herbenick et al., 2011)**

**Reference:** Herbenick, D., Reece, M., Schick, V., Jozkowski, K. N., Middelstadt, S. E., Sanders, S. A., ... & Fortenberry, J. D. (2011). Beliefs about women's vibrator use: results from a nationally representative probability survey in the United States. *Journal of Sex & Marital Therapy*, 37(5), 329-345. Doi: <https://doi.org/10.1080/0092623X.2011.606745>

[*Note.* Higher numbers represent an increased endorsement of the construct. Positive vibrator beliefs: 1 (*strongly disagree*) and 4 (*strongly agree*); negative vibrator beliefs: -1 (*strongly disagree*) to -4 (*strongly agree*).]

**Instructions:** To what extent do you agree or disagree with the following statements about **women using vibrators**?

	<b><u>Using a vibrator...</u></b>	<i>Strongly disagree</i> 1	Disagree 2	Agree 3	<i>Strongly agree</i> 4
1	Can make it easier for a woman to have an orgasm.				
2	Makes women too dependent on them for pleasure.				
3	Is embarrassing for women.				
4	Can enhance a woman's sexual relationship with her partner.				
5	Is something that only women who are lonely do.				
6	Helps women to become more sexually independent.				
7	Can take the pressure off of a woman's partner to give her an orgasm.				
8	Can make a woman's partner feel intimidated.				
9	Is a healthy part of many women's sex lives.				
10	Can make sex with a partner more exciting.				

**Section 11: Clitoral self-stimulation scale**

**Clitoral self-stimulation scale –FOR FEMALE PARTICIPANTS**

Smith & Fisher, 2011/2020

**Reference:** McIntyre-Smith, A. & Fisher, W. A. (2020). Clitoral self-stimulation scale. In R.R. Milhausen, J.K. Sakaluk, T.D. Fisher, C.M. Davis, W.L. Yarber (Eds), *Handbook of Sexuality-Related Measures* (pp. 510-513). Routledge.

**Instructions:** The following questions ask about your thoughts and feelings concerning your sexual experiences and sexual activities with a partner. You are asked to rate each item on the scale provided. Please check off one box per item to indicate your response.

Stimulating myself (i.e., massaging my genitals/clitoris) to help me have an orgasm during intercourse **with a partner** would be:

1. Good

<input type="checkbox"/> Very Good	<input type="checkbox"/> Moderately Good	<input type="checkbox"/> Slightly Good	<input type="checkbox"/> Neither Good nor Bad	<input type="checkbox"/> Slightly Bad	<input type="checkbox"/> Moderately Bad	<input type="checkbox"/> Very Bad
------------------------------------	--	--	---	---------------------------------------	---	-----------------------------------

2. Important

<input type="checkbox"/> Very Unimportant	<input type="checkbox"/> Moderately Unimportant	<input type="checkbox"/> Slightly Unimportant	<input type="checkbox"/> Neither Important nor Unimportant	<input type="checkbox"/> Slightly Important	<input type="checkbox"/> Moderately Important	<input type="checkbox"/> Very Important
---	---	---	--	---	---	---

3. Exciting

<input type="checkbox"/> Strongly Disagree	<input type="checkbox"/> Moderately Disagree	<input type="checkbox"/> Slightly Disagree	<input type="checkbox"/> Neither Agree nor Disagree	<input type="checkbox"/> Slightly Agree	<input type="checkbox"/> Moderately Agree	<input type="checkbox"/> Strongly Agree
--	--	--	---	---	---	---

4. Embarrassing

<input type="checkbox"/> Strongly Disagree	<input type="checkbox"/> Moderately Disagree	<input type="checkbox"/> Slightly Disagree	<input type="checkbox"/> Neither Agree nor Disagree	<input type="checkbox"/> Slightly Agree	<input type="checkbox"/> Moderately Agree	<input type="checkbox"/> Strongly Agree
--	--	--	---	---	---	---

5. Easy

<input type="checkbox"/> Very Difficult	<input type="checkbox"/> Moderately Difficult	<input type="checkbox"/> Slightly Difficult	<input type="checkbox"/> Neither Easy nor Difficult	<input type="checkbox"/> Slightly Easy	<input type="checkbox"/> Moderately Easy	<input type="checkbox"/> Very Easy
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6. When having sex with a partner, how **often** do you stimulate your clitoris to orgasm?

- 0% of the time
- 1-25% of the time
- 26-50% of the time
- 51-75% of the time
- 76-99% of the time
- 100% of the time

**Revised Clitoral self-stimulation scale – FOR MALE participants**

**Instructions:** The following questions ask about your thoughts and feelings concerning your sexual experiences and sexual activities with a partner. You are asked to rate each item on the scale provided. Please check off one box per item to indicate your response.



When having sex with a partner, if my partner stimulates herself (i.e., massaging her genitals/clitoris) to help her have an orgasm during intercourse with me this would be:

## 1. Good

<input type="checkbox"/> Very Good	<input type="checkbox"/> Moderately Good	<input type="checkbox"/> Slightly Good	<input type="checkbox"/> Neither Good nor Bad	<input type="checkbox"/> Slightly Bad	<input type="checkbox"/> Moderately Bad	<input type="checkbox"/> Very Bad
------------------------------------	--	--	---	---------------------------------------	---	-----------------------------------

## 2. Important

<input type="checkbox"/> Very Unimportant	<input type="checkbox"/> Moderately Unimportant	<input type="checkbox"/> Slightly Unimportant	<input type="checkbox"/> Neither Important nor Unimportant	<input type="checkbox"/> Slightly Important	<input type="checkbox"/> Moderately Important	<input type="checkbox"/> Very Important
---	---	---	--	---	---	---

## 3. Exciting

<input type="checkbox"/> Strongly Disagree	<input type="checkbox"/> Moderately Disagree	<input type="checkbox"/> Slightly Disagree	<input type="checkbox"/> Neither Agree nor Disagree	<input type="checkbox"/> Slightly Agree	<input type="checkbox"/> Moderately Agree	<input type="checkbox"/> Strongly Agree
--	--	--	---	---	---	---

## 4. Embarrassing

<input type="checkbox"/> Strongly Disagree	<input type="checkbox"/> Moderately Disagree	<input type="checkbox"/> Slightly Disagree	<input type="checkbox"/> Neither Agree nor Disagree	<input type="checkbox"/> Slightly Agree	<input type="checkbox"/> Moderately Agree	<input type="checkbox"/> Strongly Agree
--	--	--	---	---	---	---

## 5. Easy

<input type="checkbox"/> Very Difficult	<input type="checkbox"/> Moderately Difficult	<input type="checkbox"/> Slightly Difficult	<input type="checkbox"/> Neither Easy nor Difficult	<input type="checkbox"/> Slightly Easy	<input type="checkbox"/> Moderately Easy	<input type="checkbox"/> Very Easy
---	---	---	---	--	--	------------------------------------

6. When having sex with a partner, how **often** do you stimulate your partner's clitoris to orgasm?

"When having sex with a partner, how **often** does your partner stimulate her clitoris to orgasm?" 11 March 2021

- 0% of the time
- 1-25% of the time
- 26-50% of the time
- 51-75% of the time
- 76-99% of the time
- 100% of the time

**Section 12: Dyadic/sexual communication****Dyadic Sexual Communication Scale (DSC; Catania, 2011)**

**Reference:** Catania, J. A. (2011). Dyadic sexual communication scale. In T. D. Fisher, C. M. Davis, W.L. Yarber & S. L. Davis (Eds.), *Handbook of sexuality-related measures* (3rd ed.) (pp. 130-132). New York: Routledge.

**Instructions:** Below is a list of statements different people have made about discussing sex with their primary partner. Please click how much you agree or disagree with them.

		Disagree Strongly 1	2	3	4	5	Agree Strongly 6
1	My partner rarely responds when I want to talk about our sex life.						
2	Some sexual matters are too upsetting to discuss with my sexual partner.						
3	There are sexual issues or problems in our sexual relationship that we have never discussed.						
4	My partner and I never seem to resolve our disagreements about sexual issues.						
5	Whenever my partner and I talk about sex, I feel like she or he is lecturing me.						
6	My partner often complains that I am not very clear about what I want sexually.						
7	My partner and I have never had a heart-to-heart talk about our sex life together.						
8	My partner has no difficulty in talking to me about his or her sexual feelings and desires.						
9	Even when angry with me, my partner is able to appreciate my views on sexuality.						
10	Talking about sex is a satisfying experience for both of us.						
11	My partner and I can usually talk calmly about our sex life.						
12	I have little difficulty in telling my partner what I do or don't do sexually.						
13	I seldom feel embarrassed when talking about the details of our sex life with my partner.						

**Section 13: Sexual self-esteem****Sexual self-esteem inventory- short form**

**Reference:** Zeanah, P. & Schwarz, J. C. (2020). Sexual self-esteem inventory and the sexual self-esteem inventory - short form. In R.R. Milhausen, J.K. Sakaluk, T.D. Fisher, C.M. Davis, W.L. Yarber (Eds), *Handbook of Sexuality-Related Measures* (4<sup>th</sup> ed.) (pp. 554-558). Routledge.

**Instructions:** This questionnaire asks you to rate your feelings about several aspects of sexuality. You are not asked to describe your actual experiences, but instead to rate your reactions and feelings about your experiences, whatever they might be. In this questionnaire, “sex” and “sexual activity” refer to the variety of sexual behaviours, including kissing, hugging, and caressing as well as sexual intercourse. Current sexual activity is not necessary to answer the questions. There are no right or wrong answers; reactions to feelings about sexuality are normally quite varied. What is important are your reactions to your own personal experiences, thoughts, and feelings.

Please answer each question as honestly as possible. Select the response which most closely corresponds to the way you feel about each statement.

		1 Stro ngly disa gree	2 Mod erate ly disa gree	3 Mild ly disa gree	4 Mild ly agre e	5 Mod erate ly agre e	6 Stro ngly agre e
1	I am pleased with my physical appearance.						
2	I feel guilty about my sexual thoughts and feelings. <sup>R</sup>						
3	I feel emotionally vulnerable in a sexual encounter. <sup>R</sup>						
4	I am afraid of losing control sexually. <sup>R</sup>						
5	I feel good about the place of sex in my life.						
6	My sexual behaviours are in line with my moral values.						
7	I feel I can usually judge how my partner will regard my wishes about how far to go sexually.						
8	I like what I have learned about myself from my sexual experiences.						
9	I feel I am pretty good at sex.						
10	I hate my body. <sup>R</sup>						
11	I don't feel ready for some of the things I am doing sexually. <sup>R</sup>						
12	Sometimes I wish I could forget about sex. <sup>R</sup>						
13	I feel that “sexual techniques” come easily to me.						
14	I feel physically vulnerable in a sexual encounter. <sup>R</sup>						
15	Some of the things I do in sexual situations are morally wrong. <sup>R</sup>						
16	Sexually, I feel like a failure. <sup>R</sup>						
17	I am pleased with the way my body has developed.						
18	I would like to trade bodies with someone else. <sup>R</sup>						
19	I do pretty well at expressing myself sexually.						
20	I worry that some parts of my body would be disgusting to a sexual partner. <sup>R</sup>						
21	I feel embarrassed about my lack of sexual experience. <sup>R</sup>						
22	I would be happier if I looked better. <sup>R</sup>						
23	I worry that I won't be able to stop something I don't want to do in a sexual situation. <sup>R</sup>						
24	I wish sex were less a part of my life. <sup>R</sup>						
25	I have punished myself for my sexual thoughts, feelings, and/or behaviours. <sup>R</sup>						
26	I feel good about my ability to satisfy my sexual partner.						

		1 Stro ngly disa gree	2 Mod erate ly disa gree	3 Mild ly disa gree	4 Mild ly agre e	5 Mod erate ly agre e	6 Stro ngly agre e
27	I am proud of my body.						
28	I am glad that feelings about sex have become a part of my life now.						
29	I never feel bad about my sexual behaviours.						
30	I worry that things will get out of hand because I can't always tell what my partner wants in a sexual situation. <sup>R</sup>						
31	I wish I could relax in sexual situations. <sup>R</sup>						
32	I never feel guilty about my sexual feelings.						
33	In general, I feel my sexual experiences have given me a more positive view of myself.						
34	I worry that I will be taken advantage of sexually. <sup>R</sup>						
35	From a moral point of view, my sexual feelings are acceptable to me.						

Skill/experience subscale: (7 items) 26, 39, 52, 63; reverse scoring: 44, 56, 73

Attractiveness subscale: (7 items) 2, 45, 64; reverse scoring: 27, 48, 53, 57

Control subscale: (7 items) 18; reverse scoring: 8, 13, 41, 58, 70, 80

Moral judgement subscale: (7 items) 15, 67, 76, 81; reverse scoring: 5, 43, 62

Adaptiveness subscale: (7 items) 14, 19, 66, 77; reverse scoring: 28, 32, 59

**Section 14: Sexual satisfaction****The New Sexual Satisfaction Scale-Short Form**

**Reference:** Brouillard, P., Štulhofer, A. & Buško, V. (2020). The new sexual satisfaction scale. In R.R. Milhausen, J.K. Sakaluk, T.D. Fisher, C.M. Davis, W.L. Yarber (Eds), *Handbook of Sexuality-Related Measures* (4<sup>th</sup> ed.) (pp. 495-497). Routledge.

**Instructions:** Thinking about your sex life during the last six months please rate your satisfaction with the following aspects:

	1	2	3	4	5
	Not at all Satisfied	A Little Satisfied	Moderately Satisfied	Very Satisfied	Extre Satisf
1-The quality of my orgasms.					
2-My "letting go" and surrender to sexual pleasure during sex.					
3-The way I sexually react to my partner.					
4-My body's sexual functioning.					
5- My mood after sexual activity.					
6- The pleasure I provide to my partner.					
7- The balance between what I give and receive in sex.					
8- My partner's emotional opening up during sex.					
9-My partner's ability to orgasm.					
10-My partner's sexual creativity.					
11-The variety of my sexual activities.					
12-The frequency of my sexual activity.					

**Section 15: Sexual Function**

**a 6-Item Version of the Female Sexual Function Index - FSFI**

**Reference:** Isidori, A. M., Pozza, C., Esposito, K., Giugliano, D., Morano, S., Vignozzi, L., ... & Jannini, E. A. (2010). Outcomes assessment: Development and validation of a 6-item version of the Female Sexual Function Index (FSFI) as a diagnostic tool for female sexual dysfunction. *The Journal of Sexual Medicine*, 7(3), 1139-1146. Doi: <https://doi.org/10.1111/j.1743-6109.2009.01635>.

**Instructions:** These questions ask about your sexual feelings and responses during the past 6 months.

Sexual activity can include caressing, foreplay, masturbation and vaginal penetration.

Vaginal penetration is defined as penetration (entry) of the vagina with a penis and/or any object (fingers, sex toys,).

Sexual stimulation includes situations like foreplay with a partner, self-stimulation (masturbation), or sexual fantasy.

Check only one per question.

	Over the past 6 months,						
1	How would you rate your level (degree) of sexual desire or interest?		Very high 5	High 4	Moderate 3	Low 2	Very low or none at all 1
2	How would you rate your level of sexual arousal (“turn on”) during sexual activity or intercourse?	No sexual activity 0	Very high 5	High 4	Moderate 3	Low 2	Very low or none at all 1
3	How often did you become lubricated (“wet”) during sexual activity or intercourse?	No sexual activity 0	Almost always or always 5	Most times 4	Sometimes 3	A few times 2	Almost never or never 1
4	When you had sexual stimulation or vaginal penetration, how often did you reach orgasm?	No sexual activity 0	Almost always or always 5	Most times 4	Sometimes 3	A few times 2	Almost never or never 1
5	How satisfied have you been with your overall sexual life?		Very satisfied 5	Moderately satisfied 4	About equally satisfied and dissatisfied 5	Moderately dissatisfied 2	Very dissatisfied 1
6	How often did you experience discomfort or pain during vaginal penetration?	Did not attempt vaginal penetration 0	Almost never or never 5	A few times 4	Sometimes 3	Most times 2	Almost always or always 1

**5-item version of the International Index of Erectile Function (IIEF-5; Rosen et al., 1999)**

**Reference:** Rosen, R. C., Cappelleri, J. C., Smith, M. D., Lipsky, J., & Pena, B. M. (1999). Development and evaluation of an abridged, 5-item version of the International Index of Erectile Function (IIEF-5) as a diagnostic tool for erectile dysfunction. *International Journal of Impotence Research*, 11(6), 319-326.

The IIEF-5 score is the sum of the ordinal responses to the five items; the score can range from 5 to 25.

**Instructions:** These questions ask about your sexual feelings and responses during the past 6 months.

Sexual activity can include caressing, foreplay, masturbation and vaginal penetration.

Vaginal penetration is defined as penetration (entry) of the vagina with a penis and/or any object (fingers, sex toys,).

Sexual stimulation includes situations like foreplay with a partner, self-stimulation (masturbation), or sexual fantasy.

Check only one per question.

Over the past 6 months,						
1	How do you rate your <b>confidence</b> that you could get and keep an erection?	Very low 1	Low 2	Moderate 3	High 4	Very high 5
2	When you had erections with sexual stimulation, how often were your erections hard enough for penetration?	Almost never or never 1	A few times (much less than half the time) 2	Sometimes (about half the time) 3	Most times (much more than half the time) 4	Almost always or always 5
3	During sexual intercourse, <b>how often</b> were you able to maintain your erection after you had penetrated (entered) your partner?	Almost never or never 1	A few times (much less than half the time) 2	Sometimes (about half the time) 3	Most times (much more than half the time) 4	Almost always or always 5
4	During vaginal penetration, <b>how difficult</b> was it to maintain your erection to completion of intercourse?	Extremely difficult 1	Very difficult 2	Difficult 3	Slightly difficult 4	Not difficult 5
5	When you attempted vaginal penetration, how often was it satisfactory for you?	Almost never or never 1	A few times (much less than half the time) 2	Sometimes (about half the time) 3	Most times (much more than half the time) 4	Almost always or always 5

**Sexual Opinion Survey – Short form**

**Reference:** Rye, B. J., Meaney, G. J., & Fisher, W. A. (2011). Sexual opinion survey. In T. D. Fisher, C. M. Davis, W.L. Yarber & S. L. Davis (Eds.), *Handbook of sexuality-related measures* (3<sup>rd</sup> ed.) (pp. 231-236). New York: Routledge.

**Instructions:** Please respond to each item. 1 = I strongly agree to 7 = I strongly disagree

1-Almost all sexually explicit material is nauseating.

2-Masturbation can be an exciting experience.

3-It would be emotionally upsetting to me to see someone exposing themselves publicly.

4-The thought of engaging in unusual sex practices is highly arousing.

5-The thought of having long-term sexual relations with more than one sex partner is not disgusting to me.

**Last question**

**Last question in the survey questionnaire)** Would you like to enter a prize draw for the chance to win 1 of 20 £20 Amazon gift vouchers?

[yes/no]

If yes, please click the link provided in the final page to be directed to the page to enter your email address for the prize draw.

\*\*\*

**At the end of survey** message;

We will conduct a qualitative interview study on this topic in a few months;  
if you would be interested in participating or if you like to have some more information about the interview study, you can contact the research team at [generic email account]



12 Appendix G: Online Supplementary File Used in Paper 2

Sexual Activity Background Details

Table 1

Sexual History Background Details (N = 210)

		Women	Men	Total	$\chi^2$
		<i>n</i> = 105	<i>n</i> = 105	<i>N</i> = 210	
		(50.0)	(50.0)		
Over the past 4 weeks, did you engage in sexual activity of any kind with a partner and/or by yourself (masturbation)?	No sexual activity (neither with a partner nor by myself)	5 (4.8)	2 (1.9)	7 (3.3%)	8.33, <i>p</i> = .040
	Sexual activity with a partner only	37 (35.2)	21 (20)	58 (27.6)	
	Sexual activity by myself only	5 (4.8)	8 (7.6)	13 (6.2)	
	Sexual activity both with a partner and by myself	58 (55.2)	74 (70.5)	132 (62.9)	
	Total ( <i>N</i> )	105 (100.0)	105 (100.0)	210 (100.0)	
Lifetime solo masturbation	Yes	99 (94.3)	105 (100.0)	204 (97.1)	6.18, <i>p</i> = .013
	No	6 (5.7)	0	6 (2.9)	
	Total ( <i>N</i> )	105 (100.0)	105 (100.0)	210 (100.0)	
Last time solo masturbation	Today	2 (1.9)	14 (13.3)	16 (7.6)	31.84, <i>p</i> < .001
	Yesterday	15 (14.3)	28 (26.7)	43 (20.5)	
	Several days ago	29 (27.6)	31 (29.5)	60 (28.6)	
	One week ago	14 (13.3)	10 (9.5)	24 (11.4)	
	Two weeks ago	4 (3.8)	9 (8.6)	13 (6.2)	
	Almost a month ago	16 (15.2)	5 (4.8)	21 (10.0)	
	Couple of months ago	9 (8.6)	4 (3.8)	13 (6.2)	
	Over a year ago	10 (9.5)	4 (3.8)	14 (6.7)	
	Never	6 (5.7)	0 (0)	6 (2.9)	
	Total ( <i>N</i> )	105 (100.0)	105 (100.0)	210 (100.0)	
Solo masturbation recency	Reported masturbation within past week	46 (43.81)	73 (69.52)	119 (56.67)	14.14, <i>p</i> < .001
	Low frequency	59 (56.19)	32 (30.48)	91 (43.33)	
	Total	105 (100.0)	105 (100.0)	210 (100.0)	
Lifetime mutual masturbation	Yes	81 (77.1)	86 (81.9)	167 (79.5)	0.53, <i>p</i> = .468
	No	23 (21.9)	19 (18.1)	42 (20.0)	
	Total ( <i>N</i> )	104 (99.0)	105 (100.0)	209 (99.5)	
Last time mutual masturbation	Today	4 (3.8)	2 (1.9)	6 (2.9)	10.93, <i>p</i> = .206
	Yesterday	5 (4.8)	8 (7.6)	13 (6.2)	
	Several days ago	22 (20.9)	19 (18.1)	41 (19.5)	
	One week ago	7 (6.7)	10 (9.5)	17 (8.1)	
	Two weeks ago	12 (11.4)	5 (4.8)	17 (8.1)	
	Almost a month ago	11 (10.5)	8 (7.6)	19 (9.0)	
	Couple of months ago	11 (10.5)	20 (19.0)	31 (14.8)	
	Over a year ago	9 (8.6)	16 (15.2)	25 (11.9)	
	Never	23 (21.9)	17 (16.2)	40 (19.0)	
	Total ( <i>N</i> )	104 (99.0)	105 (100.0)	209 (99.5)	
Lifetime vibrator use during solo masturbation	Yes	57 (54.3)	14 (13.3)	71 (33.8)	39.34, <i>p</i> < .001
	No	48 (45.7)	91 (86.7)	139 (66.2)	
	Total ( <i>N</i> )	105 (100.0)	105 (100.0)	210 (100.0)	

		Women	Men	Total	$\chi^2$
		<i>n</i> = 105	<i>n</i> = 105	<i>N</i> = 210	
		(50.0)	(50.0)		
Last time vibrator use during solo masturbation	Today	1 (0.9)	0 (0.0)	1 (0.5)	39.97, <i>p</i> < .001
	Yesterday	4 (3.8)	1 (0.9)	5 (2.4)	
	Several days ago	7 (6.7)	4 (3.8)	11 (5.2)	
	One week ago	6 (5.7)	0 (0.0)	6 (2.9)	
	Two weeks ago	6 (5.7)	2 (1.9)	8 (3.8)	
	Almost a month ago	6 (5.7)	1 (0.9)	7 (3.3)	
	Couple of months ago	12 (11.4)	4 (3.8)	16 (7.6)	
	Over a year ago	15 (14.3)	3 (2.8)	18 (8.6)	
	Never	48 (45.7)	90 (85.7)	138 (65.7)	
	Total ( <i>N</i> )	105 (100.0)	105 (100.0)	210 (100.0)	
Lifetime vibrator use during partnered sex	Yes	57 (54.3)	48 (45.7)	105 (50.0)	1.54, <i>p</i> = .214
	No	48 (45.7)	57 (54.3)	105 (50.0)	
	Prefer not to say	0 (0)	0 (0)	0(0)	
	Total ( <i>N</i> )	105 (100.0)	105 (100.0)	210 (100.0)	
Last time vibrator use during partnered sex	Today	0 (0.0)	0 (0.0)	0 (0.0)	10.04, <i>p</i> = .186
	Yesterday	3 (2.8)	1 (0.9)	4 (1.9)	
	Several days ago	4 (3.8)	4 (3.8)	8 (3.8)	
	One week ago	2 (1.9)	3 (2.8)	5 (2.4)	
	Two weeks ago	6 (5.7)	2 (1.9)	8 (3.8)	
	Almost a month ago	10 (9.5)	6 (5.7)	16 (7.6)	
	Couple of months ago	11 (10.5)	20 (19.0)	31 (14.8)	
	Over a year ago	21 (20.0)	12 (11.4)	33 (15.7)	
	Never	48 (45.7)	57 (54.3)	105 (50.0)	
	Total ( <i>N</i> )	105 (100.0)	105 (100.0)	210 (100.0)	

### Associations Between Solo Masturbation and Sexual Satisfaction

**Table 2**

*Actor-Partner Interdependence Model with Indistinguishable Dyads, Solo Masturbation as Independent Variables and Sexual Satisfaction as the Outcome Variables*

Variable	Effect	Estimate	Lower	95CI	Upper	P value	Beta	r
Sexual satisfaction	Intercept	46.99	45.58	to	48.41	<.001		
Recent solo masturbation	Actor	1.28	-1.13	to	3.69	.300	0.07	.07
	Partner	1.68	-0.74	to	4.09	.175	0.09	.09
	k	1.31	-8.35	to	10.80			

*Note.* Data were organized as dyadic pairwise data ( $N = 210$ ).

**Associations Between Solo Masturbation and Sexual Self-Esteem**

**Table 3**

*Actor-Partner Interdependence Model with Distinguishable Dyads, Solo Masturbation as Independent Variables and Sexual Self-Esteem as the Outcome Variables*

Variable	Role	Effect	Estimate	Lower	95	Upper	p	Beta	r
					CI		value	O – s	
Sexual self-esteem	Women	Intercept	159.83	154.04	to	<.001	<.001		
	Men		171.27	166.44	to	176.10	<.001		
Recent solo masturbation	Women	<b>Actor</b>	10.47	-0.39	to	21.33	.060	0.19 – 0.18	.18
		<b>Partner</b>	0.68	-11.11	to	12.46	.910	0.01- 0.01	.01
	Men	<b>Actor</b>	-5.52	-15.30	to	4.25	.270	-0.10 -0.11	-.11
		<b>Partner</b>	5.61	-3.46	to	14.68	.227	0.10 0.12	.12
		<b>k</b>	-1.02	-11.17	to	9.20			

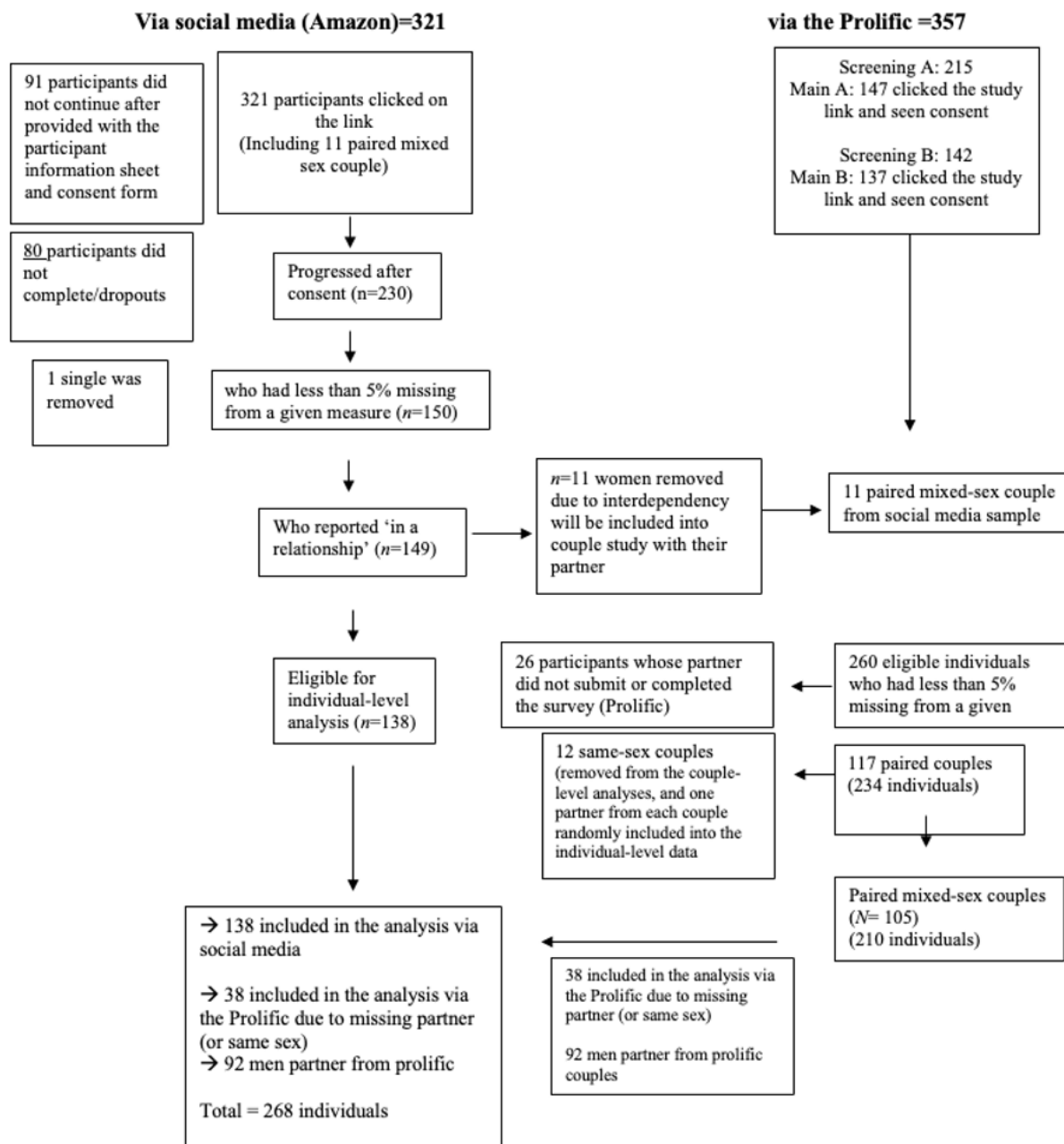
*Note.* Data were organized as dyadic pairwise data ( $N = 209$ ).

13 Appendix H: Online Supplementary File Used in Paper 3

Participant Recruitment Flow Chart

Figure 1

Participant Recruitment Flow Chart



Participant Recruitment Flow Chart

## The Results of Univariable Analyses

### Feelings About Mutual Masturbation

#### *Positive Feelings*

In univariable analyses, participants who reported recent mutual masturbation ( $B = 3.32$ ,  $95\%CI: 1.62, 5.03$ ), recent solo masturbation ( $B = 2.45$ ,  $95\%CI: .32, 4.58$ ), not having any illness/disability ( $B = 3.58$ ,  $95\%CI: 1.46, 5.70$ ), and not attending religious practices ( $B = 1.92$ ,  $95\%CI: .19, 3.65$ ) were more likely to report higher positive feelings about mutual masturbation. Men ( $B = 2.59$ ,  $95\%CI: .86, 4.33$ ) were also more likely to report higher sexual satisfaction.

#### *Negative Feelings*

In univariable analyses, participants who reported married ( $B = -7.86$ ,  $95\%CI: -11.26, -4.67$ ), being in a relationship less than 5 years ( $B = -4.52$ ,  $95\%CI: -7.17, -1.83$ ), having any illness/disability ( $B = -10.12$ ,  $95\%CI: -14.07, -6.02$ ), attending religious practices ( $B = -9.55$ ,  $95\%CI: -12.33, -6.73$ ), having children ( $B = 6.86$ ,  $95\%CI: 2.72, 11.02$ ), and heterosexual identity ( $B = -4.17$ ,  $95\%CI: -6.75, -1.69$ ) were more likely to report higher negative feelings about mutual masturbation.

**Table 1**

*Results of the Univariable Analyses for Negative and Positive Feelings among Men and Women (n = 262)*

	Negative feelings			Positive feelings		
	<i>B</i>	95%CI	<i>p</i>	<i>B</i>	95%CI	<i>p</i>
Mutual masturbation	-.85	-3.91, 2.14	.584	3.32	1.62, 5.03	<.001
Solo masturbation	-.06	-4.28, 3.69	.971	2.45	.32, 4.58	.024
Gender	-1.75	-4.80, 1.24	.240	2.59	.86, 4.33	.003
Age	.20	.02, .44	.052	-.06	-.17, .04	.246
Relationship status	-7.86	-11.26, -4.67	<.001	1.35	-.44, 3.15	.137
Relationship duration	-4.52	-7.17, -1.83	.003	.51	-1.32, 2.35	.581
Living with partner	-2.91	-5.77, .26	.060	1.12	-.75, 3.00	.239
Illness/disability	-10.12	-14.07, -6.02	<.001	3.58	1.46, 5.70	<.001
Religious participation	-9.55	-12.33, -6.73	<.001	1.92	.19, 3.65	.030
Child	6.86	2.72, 11.02	.002	-1.80	-3.85, .25	.085
Sexual orientation	-4.17	-6.75, -1.69	.002	-.10	-2.32, 2.13	.930

### **Associations Between Recent Mutual Masturbation and Sexual Satisfaction**

In univariable analyses, participants who reported being below 30 years old ( $B = -3.33$ ,  $95\%CI: -5.62, -1.03$ ), in relationship types other than married ( $B = 3.76$ ,  $95\%CI: 1.44, 6.09$ ), not having any illness/disability ( $B = 4.43$ ,  $95\%CI: 1.64, 7.22$ ), not living with a partner ( $B = 3.32$ ,  $95\%CI: 0.87, 5.76$ ), and having no children ( $B = -3.26$ ,  $95\%CI: -5.94, -0.59$ ) were also more likely to report higher sexual satisfaction.

### **Associations Between Recent Mutual Masturbation and Sexual Self-Esteem**

In univariable analyses, men were more likely to report higher sexual self-esteem than women ( $B = 8.27$ ,  $95\%CI$ : 1.55, 14.99). Participants who reported being in relationship types other than married ( $B = 10.56$ ,  $95\%CI$ : 3.72, 17.40), being in a relationship for 5 years or more ( $B = 9.16$ ,  $95\%CI$ : 2.17 to 16.15), not having any illness/disability ( $B = 19.60$ ,  $95\%CI$ : 11.60, 27.60), and not attending religious practices ( $B = 14.53$ ,  $95\%CI$ : 8.02, 21.04) were also more likely to report higher sexual self-esteem.

**Table 2**

*Univariable Analysis Results among Women and Men for Sexual Satisfaction and Sexual Self-esteem (N = 268)*

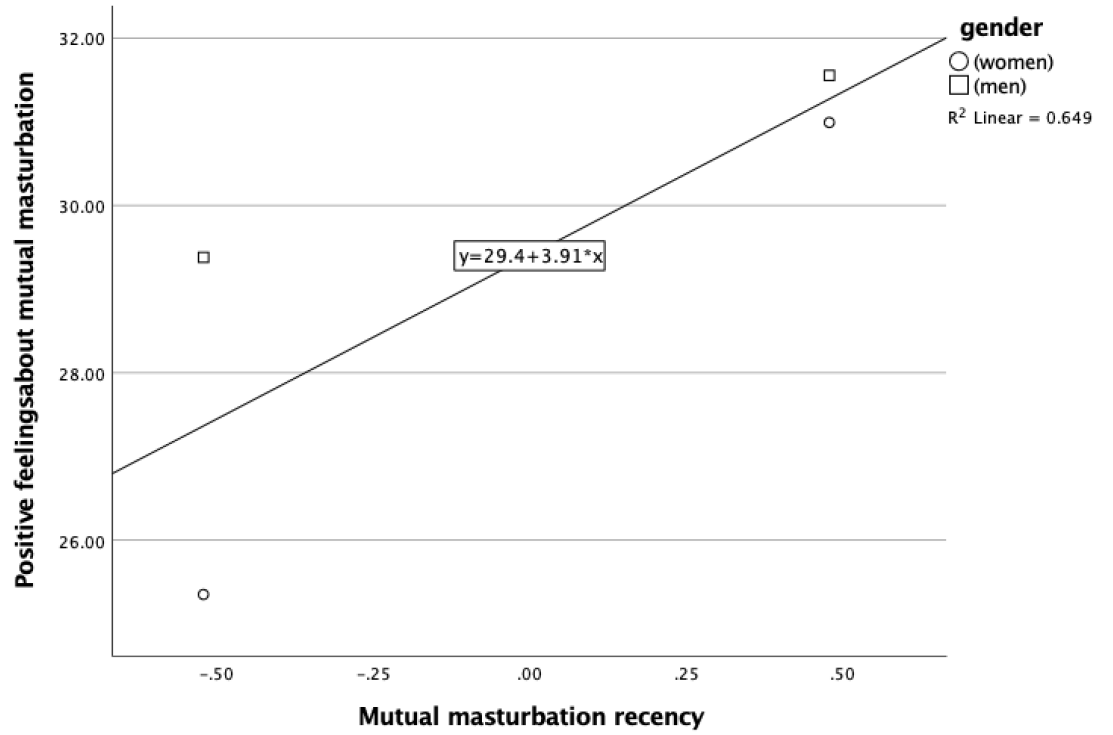
	Sexual Satisfaction			Sexual Self-esteem		
	<i>B</i>	95%CI	<i>p</i>	<i>B</i>	95%CI	<i>p</i>
Mutual masturbation	3.34	1.07, 5.60	<b>.004</b>	-0.88	-5.870, 7.64	.797
Solo masturbation	-1.49	-4.31, 1.32	.297	-1.77	-10.06, 6.51	.674
Gender	2.16	-0.14, 4.46	.065	8.27	1.55, 14.99	<b>.016</b>
Age	-.24	-.38, -.10	<b>&lt;.001</b>	-0.81	-7.65, 6.03	.816
Relationship status	3.76	1.44, 6.09	<b>.002</b>	10.56	3.72, 17.40	<b>.003</b>
Relationship duration	-.44	-2.85, 1.96	.717	9.16	2.17, 16.15	<b>.010</b>
Living with partner	3.32	.87, 5.76	<b>.008</b>	6.87	-0.34, 14.09	.062
Illness/disability	4.43	1.64, 7.22	<b>.002</b>	19.60	11.60, 27.60	<b>&lt;.001</b>
Religious participation	1.09	-1.20, 3.38	.349	14.53	8.02, 21.04	<b>&lt;.001</b>
Child	-3.26	-5.94, -0.59	<b>.017</b>	-6.77	-14.67, 1.14	.093
Sexual orientation	.89	-2.03, 3.81	.547	-.56	-9.15, 8.02	.897



**Graph of Simple Slopes Analysis for Moderation Analysis**

**Figure 1**

*Simple Slopes Analysis for Moderation Analysis*



## 14 Appendix I: Sample Size and Power Estimates for Paper 2

### APIM Sample Size and Power Estimates Prior to Analyses:

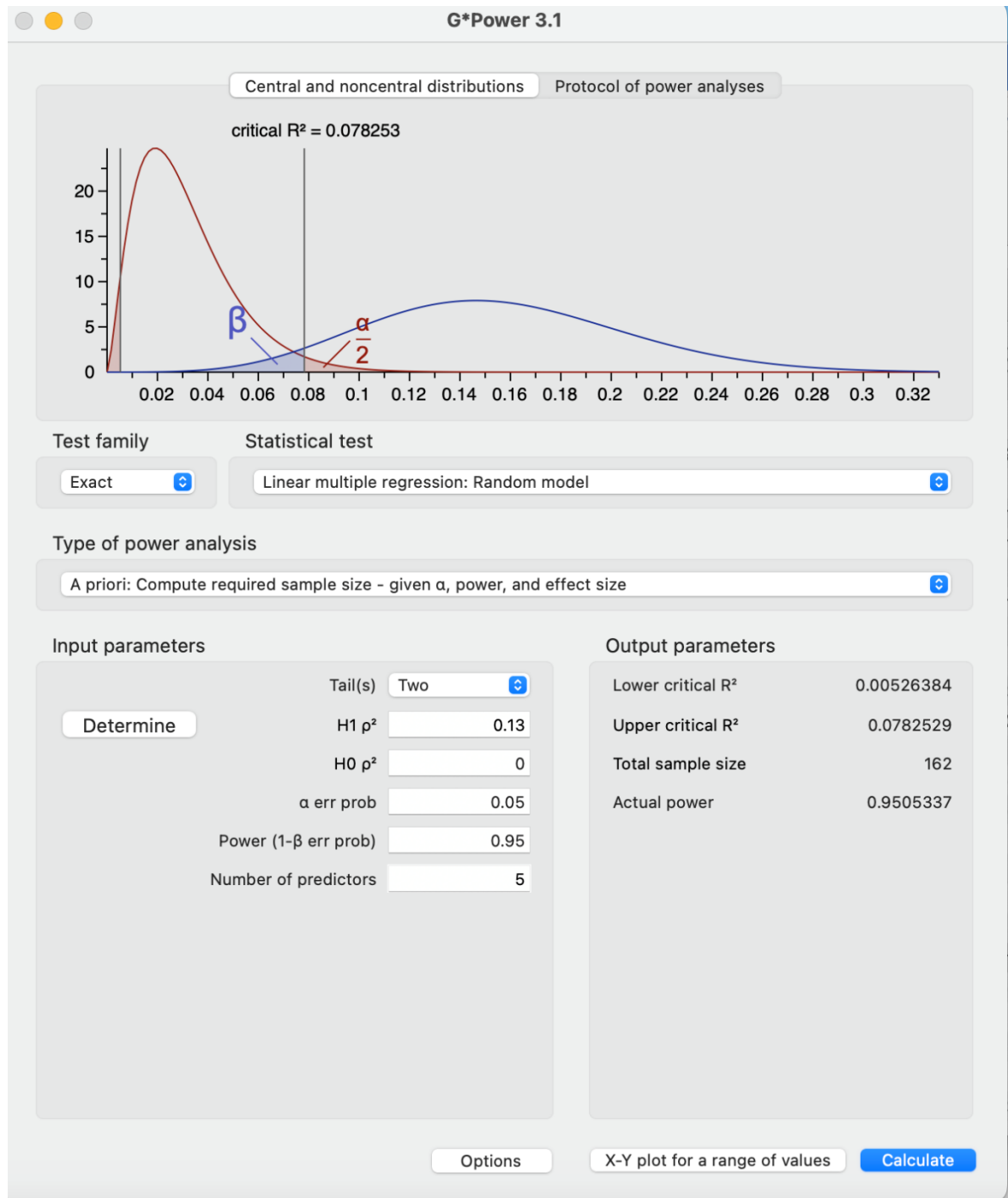
Effect	Power	N	df	Beta	r	partial r	ncp
Actor Effect for Person 1	.250	466	60	.57	.250	.295	1.906
Actor Effect for Person 2	.250	466	60	.57	.250	.295	1.906
Partner Effect for Person 1	.150	203	60	.97	.150	.225	1.144
Partner Effect for Person 2	.150	203	60	.97	.150	.225	1.144
Difference in Actor Effects	.000	000					0.000
Difference in Partner Effects	.000	000					0.000
Average of Actor Effects	.250	233					2.582
Average of Partner Effects	.150	241					1.549

### APIM Sample Size and Power Estimates after Analyses:

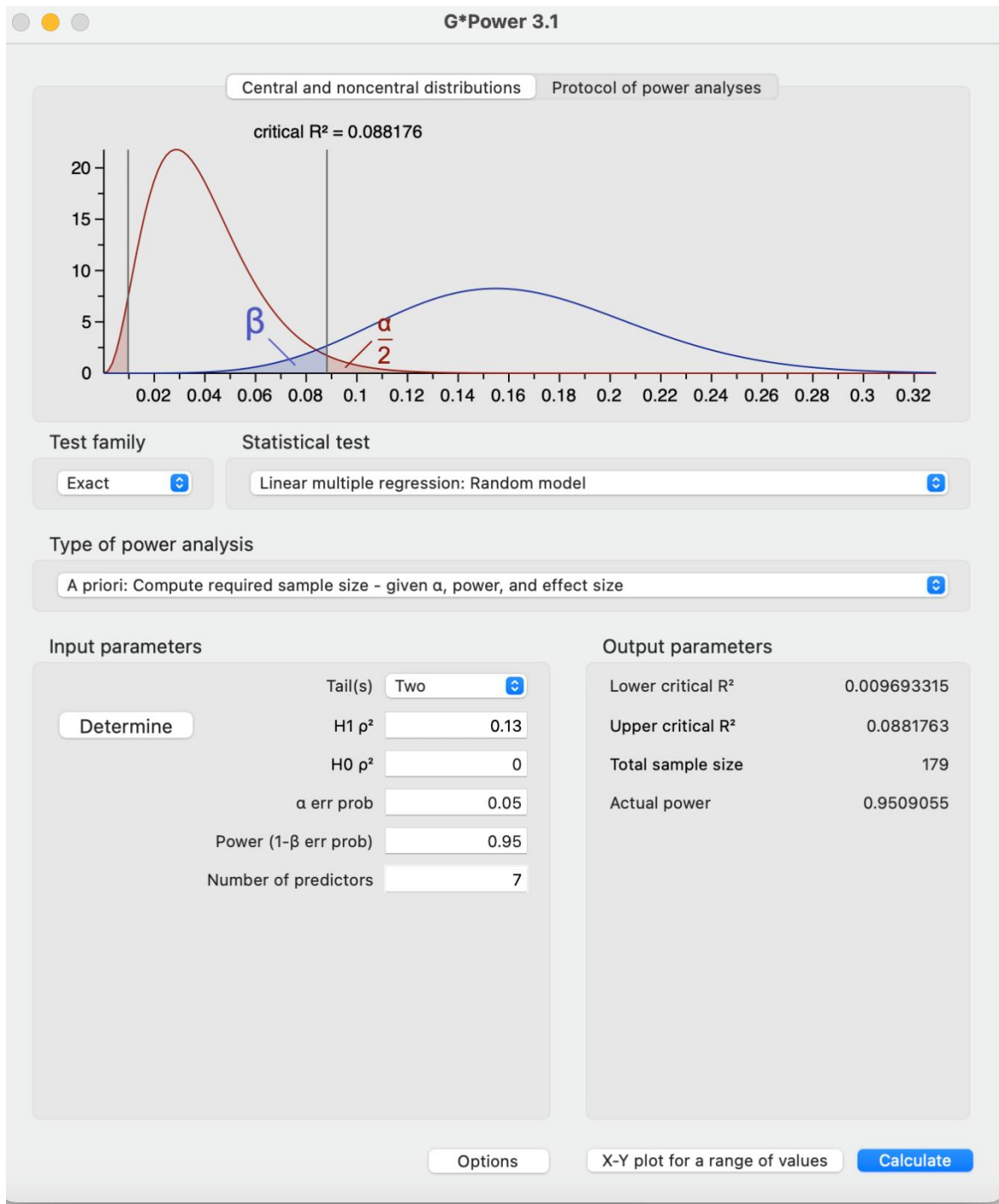
Effect	Power	N	df	Beta	r	partial r	ncp
Actor Effect for Person 1	.250	714	105	102	.250	.295	2.550
Actor Effect for Person 2	.250	714	105	102	.250	.295	2.550
Partner Effect for Person 1	.150	329	105	102	.150	.225	1.530
Partner Effect for Person 2	.150	329	105	102	.150	.225	1.530
Difference in Actor Effects	.000	000					0.000
Difference in Partner Effects	.000	000					0.000
Average of Actor Effects	.250	832					3.453
Average of Partner Effects	.150	545					2.672

15 Appendix J: Sample Size and Power Estimates for Paper 3

GPower calculations for linear multiple regression (5 predictors):



GPower calculations for linear multiple regression (7 predictors):



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