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Faculty of Environmental and Life Sciences

School of Psychology

Shaping the self: Identity and food choices in adolescence

Volume 1 of 1

by

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Thesis for the degree of PhD in Psychology

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Abstract

Faculty of Environmental and Life Sciences

School of Psychology

Doctor of Philosophy

Shaping the self: Identity and food choices in adolescence

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Sarah Elizabeth Jenner

The decline in adolescent health in the UK represents an urgent and important public health issue with implications for both current and future generations of young people. This PhD used a range of methods to explore how identity formation and food choices interact during adolescence and the role of social media in that relationship.

This thesis established identity formation as a core developmental task of adolescence and a key determinant of health behaviour change. A systematic review examined the use of identity theory within adolescent health behaviour change interventions. Two qualitative studies used story completion and narrative analysis to explore young people's understanding of how identity and food choices are informed by and expressed through social media. Lastly, a novel method for large language model (LLM)-assisted narrative analysis was developed and tested.

The systematic review found that identity-theory based intervention strategies, particularly those based on self-affirmation theory, were often combined with other behaviour change techniques such as implementation intentions and goal setting. Evidence for their efficacy in changing behaviour was limited, though identity-based components appeared to improve engagement with and receptivity to other intervention elements.

The pilot story completion study demonstrated the feasibility of online story completion with young people and the efficacy of narrative analysis for analysing stories. The main story completion study revealed how young people viewed social media as a space for identity expression and a source of social pressure. Older participants portrayed characters with greater confidence and awareness of the potential harms of social media, whereas younger participants often portrayed characters who were more vulnerable to the harmful impacts of social media on mental and physical health.

The final study found that two LLMs (Claude 3 Opus and GPT-o1) conducted high quality, credible narrative analysis, though Claude's interpretations provided greater nuance and alignment with the interpretations of the human researcher. The study also established a set of practical guidelines for LLM-assisted analysis and outlined the key ethical and methodological issues associated with use of artificial intelligence in research.

Overall, the findings of this PhD underscore the need for future research to develop and test identity theory-informed, co-produced health behaviour change interventions that empower young people to make healthier food choices, whilst supporting their autonomy and self-expression through social media. Methodologically, this thesis demonstrates the potential for artificial intelligence to enhance the quality and efficiency of qualitative research with young people. It also highlights potential policy implications, which centre around the urgent need for both school- and national-level policies to integrate social media- and health-literacy into the education curriculum, supporting young people to use social media to confidently make informed, healthy choices. Collectively, the findings lay the foundation for future research and policy changes to support young people to develop positive, health-aligned identities and use social media in ways that support their mental and physical health.

Table of Contents

Table of Contents	3
Table of Tables	10
Table of Figures	11
List of Accompanying Materials	12
Research Thesis: Declaration of Authorship	13
Acknowledgements	14
Definitions and Abbreviations	15
Chapter 1 Introduction to the thesis	16
1.1 Defining ‘adolescence’	16
1.2 Terminology used to describe adolescents	17
1.3 Why is adolescent health so important?	18
1.4 The current context of adolescent health: obesogenic environments	20
1.5 UK policy relating to adolescent health	24
1.6 How can adolescents be supported to make healthier choices?	27
1.7 The role of identity in adolescent food choices	30
Chapter 2 Literature review: Identity formation and behaviour change ..	33
2.1 Identity formation	33
2.1.1 Defining identity	33
2.1.2 Origins of identity formation theories.....	34
2.1.3 Beginning to explain the identity formation process	35
2.1.4 The importance of a social identity	37
2.1.5 Mechanisms of identity formation	39
2.1.6 The role of social media in identity formation	40
2.2 Identity and behaviour change	41
2.2.1 How are identity and behaviour linked?	41
2.2.2 Mechanisms of identity-related behaviour change	43
2.2.3 Identity processes as a foundation for improving adolescent food choices	46

2.3 Rationale for the PhD	46
2.4 Aims of the PhD	47
2.4.1 Hypothesis	47
2.4.2 Research questions	47
2.4.3 Objectives	48
2.5 Thesis structure	48
Chapter 3 Methodology.....	51
3.1 Systematic review methodology.....	51
3.2 Qualitative methodology.....	51
3.3 Epistemology and philosophical approach	54
3.4 Reflexivity	55
3.5 Ethics.....	56
Chapter 4 How have theories of identity been incorporated into interventions to improve adolescent health behaviour? A systematic review and integrative model	58
4.1 Introduction	58
4.1.1 Aims and research questions	61
4.2 Materials and methods	61
4.2.1 Search strategy.....	62
4.2.2 Eligibility criteria	62
4.2.2.1 Study requirements.....	62
4.2.2.2 Participants	62
4.2.2.3 Interventions.....	63
4.2.2.4 Outcome measures	63
4.2.3 Data management, screening and data extraction	63
4.2.4 Risk of bias assessment.....	64
4.2.5 Data synthesis.....	64
4.3 Results.....	65

Table of Contents

4.3.1	Study selection.....	65
4.3.2	Study characteristics.....	67
4.3.3	Synthesis of results	73
4.3.4	RQ1: Which concepts from identity-formation theories have been utilised in adolescent health interventions, and how have identity-formation related mechanisms and processes been incorporated into these interventions to improve adolescent health?.....	75
4.3.5	RQ2: How successful have interventions using identity-related processes as mechanisms of change been in improving adolescent health behaviours?77	
4.3.6	Risk of bias in included studies	83
4.4	Discussion	86
4.4.1	Summary of findings	86
4.4.2	Strengths of the review.....	87
4.4.3	Limitations of the review	88
4.4.4	Implications and future directions.....	88
4.4.5	How do we harness identity formation processes during adolescence to support positive health behaviour?.....	89
4.5	Conclusion.....	92
Chapter 5	Piloting a story completion task with young people	93
5.1	Introduction	93
5.1.1	Story completion	93
5.1.2	Narrative analysis	97
5.1.3	Aims and research questions	98
5.2	Methods.....	98
5.2.1	Epistemological and ontological approach	98
5.2.2	Materials	98
5.2.2.1	Story stem development	98
5.2.2.1.1	Public and participant involvement and engagement (PPIE)	99
5.2.2.1.2	Revision of story stems by the researchers.....	102

Table of Contents

5.2.2.2	Final story stems.....	103
5.2.3	Participants.....	104
5.2.4	Data collection procedure	105
5.2.5	Analysis methods	105
5.3	Findings	107
5.3.1	Stories	107
5.3.2	Narrative analysis	107
5.4	Discussion	114
5.4.1	Summary of findings	114
5.4.2	Reflexivity and reflective notes	117
5.4.3	Strengths and limitations	118
5.4.4	Lessons learned and implications for future research	120
5.5	Conclusion.....	120
 Chapter 6 Using story completion to understand young people’s experiences of using social media in relation to identity development and dietary choices.....		
6.1	Introduction	121
6.1.1	Young people’s social media use	121
6.1.2	Identity and food choices in adolescence	122
6.1.3	Aims and research questions	123
6.2	Methods.....	124
6.2.1	Epistemological and ontological approach	124
6.2.2	Study design.....	124
6.2.3	Materials	124
6.2.4	Recruitment	125
6.2.4.1	Youth group recruitment	126
6.2.4.2	Online recruitment.....	126
6.2.5	Participants.....	127

Table of Contents

6.2.6	Data collection procedures.....	128
6.2.6.1	Youth group participation	128
6.2.6.2	Prolific participation.....	129
6.2.7	Analysis methods	129
6.2.8	Reflexivity.....	130
6.3	Findings	130
6.3.1	Stories	130
6.3.2	Narrative analysis.....	131
6.3.3	Final narratives.....	136
6.4	Discussion	146
6.4.1	Summary of findings	146
6.4.2	Structure and form	147
6.4.3	Differences in stories constructed by older and younger participants ..	148
6.4.4	Reflexivity and reflective notes	150
6.4.5	Strengths and limitations	151
6.4.6	Implications and future directions.....	152
6.5	Conclusion.....	154
Chapter 7	Using large language models for artificial intelligence (AI)- assisted narrative analysis	155
7.1	Introduction	155
7.1.1	Aims and research questions	157
7.2	Methods.....	158
7.2.1	Epistemology.....	158
7.2.2	Study context	158
7.2.3	Participants and sampling.....	159
7.2.4	Ethical considerations	159
7.2.5	Data collection	159
7.2.6	Data analysis.....	160

Table of Contents

7.2.6.1 Human analysis	160
7.2.6.2 LLM-assisted analysis	160
7.2.6.2.1 Data preparation.....	160
7.2.6.3 Reflexivity	161
7.3 Findings	162
7.4 Discussion	173
7.4.1 Summary of findings	173
7.4.1.1 Proposed guidelines for LLM-assisted analysis	174
7.4.2 Reflexivity.....	175
7.4.3 Strengths and limitations	176
7.4.4 Implications and future research.....	178
7.5 Conclusion.....	180
Chapter 8 Discussion	181
8.1 Summary of PhD findings	181
8.1.1 Research questions 1a and 1b	182
8.1.2 Research questions 2a and 2b	184
8.1.3 Research question 3	185
8.1.4 Research questions 4a, 4b and 4c.....	186
8.1.5 Hypothesis	188
8.1.6 Contributions to the literature	189
8.2 Strengths and limitations of the PhD	190
8.2.1 Strengths.....	190
8.2.2 Limitations	191
8.3 Implications for future research	192
8.4 Implications for policy	198
8.5 Conclusion to the thesis	202
Appendix A PRISMA checklist for the systematic review described in Chapter	
4.	204

Appendix B Search strategies used in the systematic review described in Chapter 4.208

Appendix C Inclusion and exclusion criteria used in the systematic review described in Chapter 4.216

Appendix D Adapted risk of bias assessment form used in the systematic review described in Chapter 4.219

Appendix E Prompt engineering process with Claude AI used in the analysis described in Chapter 7.221

List of References229

Table of Tables

Table 1.	Characteristics of included studies (based on information from the data extraction table).....	68
Table 2.	Effect direction plot.....	74
Table 3.	Risk of bias assessment.....	85
Table 4.	YPAG participant demographics.....	100
Table 5.	Pilot story completion study participant characteristics.....	105
Table 6.	Changes made to piloted story stems for the main study.....	115
Table 7.	Story completion main study demographic data.....	128
Table 8.	Number of stories written by younger vs. older participants, by narrative.....	149
Table 9.	Story stems presented to participants.....	159
Table 10.	Comparison between human, Claude and GPT-o1 interpretations in Step 1 of the narrative analysis process.....	164
Table 11.	Comparison between human, Claude and GPT-o1 interpretations in Step 2 of the narrative analysis process.....	166
Table 12.	Human, Claude and GPT-o1 groups, merged and compared.....	167
Table 13.	Comparison between human, Claude and GPT-o1 interpretations in Step 3 of the narrative analysis process.....	169
Table 14.	Comparison between human, Claude and GPT-o1 interpretations in Step 4 of the narrative analysis process.....	171
Table 15.	Four steps for successful LLM-assisted qualitative analysis.....	174

Table of Figures

Figure 1.	Structure of the present PhD	50
Figure 2.	PRISMA flowchart of screening process.	66
Figure 3.	An integrative model of theory-based adolescent health behaviour intervention approaches	91
Figure 4.	The five-stage narrative analysis method.....	107
Figure 5.	Example of annotated stories from the ‘Nila’ stem.....	108
Figure 6.	NVivo coding for aspects of story content and structure.....	109
Figure 7.	Outline of future work to develop and test identity theory-based health behaviour change intervention strategies with young people	194

List of Accompanying Materials

<u>File name</u>	<u>File type</u>	<u>Associated with</u>
Supplementary Materials 1_Data extraction table	MS Excel file	Chapter 4
Supplementary Materials 2a_Vote counting_Effect direction table	MS Excel file	Chapter 4
Supplementary Materials 2b_Vote counting_Results	MS Excel file	Chapter 4
Supplementary Materials 3_YPAG information booklet	MS Word file	Chapter 5

Research Thesis: Declaration of Authorship

Print name: Sarah Elizabeth Jenner

Title of thesis: Shaping the self: Identity and food choices in adolescence

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:-

Jenner, S., Raidos, D., Anderson, E., Fleetwood, S., Ainsworth, B., Fox, K., ... & Barker, M. (2025). Using large language models for narrative analysis: a novel application of generative AI. *Methods in Psychology*, 12, 100183. <https://doi.org/10.1016/j.metip.2025.100183>

Sarah Jenner & Dimitris Raidos. New frontiers in qualitative research: using large language models for narrative analysis. *Research Matters*, Social Research Association. September 2025. <https://the-sra.org.uk/common/Uploaded%20files/Research%20Matters%20Magazine/sra-research-matters-september-2025-edition.pdf>

Signature: **Date:** 16th December 2025

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Definitions and Abbreviations

AI	Artificial intelligence
BCT	Behaviour change technique
ESRC	Economic and Social Research Council
HFSS	High fat, salt or sugar
LLM	Large language model
LMIC.....	Low- and middle-income countries
NCD	Non-communicable diseases
NHS.....	National Health Service
NIHR.....	National Institute for Health and Care Research
PSHE	Personal Social and Health Education
SCDTP	South Coast Doctoral Training Partnership
SDIL	Soft drinks industry levy
UK	United Kingdom
USA	United States of America

Chapter 1 Introduction to the thesis

Chapter summary: This chapter begins the thesis by outlining why conducting research to improve adolescent health is so important, discussing the current state of adolescent health, and outlining policies relevant to adolescent health in the UK. This chapter also gives an overview of the existing body of literature on adolescent health behaviour change interventions and introduces the concept of identity and its relevance to health behaviour, focusing on food choices.

1.1 Defining ‘adolescence’

This section will discuss the challenges in how adolescence as a life stage is defined, as well as why being precise about definitions of adolescence is important. Adolescence is generally considered to be the bridge between childhood and adulthood (Kaplan, 2004), but it is a life stage that is inconsistently defined, as the exact parameters defining adolescence are subjective and socially constructed (Degner, 2006). In the last century, attempts to define the period of adolescence have positioned its beginning as between the ages of 10 and 14 years, and its conclusion between the ages of 19 and 24 years (Sawyer et al., 2018). Adolescence as a concept is often tied to the onset of puberty but rates of pubertal development can vary greatly between individuals, meaning definitions can become somewhat arbitrary. In the field of epidemiology and across the biological sciences, physiological measures such as the presence of pubic hair, breast or testicular development, growth and hormone levels are used to assess pubertal stage (Baird et al., 2017). For scientists who favour biological, objective measures, these markers of puberty are an essential and defining characteristic of the stage of adolescence.

There are, however, many conceptualisations of what it means to be an adolescent that do not relate to biological or physiological characteristics, but to socially, culturally and historically constructed values and norms. For example, Western cultures, which tend to value individualism, often view adolescence as a time for self-discovery and the development of autonomy (Humphrey & Bliuc, 2021). In contrast, Eastern collectivist cultures tend to value conformity, obedience and the coherence of the family unit, meaning that developing independence as an adolescent may not be as socially and culturally important in these places (Degner, 2006). Furthermore, at various points throughout history it has been common for children and adolescents to be responsible for contributing to the family through domestic (generally for girls), industrial, agricultural or trade (generally for boys) labour, which much of the time meant leaving formal education at a young age. In contrast, many modern, post-

industrial cultures see such expectations as exploitative and abusive, and encourage adolescents to stay in education for longer, thus delaying their entry into the workforce (Feixa, 2011). Through examining social, cultural and historical representations of adolescence, it is clear that the definition of adolescence varies between individuals and across time and culture, meaning that a universal definition of adolescence does not exist.

For the purposes of this thesis, however, the definition of adolescence as the stage between the ages of 10 and 24 years, as proposed by Sawyer et al. (2018), will be used. This definition extends the stage of adolescence to encompass modern shifts in biological and social development. For example, when proposing this definition, Sawyer et al. (2018) discussed the potential causes of and contributors to the reduction in average age of menarche, rises in average age of first marriage, and the extension of mandatory schooling ages in many industrialised countries such as the UK and China, all of which have impacted how modern society defines adolescence. Whilst acknowledging that this may not reflect conceptions of adolescence in other cultures, this thesis and the research it describes, having been written and conducted by a White British researcher in the UK in the early-to-mid 2020's, will use Sawyer's definition because it is the one which aligns most closely with the author's personal and professional values and the culture within which the research was conducted.

1.2 Terminology used to describe adolescents

Not only are definitions of this life stage so varied, but so are the terms that are used to describe adolescents. In most of the modern scientific literature, the term 'adolescent' is commonly accepted and used, but variation in the language used to describe adolescents in popular culture dates back thousands of years and continues to evolve to this day. In Ancient Greece, an 'ephebe' was a common way of referring to any young boy around the age of 18 years; the term 'backfisch' emerged in early 20th century Germany to describe a young girl with the independence of adulthood but the recklessness of childhood; and the still-popular term 'teenager' has been in common usage in the UK, the USA and much of the English-speaking world since the 1950s (Fisher, 2022).

In the social sciences, variations in the terminology used to describe adolescents can be found both within and between disciplines. In sociology and certain fields of psychology, the term 'youth' is common (France et al., 2020). The term 'adolescents and young adults', abbreviated to 'AYA', is common in adolescent oncology and cancer survivorship research, and specifically refers to those aged between 15 and 39 years (Janssen et al., 2021).

Credited as the first to write about adolescence as its own scientific and scholarly field, G. Stanley Hall used the terms ‘adolescents’, ‘youth’, ‘juveniles’, ‘young people’ and others interchangeably throughout his seminal 1904 work (Hall, 1904).

After reviewing the literature, Curtis (2015) proposed distinct definitions with different terms for the periods of early adolescence (11-13 years), adolescence (14-17 years) and young adulthood (18-25 years). Curtis discussed identity formation as one of the key developmental characteristics of the ‘adolescence’ stage, supporting previous theories of identity development such as Erikson’s theory, which defines the core psychological task of adolescence as ‘identity vs. role confusion’ (Erikson, 1968). Adolescent identity formation will be discussed in more detail in Chapter 2 of this thesis.

The World Health Organization uses similar terms to refer to differently, but still distinctly defined life stages, with ‘adolescents’ defined as individuals aged between 10 and 19 years, ‘youth’ as those aged 15 to 24 years, and ‘young people’ as those aged between 10 and 24 years (World Health Organization, 2025).

As outlined in section 1.1 of this chapter, the definition of adolescence as spanning the ages of 10 to 24 years will be used in this thesis, so the corresponding WHO terminology of ‘young people’ will be favoured. However, it is necessary to acknowledge, given the biological, physiological and psychological basis of definitions of adolescence, that the term ‘adolescents’ is generally well accepted and commonly used in the literature. Therefore, in some sections of this thesis, the term ‘adolescents’ will be used when describing biological, physiological or psychological concepts, including discussions of puberty, brain and neurological development and physical development.

1.3 Why is adolescent health so important?

The many biological, neurological, psychological and social changes that occur during adolescence all contribute to the development of health behaviours. Adolescence is a period during which rapid physiological growth occurs in conjunction with major neurological and psychosocial development (Viner et al., 2015). Physiological development during puberty is characterised by growth spurts, increased muscle and bone density, redistribution of fat mass and hormone-driven events such as menarche (Norris et al., 2022). Adolescent brain development is characterised by a range of structural and chemical changes; most notably substantial increases in neuron myelination and synaptic density in the frontal lobe and prefrontal cortex, which mean that more information can travel at greater speeds through the brain as puberty progresses (Blakemore & Choudhury, 2006). During this time, important

psychological changes also occur, including the formation of identity, which will be discussed in detail in Chapter 2 of this thesis. Throughout the identity formation process, adolescents also form beliefs and behaviours that contribute to their lifelong health and wellbeing and consequently to the health of future generations (Patton et al., 2018; Patton et al., 2016).

It is now known that the health of parents impacts the health of their children prior to conception as well as during and after pregnancy, with exposure to certain conditions (such as poor nutrition) in utero linked with increased risk of non-communicable diseases (NCDs) later in life (Padhani et al., 2024). In particular, maternal nutrition - the nutrients that are passed to the growing foetus through the placenta during pregnancy - is a fundamental determinant of a child's future health (Stephenson et al., 2018), and both maternal and paternal preconception health are known to influence the health of future offspring (Fleming et al., 2018). The Developmental Origins of Health and Disease (DOHaD) theory captures this idea by proposing that the environment a person is exposed to in utero, as well as the health of their parents prior to conception, has important implications for their health across the lifespan (Barker, 2007). DOHaD theory is the culmination of numerous studies conducted across the world, all of which showed a geographical correlation between contemporary heart disease rates in adults and past rates of infant mortality, particularly in areas with high rates of socioeconomic deprivation. In the UK, Barker and Osmond (1986) found that mortality from ischaemic heart disease was highest in the most deprived areas of the country and lowest in the least deprived areas. They noted, however, that other environmental causes of heart disease such as dietary fat intake did not show the same geographical patterns. The factor that aligned most closely with the pattern of heart disease mortality in the late 1970s was past infant mortality, 50 years prior in the early 1920s. This study, and subsequent studies showing similar findings, caused a momentous shift in how the causes of health and disease across the life course were understood by the scientific community. Rather than attributing variation in disease prevalence between individuals solely to genetic susceptibility and lifestyle factors such as diet or smoking, DOHaD theory suggested that the in-utero environmental conditions that a foetus was exposed to impacted their susceptibility to the negative effects of factors associated with more prosperous lifestyles, such as access to more nutrient-dense foods (Barker, 2007).

In line with DOHaD theory, there is a wealth of evidence to support the theory that one of the most effective ways of improving maternal and foetal nutrition, rather than waiting until women become pregnant, is to target health interventions at adolescents (who will be the parents of the next generation) before they have solidified their lifelong healthy – or unhealthy – behaviours (Costello & Naimy, 2019). Most of the health issues affecting, and killing, adolescents, are the result of preventable causes including both physical and mental illnesses (Costello & Naimy, 2019). Using this theory to improve the health of future generations will bring long overdue and

critically important health, social and economic benefits to individuals and society (Salam et al., 2016). DOHaD theory, and the evidence to support it, proposes that the key to achieving this lies in improving the health of young people today. Adolescents are a uniquely 'plastic' population, who are still developing the beliefs, skills and habits that will inform the long-term patterns of behaviour that will serve them throughout their adult lives, as well as their future children (McKerracher et al., 2019).

Adolescence is also a time during which individuals' health behaviours change as they learn to navigate the biological, psychological and social changes that accompany the transition to adulthood (Hargreaves et al., 2021). Nutrition is an important part of this transition and helps adolescents achieve the key milestones necessary for optimal growth and development, as well as improving the likelihood of positive health outcomes both for them as they move into adulthood, and for their future offspring (Neufeld et al., 2021; Strömmer, Barrett, et al., 2020). Moreover, nutrient deficiencies such as iron deficiency anaemia are prevalent amongst adolescent populations, particularly in low- and middle-income countries (LMICs), and can impact pubertal onset and subsequent physical development (Das et al., 2017). Rates of overweight and obesity in adolescents have increased rapidly in recent years and are proven to lead to adverse health outcomes later in life if not addressed (Güngör, 2014; Reilly & Kelly, 2011). Overweight and obesity are also associated with preventable behaviours such as overconsumption of highly processed and HFSS (high in fat, salt or sugar) foods, low levels of physical activity and sedentary lifestyle (Chaput et al., 2011). Addressing these health behaviours during adolescence can help to establish the formation of positive health behaviours before lifelong unhealthy habits become harder to change. For example, behaviours that begin in adolescence are more likely to persist into adulthood and vice versa; adolescents who do not engage in health risk behaviours are unlikely to go on to do so as adults (Mytton et al., 2024).

1.4 The current context of adolescent health: obesogenic environments

With numbers now exceeding 1.8 billion, adolescents represent a higher percentage of the global population than ever before (Patton et al., 2016). Half of the young people on the planet live in LMICs in sub-Saharan Africa or South Asia where the prevalence of communicable and non-communicable diseases is rising, and access to resources, including food, education and healthcare is limited (Akseer et al., 2017; Barker et al., 2021). These countries support populations of young people with disproportionately high rates of wasting, nutrient deficiencies, stunting, overweight and obesity (Giancola et al., 2022). For many of these young people, their

nutritional status and food choices are directly related to the affordability and availability of food (Neufeld et al., 2022).

In contrast, for most young people in developed countries such as the UK, food can easily be consumed in excess and food choice is generally influenced by a combination of individual factors such as taste, cost and convenience, and social factors such as peer influence or food marketing (Strömmer et al., 2021). These factors are just some of many which have contributed to young people in the UK having the worst diets of any age group (Vogel et al., 2023) and consistently failing to meet recommended nutritional and physical activity guidelines. Just eight percent of UK young people eat the recommended five fruits or vegetables each day (Woodside et al., 2021) and one third are overweight or obese (Kelly, 2022).

Access to ultra-processed foods is increasingly becoming a global health issue, but is particularly significant in high-income countries such as the UK, where cheap, nutrient-sparse, ultra-processed foods are highly accessible to most young people (Chavez-Ugalde et al., 2024). Not only are these foods readily available, they are marketed to be as appealing, tasty, cheap and convenient as possible (Strömmer et al., 2021). Young people are bombarded with advertisements for fast food restaurants and food delivery services in both the virtual and physical spaces they inhabit and these advertisements can both directly and indirectly influence behaviour (Bryan et al., 2019). A meta-analysis by Boyland et al. (2016) suggested that exposure to food advertising significantly increased food intake in children. Most of the results analysed in this meta-analysis came from laboratory studies and therefore their applicability to real world scenarios is limited, which may mean that the negative impact of food advertising on children and adolescents was underestimated. The short exposures used in lab experiments may not accurately represent the real world, where children and adolescents are exposed to thousands of food-related advertisements each year through television alone, with the majority of these advertisements being for unhealthy foods (Powell et al., 2024). In one study, children in Canada were found to have been exposed to 760 unhealthy food advertisements per year and the impact on adolescents was even greater, with exposure to 1036 unhealthy food advertisements per year (Potvin Kent et al., 2023).

One of the most prevalent ways through which young people have historically been exposed to food marketing is through traditional media such as television. In recent years, however, social media has come to represent a much larger portion of the virtual advertising space than television and is something that has become a normal part of daily life for most young people in the UK. For example, on social media, young people are known to spend significantly longer looking at adverts for unhealthy foods than for healthy foods, are more likely to share posts about unhealthy foods and to give more positive evaluations of adverts for unhealthy foods

(Murphy et al., 2020). Food production companies are well aware of the influence that these types of advertising campaigns have on young people and consistently use aggressive marketing strategies to drive engagement with posts on social media as well as sales of unhealthy foods (Bankole et al., 2023; Vassallo et al., 2018). With the rise of social media, young people today are exposed to more food-related imagery, videos and text than ever before. Research suggests that they may be routinely exposed to more than 9000 food-related advertisements per year through social media (Potvin Kent et al., 2019). Not only do these exposures come from overt advertising, but also in the form of influencer marketing which encompasses celebrity endorsements as well as ‘vloggers’ (video bloggers) who commonly use platforms such as YouTube and Instagram to advertise products that they have been sponsored to promote, or ‘gifted’ (given for free in exchange for media exposure), by companies (De Jans et al., 2018). Qualitative research has found that young people can struggle to discern whether online content is an advertisement or not, and may not necessarily identify brand related content that they ‘like’ or ‘share’ on social media as a form of advertising (Buchanan et al., 2018). It has become common for companies to integrate brand placement into online content through celebrity, influencer and peer endorsement (through ‘likes’ and ‘shares’), meaning that the line between advertising and entertainment is becoming increasingly distorted and can be difficult for online audiences to recognise (van der Bend et al., 2024).

There are also issues with influencer marketing and the explicit declaration - or lack thereof - of advertising content. The Advertising Standards Authority (ASA), the UK’s advertising regulator, states in its CAP (Committee of Advertising Practice) code that influencers must ensure that adverts are clearly recognisable as adverts by audiences (Committee of Advertising Practice, 2025). This includes using ‘ad’ labels on video and images and disclosing ongoing brand relationships or collaborations. The CAP code is not statutory; however, it reflects corresponding legislation around advertising and can be enforced by the ASA in partnership with law enforcement bodies. Regulations do, however, vary between countries and many are open to interpretation or disregarded by influencers who may not be aware of, or properly understand, their responsibilities to declare corporate partnerships or advertising agreements (Harms et al., 2022; Silver et al., 2023).

Another concern in relation to social media is the portrayal of extreme behaviours such as competitive eating challenges and overconsumption of unhealthy food. For example, watching videos of people eat large quantities of – usually unhealthy – food, also known by the South Korean name ‘mukbang’ (translated roughly as ‘eating broadcast’), is an activity that has gained popularity amongst both South Korean and, increasingly, Western audiences in the recent years (Kircaburun et al., 2021). Though it is a relatively new phenomenon, emerging research suggests that watching ‘mukbang’ videos may have negative effects on audiences’ eating behaviours and

body image, and may increase the likelihood of obesity amongst young people (Kang et al., 2020; Kwon & Kwon, 2024). Currently, most of this research is limited to South Korean adolescents, so additional studies of the long-term impact of such content, as well as its effects in other populations are needed.

There is, however, already a wealth of existing research showing that modelling of health behaviours both consciously and subconsciously influences behaviour (Leman et al., 2021; Reid et al., 2019). In general, the amount of food- and eating-related content on social media has increased dramatically in recent years and it is incredibly common to find videos of people eating, talking about food or promoting certain foods or diets on popular social media sites (Wu et al., 2024). One systematic review found that exposure to food related content on social media content was strongly linked with increased body image concerns, disordered eating, and overconsumption of food (Wu et al., 2024).

Policy makers and researchers have attempted to reduce the impact of the UK's obesogenic environment on young people, but these attempts have had mixed success rates. Equivalent campaigns to reduce the rates of unintended pregnancy (Hadley et al., 2016) and cigarette smoking (Katikireddi et al., 2016) amongst young people over the last thirty years have had some success but the general health of adolescents in the UK remains poor. Rates of teenage pregnancy have steadily reduced, yet prevalence of sexually transmitted diseases has risen (Mitchell et al., 2020; Mohammed et al., 2018). Numbers of adolescent cigarette smokers are at their lowest ever, but vaping is becoming increasingly popular, with prevalence of e-cigarette use amongst adolescents rising steadily every year from 2013 to 2023 (Action on Smoking and Health (ASH), 2023). Early reports of a new disorder called E-cigarette or Vaping-Associated Lung Injury (EVALI), as well as bronchiolitis obliterans (popcorn lung) were initially linked with use of vapes and e-cigarettes (Blagev et al., 2019). However, more recent research has largely discredited this theory and has attributed the EVALI epidemic, which was largely observed in the US, to the use of e-cigarettes containing tetrahydrocannabinol (THC), cannabidiol (CBD), or Vitamin E Acetate, which can be present in high concentrations in counterfeit or black market-acquired e-cigarettes (Marrocco et al., 2022). Though limited in methodological quality and having not yet adequately studied long-term outcomes, the most up-to-date evidence suggests that e-cigarette use may be associated with risk of harm to the respiratory system including cancer, lung inflammation and lung damage (Banks et al., 2023; Kundu et al., 2025; Sahu et al., 2023).

These examples, as well as the statistics presented throughout this chapter on adolescent obesity, poor dietary choices and low physical activity levels, signify a substantial increase in serious, yet preventable, chronic diseases amongst the adolescent population and reflect a

need for up-to-date, innovative solutions to tackle the emerging challenges to adolescent health in this country. Despite the range of different issues affecting young people across the UK and the world, two things are certain: engaging young people in health behaviour change is essential and this need is not yet being adequately met (Rose et al., 2017). A combination of policy changes and effective, evidence-based health behaviour change interventions will be able to support this goal.

1.5 UK policy relating to adolescent health

Despite the growing recognition of the importance of adolescent health, UK policy has not always been able to adequately address the issues that are most relevant and immediate to young people themselves. As outlined in previous sections, adolescence is shaped by a complex range of biological, social and psychological factors, yet many policies remain grounded in approaches that may, on the surface, seem oversimplified or lacking nuance. Many UK policy changes related to adolescent health have focussed on population level initiatives that attempt to indirectly influence behaviour; for example, introducing additional taxes which make unhealthy food and drink more expensive for young people to purchase. This section of the thesis will explain and critically review some of the relevant policies that have been introduced in the UK in the last quarter of a century.

Since the re-introduction of school food regulations in the early 2000s, as promoted by celebrity television chef Jamie Oliver, the nutritional content of food served in schools in the UK has improved significantly (Adamson et al., 2013). However, with academies being exempt from these regulations and with 56% of all students in England attending academies (Department for Education, 2024), school food may remain a leading contributor to childhood obesity in the UK. One report found that many schools across the UK were serving meals that were “too beige” and that the most popular options available for students included paninis, pizza and cakes (Dimbleby & Vincent, 2013). A 2019 report found that at least 60% of UK secondary schools were thought to be non-compliant with school food standards (Food for Life, 2018), and that this consequently meant that students were not being provided with sufficient opportunities or encouragement to choose healthy food options (McIntyre et al., 2022). There were also issues with packed lunches, where students bring food to school that has been prepared at home, with just 1% of packed lunches meeting the nutritional standards required of an equivalent meal provided by school (Dimbleby, 2020). Packed lunches often contain higher volumes of ultra-processed foods (UPF) - such as packaged snacks and sugary drinks - than school meals (Parnham et al., 2022). One proposed solution to this is to increase the uptake of school meals by making them healthier, more appealing and better value for money. This would, however,

require a comprehensive overhaul of the school food system, which may not be practically or fiscally feasible in the current economic climate of the UK (Dimbleby, 2020).

Recommendations for reforming the school food system in the UK can be found in the National Food Strategy 'The Plan' report and include embedding 'how to eat well' education into the national curriculum as well as into school cultures, extending eligibility criteria for free school meals and expanding funding for food provision for children and families in need during school holidays (Dimbleby, 2021). In 2022, in response to 'The Plan', the UK government pledged to provide "up to £5 million to deliver a school cooking revolution" and to promote a 'whole school' approach to food as well as a range of other initiatives to improve the school food system and the health of future generations of young people (Department for Environment Food & Rural Affairs, 2022).

Another government initiative that has had limited success was the introduction of the Soft Drinks Industry Levy (SDIL) in 2016, which many sugar-sweetened beverage manufacturers responded to by reducing the sugar content of their drinks in order to comply with the new regulations and avoid higher taxation (Scarborough et al., 2020). One study found that young people were mostly ambivalent about the regulations (Jones et al., 2022). They generally agreed that the regulations would be beneficial but were only in favour of them providing that their own choices were not restricted, and that they would not have to spend more money on their usual choice of drinks. Evaluations of the impact of the SDIL on purchasing behaviour and health outcomes have also been mixed. One study concluded that the SDIL indirectly led to a decrease in obesity levels in young girls aged 10-11 years, but had no effect in 10-11 year old boys or younger children (ages 4-5 years) (Rogers et al., 2023). Qualitative research suggested, however, that even though young people were aware of the SDIL and of its purpose, most would not let it change their sugar-sweetened beverage consumption (Jones et al., 2022). Knowing that the drinks had a high sugar content (still high despite the reformulations of the drinks to comply with the levy) and that consuming too much sugar could lead to conditions such as type 2 diabetes was not enough to stop many young people from purchasing and drinking them. A report comparing findings across several countries with increased taxation on the sale of sugar-sweetened beverages found that in only one country (Portugal) did the tax lead to reduced consumption amongst young people (Chatelan et al., 2023). Chatelan et al. concluded that overall, tax increases did not lead to reductions in young people's sugar-sweetened beverage consumption and that further research was needed to explore different forms of policy change.

Furthermore, attempts to restrict the sale of certain food and drink items to young people have had limited effectiveness. In the UK, most large supermarkets have voluntarily introduced bans on the sale of energy drinks to those under the age of 16 years (Smithers, 2018). Many small or

independent shops, however, do not enforce the restrictions, and young people are creative in finding ways to get around them, such as asking older peers or adults to buy them energy drinks (Vogel et al., 2023). Similar strategies have also been well documented and show that young people in the UK can and do purchase cigarettes and alcohol despite the sale of these items being restricted to adults aged 18 years and above (National Statistics, 2020). Most young people are only partially responsible for making their own food purchase decisions because their parents are the main providers of food. Many do not have their own money to purchase food and drink, so sales restrictions targeted at young people are likely to be less impactful than when targeted at adults. Therefore, further sales restrictions may not be the most effective route to reducing young people's consumption of these types of products.

In 2007, legislation was introduced in the UK to ban the advertisement of high fat, salt and sugar (HFSS) foods on children's television channels, or around programmes on any channel that were aimed at children aged 4-15 years (Mytton et al., 2020). Research has suggested that despite good adherence to the regulations by the television channels, these regulations did not significantly reduce the amount of HFSS advertising that young people were exposed to (Adams et al., 2012; Whalen et al., 2019). One reason for this could be that many viewers, particularly children and young people, have moved away from watching television and towards viewing both long- and short-form video content on social media platforms such as YouTube (Pires et al., 2021). A recent UK survey found that 83% of children use YouTube and qualitative findings suggested that many children preferred to watch YouTube over traditional television channels (Marsh & Nutbrown, 2019).

Despite the general shift away from traditional media, television is still watched by lots of young people, and the UK government plans to enforce a total ban on HFSS television advertising between the hours of 0530 and 2100, regardless of programme or channel, as part of its plan to reduce childhood obesity by 50% by the year 2030 (Department of Health and Social Care, 2018). Mytton et al. (2020) modelled the potential effects of this legislation using data from various sources (including AC Nielsen and Broadcasters' Audience Research Board data from 2015, Human Mortality Database for the UK from 2015 and the Health Survey for England from 2016) to simulate a population of 13,729,000 UK children. They estimated that enforcement of the regulations could reduce childhood overweight and obesity by 3.6% and 4.6% respectively. Though these numbers may seem modest, the researchers estimated that this would result in a £7.4 billion health-related net monetary benefit to the UK across the children's lifetime.

Reducing the financial burden of poor health to individuals as well as local and national governments will be essential in order to keep the UK National Health Service (NHS) running. In 2006-2007, poor diet- and obesity- related ill-health cost the UK NHS £5.8 billion (Scarborough

et al., 2011). By 2014-2015, this number had risen to £6.1 billion and is projected to rise to £9.7 billion by the year 2050 (Public Health England, 2017). It is currently estimated that around two thirds of the English adult population is overweight or obese (Office for Health Improvement & Disparities, 2023), with obesity being linked with thirteen different types of cancer and 5% of all cancer diagnoses in the UK (Scarborough et al., 2011). People with obesity are three times more likely to develop colon cancer than those of a healthy weight, more than two and a half times more likely to develop high blood pressure and more than five times more likely to develop type 2 diabetes (Public Health England, 2017). Rising levels of obesity and NCDs not only impact the functioning and finances of the NHS, but can have significant negative repercussions for individuals, families and communities. People living with obesity face weight-related judgement and prejudice in many areas of their lives, both personally and professionally; often feeling that their condition makes it harder for them to make positive changes to their health (Haga et al., 2020; Myre et al., 2021). Some people struggle to find the confidence to exercise in public due to a fear of judgement from others, which only compounds the problem (Public Health England, 2017). The impact of overweight and obesity on mental health is as significant as the impact on physical health: people living with obesity often experience shame, distress and hopelessness, and stigma is felt across personal, professional and healthcare environments (Øen et al., 2018; Ryan et al., 2023). There are also additional social and financial costs to families and communities including purchasing of mobility aids and home adjustments, medication prescription charges, and the cost of being unable to work (Okunogbe et al., 2021). It is predicted that the wider social costs of obesity-related illness in the UK will have reached £49.9 billion per year by the year 2050 (Public Health England, 2017).

1.6 How can adolescents be supported to make healthier choices?

There is extensive empirical support for behaviour change techniques (BCTs) as a strong basis for behaviour change in health interventions (Michie et al., 2013; Michie, Van Stralen, et al., 2011). Using a Delphi method with an international group of behaviour change research experts, Michie et al. (2013) developed a taxonomy of 93 different BCTs. Other iterations of the taxonomy have also focussed BCTs towards specific behaviours such as physical activity and healthy eating behaviours (Michie, Ashford, et al., 2011) and smoking cessation (Michie, Hyder, et al., 2011). These taxonomies have made it easier than ever for researchers to identify and implement appropriate BCTs into health behaviour change interventions. However, the BCTs that researchers choose to use in their interventions must be carefully selected based on the target population, behaviour and setting. Review evidence suggests that some BCTs are more effective than others, and that some are more appropriate for use with certain populations or behavioural outcomes (Schroé et al., 2020; Whatnall et al., 2021).

Despite the support for BCTs as the basis for effective intervention strategies, interventions aiming to improve adolescent health have historically had limited success. Many have focused on providing health information without supporting motivation to change, used didactic rather than interactive approaches, and have been school-based - meaning that young people who cannot be easily reached through schools (e.g. those who have been excluded from or who do not engage with the mainstream education system) are overlooked (Champion et al., 2019). Evidence to support the efficacy of these types of interventions remains mixed, with many studies struggling to produce significant or sustained results (Kobes et al., 2018). It is thought that one reason for the limited success of existing health behaviour change interventions with young people could be a lack of engagement from participants (Crowther et al., 2023; Whitehead et al., 2024). In the field of behaviour change intervention development, engagement typically refers to participant understanding and usage of intervention materials and elements (Walton et al., 2017). However, as Yardley et al. (2016) point out, though lack of engagement is an issue, lack of *effective* engagement is a more accurate way of describing the issue at hand for researchers who develop and deliver health behaviour change interventions. Effective engagement does not necessarily require more time investment from participants, but rather better quality engagement with intervention materials, which can be achieved by using person-centred approaches (Yardley et al., 2015), and tailoring content to the target audience's values and priorities (Yardley et al., 2016).

Many researchers who develop health behaviour change interventions assume that health is a priority for young people when in fact there are many other things that they value and prioritise more highly (Strömmer, Lawrence, et al., 2020). For most young people, the lure of tasty, cheap and convenient processed food is stronger than their desire and motivation to behave in ways that will help them to maintain good health, and there are numerous complex factors that contribute to this. Young people's desire to fit in with their peers and elevate their social status, as well as the structural brain changes unique to adolescence that can increase impulsivity and volatility, mean that behaviours such as consumption of highly processed foods, smoking, alcohol use and recreational drug use are harder for adolescents to avoid (Arain et al., 2013; Blakemore & Robbins, 2012). Two of the neural systems that are responsible for these types of behaviours, and which experience heightened growth and development during adolescence, are the reward processing and inhibitory control systems, which control cognitive functions such as goal-directed behaviour and decision making (Geier et al., 2010).

Empirical studies have used techniques such as functional magnetic resonance imaging (fMRI), cognitive tasks (flanker, stop-signal, go/no-go, Stroop tasks etc.), behavioural observation, and eye tracking to assess the functioning of the reward processing and inhibitory control systems in humans (Constantinidis & Luna, 2019). Many of these studies have compared the performance

of adolescent versus adult samples and the majority have found that these systems are not fully matured in adolescents, thus limiting these individuals' ability to sustain inhibitory control and increasing their tendency towards sensation- and reward-seeking behaviour (Constantinidis & Luna, 2019). From a cognitive and developmental neuropsychology perspective, it is thought that immaturity of these systems could be a major contributor to increased levels of risk-taking behaviour amongst adolescents (Geier et al., 2010) and an increase in behaviours that result in immediate rewards, due to an overactive reward response (Padmanabhan et al., 2011). The immaturity of these neural systems could, at least partially, explain why many adolescents find it difficult to resist the temptations of immediately rewarding ultra-processed foods, and why they tend to prioritise behaviours that will increase social acceptance and result in rewards such as heightened social status and likeability amongst peers (Foulkes & Blakemore, 2016).

Along with the significant impact of these neurodevelopmental systems on behaviour, young people are acutely aware that that they are unlikely to be significantly affected by poor health from NCDs until they are much older, meaning they are likely to prioritise values other than health, which are more immediately important to them. Qualitative research with young people has found that they are aware of the health problems that can result from poor nutrition, such as diabetes and obesity, but that they view these conditions as problems largely affecting older adults (Strömmer et al., 2021). In one study, adolescent boys explicitly told researchers that they would not be motivated to make changes to their lifestyle unless their current unhealthy habits – such as consuming junk food – started to directly negatively impact them (Lems et al., 2019). The most common direct negative consequences of unhealthy dietary choices cited by young people in qualitative research are body image concerns (most notably, putting on weight or losing muscle tone), eating disorders, poor mental health, and bullying or social ostracization (Lems et al., 2020; Martin et al., 2018; Steeves et al., 2016). Supporting young people to make healthier food choices is, therefore, a highly complex challenge that requires a multifaceted approach. As one Lancet review pointed out, adolescents are not just 'short adults'; they have unique needs that should be addressed by targeted interventions designed with adolescent biology and psychology in mind (Bundy et al., 2018).

There is a body of evidence to suggest that aligning health interventions with adolescent values such as peer group membership, social justice and identity formation can increase the likelihood of significant behaviour change. Two of these studies found that reading exposés of manipulative marketing techniques used by the fast food industry led young people to adopt healthier diets in an attempt to reject the manipulation of the industry (Bryan et al., 2019; Bryan et al., 2016). In the first study, Bryan et al. (2016) found that framing healthy eating as an act of rebellion against the food industry aligned closely with young people's desire for autonomy and made them feel as though they were, through their food choices, enacting a form of social

justice. This action led to immediate benefits for those who took part in the study, whose action – choosing healthier foods and rejecting the fast-food industry - made them feel powerful and socially valuable. Young people tend to be attracted to large-scale movements that aim to enact social change, such as veganism or campaigns to reverse the harmful effects of climate change. Taking part in protests against the industries that are known to harm people, animals and the environment – such as the fast-food industry - allows young people to satisfy a desire to contribute positively to society, and to contradict common narratives that appear in the media and popular culture which depict young people as lazy or selfish.

In the Bryan et al. (2016) study, the young people experienced real, immediate benefits that made their choices seem worthwhile and empowering. Not only were they able to feel satisfied that they were protesting an unjust industry, but they were also given the opportunity to exercise what they perceived as true autonomy from adult control. Internally choosing their stance against the fast-food industry, then enacting this belief through the food choices they subsequently made, allowed the young people to transform their initial emotional reactions into practical, tangible actions. At a time in their lives where they are given little autonomy over so many areas of their lives, this opportunity was clearly incredibly valuable to the young people.

In their follow up study, Bryan et al. (2019) recreated the experiment, this time to assess whether the positive effects of the fast-food exposé on adolescents' food choices was maintained longer term. They found that participants in the exposé condition purchased significantly more healthy snacks and drinks than unhealthy snacks and drinks at school over the three months following the intervention when compared with the control group. The researchers suggested that a shift in the focus of adolescent health interventions was necessary; that aligning interventions with goals and values that young people already see as important, rather than focusing on long term health outcomes, may well be more effective in improving young people's food choices.

1.7 The role of identity in adolescent food choices

Of all the complex factors that contribute to adolescent health and food choices that have been discussed in this chapter so far, one important component is missing: the process of identity formation. Adolescence is recognised as a highly significant time for identity development during which young people begin, in many cases for the first time in their lives, to question who they are, who they want to be, and how they fit into the world (Erikson, 1968). This will be discussed in detail in Chapter 2, but it is pertinent here to introduce the idea of identity formation and its importance in relation to adolescent food choices.

Food and identity are inextricably linked. Food can be a form of self-expression and can serve as a physical representation of a person's beliefs and attitudes which relate to their membership of a particular social, ethnic or cultural group (Arcadu & Migliorini, 2024). These beliefs can be tied to common food identities such as being a vegetarian or a vegan, which can in turn be linked to social or cultural identities and food choices, and can also represent more indirect or subtle elements of their identity. For example, people may describe themselves as 'not a breakfast person', which may be linked to an identity that is based in a particular health and wellness lifestyle where fasting in the morning is seen as beneficial to health, or an identity relating to thinness and portraying a lack of interest in food. However pronounced or subtle the manifestation of this relationship is in individuals, food is an important marker of identity for many people (Tobias & Dieterle, 2023), and this is a particularly important facet of the identity formation process that happens during adolescence (Neufeld et al., 2022). It is at this time that young people begin to value food as a tool to facilitate social interactions with friends and peers and to assert their cultural and subcultural identities (Neufeld et al., 2022).

In adolescence, food choices are often made publicly, in front of friends and peers, to signal independence as well as social status. This can be related to healthy choices; for example, qualitative research with young people has found that they associate healthy eating with both financial and moral superiority (Fielding-Singh, 2019). Therefore, for some young people, choosing healthy foods may be a way of asserting their superiority over their peers. In contrast, ultra-processed 'junk food' can have high social value amongst young people. Young people are driven to conform to social norms and can be particularly vulnerable to peer influence on a multitude of levels. For example, one qualitative study found that young people's key reasons for choosing the same foods as their friends often came down to convenience and practicality, rather than the food itself (Gilmour et al., 2020). Young people described choosing the same foods as their friends when purchasing food at school or at fast-food outlets so that they could queue up with their friends and not be left out. Another similar study found that young people valued being with their friends more highly than exerting their own personal choices when it came to food and eating (Strömmer et al., 2021).

A common finding of qualitative studies looking at adolescent food choice is that healthy choices, particularly in school, are often seen as expensive and unappealing (Gilmour et al., 2020; Strömmer et al., 2021). This view seems to be shared strongly amongst peer groups, suggesting that perhaps a young person who did not agree with this view might be seen as different and therefore risk their place as an accepted member of their peer group. This is an example of the adolescent tendency to value social identity and social acceptance, and of how important food is as a tool to both assert and maintain one's position in the social group.

Chapter 1

Despite the important and complex role that food choice plays in young people's lives, researchers have historically ignored many of these subtleties when designing adolescent health interventions. In order for interventions to successfully change young people's health behaviours, it is essential that research recognises the importance of the link between identity and food choice and the potential for harnessing the identity formation process to re-frame health messages in ways that resonate with young people. Failing to consider the impact that identity can have on food choices may limit the ability of adolescent health interventions to support young people to make long-term changes that provide both immediate and future benefits to them. The link between identity and health behaviours, specifically food choice, will be discussed in detail in Chapter 2 of this thesis. This PhD, therefore, aims to explore not only the relationship between food and identity in young people, but also how future interventions may be able to tap into the identity formation process to encourage and support young people to make choices that will allow them and their future children to live longer, healthier lives.

Chapter 2 Literature review: Identity formation and behaviour change

Chapter summary: This chapter provides a summary of the historical and current literature relating to adolescent identity formation. It weaves together insights from social, developmental, and health psychology to provide a holistic understanding of how identity develops in adolescents, how identity and behaviour are linked and why identity is an important element of behaviour change in terms of food choices in adolescence. The chapter concludes by explaining the rationale, aims, hypothesis, research questions and objectives underpinning this PhD project.

2.1 Identity formation

2.1.1 Defining identity

The 'self' has been defined as a global sense of being, encompassing self-knowledge (attributes, characteristics, capacities and preferences), self-esteem, self-worth and self-respect (Brinthaupt & Lipka, 2002). The self is generally considered to be stable and enduring across the lifespan. In contrast, identity, which is one distinct part of the self, is context-dependent; a person has one 'self' but can have many different identities. There is not one universal definition of identity, but a collection of definitions and conceptualisations that vary subtly both within and between disciplines. For example, prominent developmental psychologist Erikson (1994) described identity as continuity of the self over time that can be perceived by others. He believed that a fully formed identity was the basis of good psychological, social and general wellbeing and that identity was inextricably linked to individual's social interactions. In contrast, Waterman (1999), also a developmental psychologist, described identity as an open, ever-changing construct. Waterman praised Erikson's work, but rejected his belief that identity was a fixed, directly observable construct in favour of the more modern Identity Status Model (Marcia, 1966), an offshoot of Erikson's original work which conceptualises identity formation as an ongoing cyclical process that changes throughout the lifespan. The Identity Status Model and other theories and models of the identity formation process will be discussed in more detail in section 2.1.2.

Most academic disciplines have their own definitions of identity which sometimes overlap but also have distinct characteristics. Social psychologists describe identity in terms of the integration of the self into groups of similar others, related to constructs such as race, class and

status (De Levita, 2019). Psychiatrists conceptualise identity in terms of psychopathological phenomena such as depersonalisation and dissociative identity disorder (Akhtar & Samuel, 1996). Ultimately, definitions of identity, of 'being', span the full range of human thought and knowledge. To physicists, a person is a human body made up of a collection of atoms (De Levita, 2019), to spiritualists, an eternal being connected to god (Poll & Smith, 2003). In the humanities, archaeologists view identity as made up of a person's inherited ancestral origins and their interactions with physical space and material culture (Smith, 2014). Literary scholars use a range of theoretical traditions to understand identity as a dynamic construct that is explored through characters' interactions with people, society, culture and history (Culler, 2011). Artists may view their art itself, not only as an object, but as a subject – through its form and structure – that becomes 'real'; an embodiment of the artist's own identity (Crişan, 2021).

Not only are definitions of identity context-dependent and socially constructed, but so is the terminology used to describe it. Terms such as *self-concept*, *self-image*, *self-perception*, *self-consciousness* and others are used interchangeably to describe the same idea (Hattie, 2014). For the purposes of this thesis, which combines insights from social, developmental and health psychology, a general definition of identity from the field of psychology will be used. The American Psychological Association defines identity as:

“An individual’s sense of self defined by (a) a set of physical, psychological, and interpersonal characteristics that is not wholly shared with any other person and (b) a range of affiliations (e.g., ethnicity) and social roles. Identity involves a sense of continuity, or the feeling that one is the same person today that one was yesterday or last year (despite physical or other changes). Such a sense is derived from one’s body sensations; one’s body image; and the feeling that one’s memories, goals, values, expectations, and beliefs belong to the self.”
(American Psychological Association, 2018).

2.1.2 Origins of identity formation theories

Since Sigmund Freud first published his 'psychosexual stages of development' in the early 20th century in an attempt to explain the processes behind personality and identity formation, there have been many criticisms of his work, and numerous new theories to explain identity development have emerged (Davison, 1998; Robinson & Robinson, 1993). One of the first to do so was Erikson (1968), who, in the 1950s and '60s, proposed a stage model of psychosocial development across the lifespan that is still in use to this day. The model described a series of stages from infancy to late adulthood which attempted to explain the impact of social relationships and interactions on an individual's psyche and their perception of their place in the world. Of particular note to this thesis is the 'adolescence' stage, occurring between the

ages of 11 and 19 years, during which, Erikson proposed, an individual's primary concern is the development of a personal and social identity, and a conflict between identity and role confusion arises. According to Erikson, it is during this phase of life that an individual first asks, "*Who am I?*", and, perhaps more importantly, "*Who do I want to be?*". Erikson suggested that individuals in this stage will either develop a sure sense of identity or experience an identity crisis (crisis not meaning a period of turmoil, but a positive opportunity for growth and exploration) and subsequent role confusion, which is defined as feelings of uncertainty surrounding an individual's place in society. This role confusion, along with adolescents' desire to find and portray a 'self' that is perceived by others as stable, authentic and fully formed, is held in tension with their drive to fit in with their peers.

Young people's role confusion can be further exacerbated by the normal changes and transitions that are experienced during adolescence. For example, transitioning from secondary to tertiary education can cause adolescents to further question their own role in society as they begin to explore their new found autonomy, but also find themselves burdened with additional responsibilities and expectations from parents, educators and other authority figures (Branje, 2022). This can cause further tension between adolescents and authority figures, leading to acts of rebellion that help young people satisfy their desire for autonomy and independence.

Rebellion, in the context of health behaviours, can be expressed by adolescents through rejection of health advice, or by enacting behaviours that directly contradict health messaging from authority figures, allowing young people to assert their independence. At a time during which young people are especially vulnerable to peer influence, unhealthy or harmful health behaviours that become accepted norms within an adolescent's peer group are more likely to be adopted by that young person as both a way of fitting in with their peers and of rebelling against the advice or expectations of parents and other adults (Daly et al., 2022). It follows, therefore, that this rejection of health advice as an act of rebellion and assertion of autonomy likely extends to messages given as part of health behaviour change interventions. This supports the points outlined in section 2.3 of this chapter, which summarises the rationale for this PhD project.

2.1.3 Beginning to explain the identity formation process

By the late 1960s, psychologists were focused on trying to explain *how* identity formation occurred and why the process itself, rather than just the outcome, was so important. One of the first attempts to visualise the process of identity development came from James Marcia's Identity Status Model (ISM) (Marcia, 1966). This model is rooted in Erikson's theory and proposes that a mature and fully formed identity comes in the form of strong yet flexible

commitments following periods of exploration of different identities. It describes four different states that can occur following normal periods of exploration and commitment-making: *identity achievement*, *identity diffusion*, *moratorium* and *foreclosure*. These 'identity statuses' can be experienced in different orders, or not experienced at all, depending on an individual's own personal developmental trajectory. For example, individuals may experience diffusion, then moratorium, then achievement, or may skip straight to foreclosure at an early stage.

Achievement represents a solved identity crisis, in which the individual has actively explored and then made choices to commit to certain beliefs, values or ideologies. In contrast, *diffusion* occurs when an individual has not been able to make these commitments. They may lack a solid grasp of their own beliefs or may be uninterested in exploring such matters. *Moratorium* occurs when an individual remains in the phase of exploration and is unable to make a strong commitment despite wanting to. Finally, *foreclosure* occurs if an individual matures and makes a strong commitment to an identity without having had a meaningful period of exploration. Their commitments may instead have been heavily influenced by the beliefs or actions of their family and peers, or by wider sociocultural norms, rather than their own explorations of the various personal beliefs or values available to them, which may lead to identity crises later in life.

Marcia proposed that the identity formation process begins in adolescence and continues throughout the lifespan. In 'normal' development, individuals go through phases of moratorium (intense periods of exploration) and achievement (commitment to a valued identity) throughout their adolescence and adulthood called MAMA (moratorium-achievement-moratorium-achievement) cycles (Marcia, 2010). A person is thought to experience at least three of these cycles throughout their life. According to Marcia, identity development should be thought of as a dynamic process, rather than one that is fixed with universal outcomes. Individuals may go back and forth between different identity statuses as they progress through their adolescence and later life stages (Bosma & Kunnen, 2001). These cycles can be talked about in terms of regression and progression, although regression does not necessarily represent a lack of progression, but rather a temporary change in the developmental trajectory.

Scholars have, however, debated the usefulness of the ISM (Waterman, 1982). As Bosma and Kunnen (2001) argue, the model is limited in that it in no way attempts to explain the mechanisms behind the different stages of the identity formation process, or how and why individuals move from one stage to another. Therefore, the ISM may be better conceptualised as a typology of outcomes of the identity formation process, rather than a processual model.

In response to these criticisms, in the 1980s, Grotevant (1987) proposed his own process model of identity formation, aiming to describe the cognitive 'work' that happens during the exploration phases of identity formation. He outlined five processes that interact over time to facilitate

identity formation: 1) *expectations and outcomes*, where an individual evaluates the options available to them and their thoughts about their own identity; 2) *exploration*, where an individual gathers information and explores new identities in both breadth and depth; 3) *investment*, the degree of time and energy a person puts into a commitment; 4) *competing forces*, where an individual manages factors that may interfere with the exploration process; and 5) *interim evaluation*, where the individual considers how much progress has been made and whether suitable commitments have been made. Grotevant's model is widely regarded as an important evolution to Marcia's original ISM because it goes some way to explaining how individuals conduct identity exploration and commitment-making, which in turn lead to the different identity statuses (achievement, diffusion, moratorium and foreclosure). The model presents these processes as active, rather than passive, and frames identity exploration as a problem-solving process, suggesting that adolescents engage in important information-seeking and evaluative behaviours during the identity formation process.

2.1.4 The importance of a social identity

Prior to the publication of Grotevant's theory, many theories of identity formation had focused on internal, personal identity, but his model proposed that the process occurred across many different contexts, and that as external, environmental factors change, so does an individual's perception of their identity (Grotevant, 1987). Discovering the self on an individual level is important, but integrating one's identity into the wider social environment is essential in order to maintain social relationships and situate oneself in the world. Furthermore, it is likely that the relationship between the individual and the environment is bi-directional: that identity is shaped by the external environment, but also that the social and physical environments an individual chooses to surround themselves with are shaped by their own chosen commitments. From a social perspective, identity development occurs through the interaction between an individual and their primary social, ethnic, socioeconomic and gender groups, as well as the physical spaces they engage with such as schools, neighbourhoods, and community infrastructure (Grotevant, 1987).

It is likely that Grotevant's work was influenced by the social psychology 'crisis' of the 1970's, which led some to argue that the field of social psychology had become theoretically and methodologically weak, focusing on individual behaviours and isolated phenomena whilst ignoring wider social and cultural factors (Faye, 2012). It was towards the end of this peak time of crisis, in 1979, that Tajfel and Turner developed Social Identity Theory (SIT). SIT states that an individual's identity is constructed by putting the self and others into distinct social categories, then aligning one's behaviour with the beliefs and values of in-groups (groups of which they are a member) and away from out-groups (all others) (Tajfel et al., 1979). It is a three-stage model to

Chapter 2

explain the process of social identity development. The first stage is *categorization*, during which people assign themselves and others to distinct social groups that correspond, for example, to genders, jobs, political viewpoints, religions or any other category. The second stage is *social identification*, during which individuals adopt behaviours that are in line with the beliefs and values of the in-group (the category with which they identify). The final stage is *social comparison*, where individuals participate in behaviours that actively favour members of the in-group, and form negative opinions of those in out-groups. This process can help individuals maintain a stable social identity and achieve a sense of cohesion between their personal and social identities. However, it can also lead to hostility towards members of out-groups, and conflict is more likely to occur between different groups rather than between individuals within the same group.

It is now generally accepted that the theory was an important and worthwhile contribution to the field at the time and that it provided a strong foundation for future theoretical work to understand intergroup relationships and social identity. Critics have, however, since argued that there are major problems with the assumptions of the theory and that empirical studies have not been able to consistently support it (Brown, 2000). For example, Brown argues that SIT focuses too heavily on intergroup relations whilst ignoring the nuances of variations in personal identity within groups. For example, it is unlikely, if not impossible, that every member of a particular group will share exactly the same values. Individuals will also likely possess a range of different identities, some of which will be unrelated to their membership of that particular social group. Brown also discussed the fact that research has not been able to consistently support the theory that similar groups, when encountering each other, will respond with hostility. Individual differences in identity, including the fact that most people will identify with a diverse range of different social group memberships, are not adequately explained by SIT (Huddy, 2001).

It is now generally accepted that personal and social identity are linked, and that elements of both types of identity interact with each other, context dependently, to make up a person's whole self-concept (Crocetti et al., 2018). For example, when adolescents are first developing their identities, their identification with peer and friendship groups will be closely intertwined with their personal identities. Young people's peer interactions will help inspire and consolidate their personal identity explorations, and conversely, their own personal explorations will determine, to some extent, which peer groups they choose to align themselves with (Albarello et al., 2018).

2.1.5 Mechanisms of identity formation

In more recent years, psychologists interested in identity have dedicated their time to understanding the processual mechanisms behind identity formation and what this process means for behaviour and behaviour change. At the turn of the millennium, Jeffrey Arnett coined the term “emerging adulthood” to describe the life stage between the ages of 18 and 25 years (Arnett, 2000). He argued that it is during this time that the majority of identity formation occurs, rather than earlier in adolescence, as previously suggested by Erikson. Arnett proposed that identity formation is tied to beliefs and behaviours across three core domains: love, work, and worldviews. Development across these three social-focused areas starts during adolescence, but becomes more complex and important in emerging adulthood, as individuals move from being mostly dependent to mostly independent. For example, romantic relationships are common during adolescence, but these relationships are more likely to be viewed as recreational and short-term, in contrast to emerging adult relationships which are more likely to be long-term, with goals of cohabitation, marriage, and/or procreation in mind. Similarly, in terms of work, many adolescents find part-time employment, the income from which they use to pay for hobbies and recreational activities, whilst their parents or carers generally take care of putting a roof over their head and feeding them. In emerging adulthood, however, work is far more likely to be seen as a career and a source of stable income to sustain independent living. With regard to their worldview, most adolescents take on many of the same beliefs and values as their parents, as they are only just starting to explore alternative viewpoints. Arnett states that by the age of 25, most young people have developed their own opinions and beliefs that may or may not be similar to those of their parents, having been exposed to multiple different worldviews through education, work and social environments. Some research suggests that it is during this emerging adulthood stage that health-risk behaviours such as substance use and risky sexual behaviour peak, and that one reason for this may be the absence of self-identification as ‘an adult’ (Culatta & Clay-Warner, 2022). Young people in emerging adulthood who may not identify with traditionally adult values whilst they are still in this transitory phase of their lives are more likely to participate in health-risk behaviours usually associated with adolescence. This is an example of the significant impact identity can have on an individual’s behaviour.

Following the publication of Arnett’s theory, Luyckx and colleagues developed the Integrative Model of Identity Formation, which comprises four structural dimensions: *commitment making*, *identification with commitment*, *exploration in depth*, and *exploration in breadth* (Luyckx et al., 2006). This model builds upon Marcia’s original ISM to explain the process of identity formation; the way in which individuals reach their final identity status. This process is thought to be made up of periods of exploration and commitment-making, through which values, beliefs and

behaviours are ‘tried out’, and those that a young person most strongly identifies with become more permanently integrated into their self.

Exploration in breadth is the important first step, in which new and different ideas and behaviours are explored. Behaviours that align with the values of the in-group are likely to be initially investigated because they are more familiar and likely to be more accessible to the individual. When an individual makes a commitment to a particular identity, the corresponding value-aligned behaviours are explored in depth. If a behaviour is evaluated in depth and found to be congruent with personal identity and in-group values, the commitment is strengthened and the behaviour will become an integrated part of a stable identity.

In 2008, Luyckx and colleagues proposed an update to their original integrative model, incorporating a fifth dimension - *ruminative exploration* - which represented a stage of the identity formation process characterised by prolonged periods of exploration, rumination and psychological distress (Luyckx et al., 2008). Luyckx et al. considered this new dimension to be a maladaptive subtype of the reflective ‘exploration’ stage previously outlined in their original model. They suggested that the ruminative subtype was likely a modern emergence, created by the ever-increasing array of possible identities and subcultures that are available for young people to explore. Furthermore, with more young people than ever accessing tertiary education and prolonging their entry into full-time employment, the amount of time that adolescents have for identity exploration, has increased. Luyckx proposed that extended periods of exploration could lead to overwhelm, and that this ruminative form of exploration would prevent individuals from forming a secure, adult identity. Therefore, young people who tend towards rumination may need additional support in order to develop the necessary problem-solving skills to productively work towards forming their identity.

2.1.6 The role of social media in identity formation

In its early days, social media was seen primarily as a platform for sharing photos, videos, ideas, and for chatting with friends. However, in recent years, social media has evolved into a virtual reflection of people’s lives and identities; a virtual space that people inhabit where they can choose every detail of the person they want to portray themselves as (Choi & Sung, 2018). Social media has, therefore, become integrated into the identity formation process. Young people use social media to engage in the exploration phases of identity formation, as well as to intentionally control how they present themselves and their identities online (Pérez-Torres, 2024).

Young people have learned to curate an online persona that is both an accurate reflection of their own identity as well as identities that they aspire towards (Bell, 2019). This behaviour can be explained using self-presentation theory which, despite being proposed well before the

invention of social media, can be used to understand how young people use social media to portray their public selves (Bell, 2019). The theory suggests that self-presentation is underpinned by two key motives; the desire to portray one's ideal self, and the desire to please others whilst doing so (Baumeister, 1982). Social media platforms can satisfy both of these psychological motives. Curating an online identity that is an accurate, if perhaps accentuated, reflection of one's true, authentic self can be achieved whilst simultaneously pleasing others who share the same values via the collection of 'likes', 'favourites', 'followers' or 'friends' (Bell, 2019). The role of social media in identity formation will be discussed in more detail in Chapters 5 and 6 of this thesis.

2.2 Identity and behaviour change

2.2.1 How are identity and behaviour linked?

Through understanding the identity formation process, researchers have realised the significance of the link between identity and behaviour, and in recent years various theories and models have been developed to explain this relationship. Kearney and O'Sullivan conducted a grounded theory analysis of health behaviour change interventions and proposed a process model of identity shifts in behaviour change, which attempts to explain how continued evaluation of one's identity can lead to a change in behaviour (Kearney & O'sullivan, 2003). The first step is self-appraisal; evaluation of current behaviour which is prompted by an accumulation of distressing evidence suggesting that the person's current behaviour is not aligned with their identity, values or goals. This leads to 'one small step': an initial small behaviour change which, if successful, will increase self-esteem and self-efficacy, and prompt more significant, sustained behaviour change in order to bring the person's current behaviour in line with their desired identity. It is important to note that the first initial change in behaviour must lead to a noticeable, if small, reward in order to be successful in creating sustained behaviour change.

Another key theory which attempts to explain the relationship between identity and behaviour is the Identity-Based Motivation (IBM) model, developed by Oyserman and Destin (2010). The IBM model is based on the assumption that identity is not one singular thing but is made up of different facets that correspond to internal and external factors such as age, gender, and social group membership. It describes three elements that explain how these identities interact with behaviour: *action readiness*, *dynamic construction*, and *interpretation of difficulty*. *Action readiness* is the assumption that people are driven to align their identities and their behaviours. Having higher levels of action readiness helps individuals to evaluate and make sense of social

norms, values and behaviours that relate to a particular identity. *Dynamic construction* refers to the idea that the identity that becomes most salient in a given situation changes depending on how relevant and useful the identity is to that situation. For example, one's identity as a psychologist may become more salient when in a room full of other academics, compared to when socialising with friends outside of a professional environment. *Interpretation of difficulty* relates to the fact that when behaviour is identity-congruent (aligned with a current or desired identity), any difficulties in engaging in the behaviour will lead to the interpretation that the behaviour is meaningful and challenging, rather than impossible or pointless. With identity-congruent behaviours, difficulty becomes a motivator of action rather than a deterrent, whereas with identity-incongruent behaviours, individuals may conclude that the behaviour being evaluated is, simply, 'not for them'. Essentially, the IBM model proposes that people are motivated to behave in ways that are identity-congruent, and that they will be more likely to avoid behaviours that are identity-incongruent.

The IBM model claims to explain the cognitive processes behind the link between identity and behaviour, focussing on how people's interpretations and perceptions of behaviours motivate them to perform, or not perform, those behaviours. In an attempt to further explain how these cognitive processes lead a person to enact a behaviour, Simons (2021) developed Identity Behaviour Theory (IBT). IBT outlines how identity can predict behavioural enaction; a process comprised of *behavioural intention* (the internal, psychological intention to perform a behaviour) and *behavioural action* (the physical act of performing a behaviour). The model also takes account of the role of attitudes, resilience, personal strength (emotional regulation and self-esteem) and social support in this process. Simons (2021) used the example of a school student to illustrate the relationship between identity and behaviour. He stated that a young person who identifies strongly as an academic student will be more likely to enact behaviours that align with that identity; for example, purchasing stationary, school clothes, books etc. They will also be more likely to discuss identity-congruent values and behaviours - such as these purchases, or their plans for the school year - with their family or friends, and to explore new behaviours that relate to their student identity.

This theory can also be applied to health behaviours. It is known that individuals who see achieving good health as a priority and as a meaningful, valued goal, will be more likely to engage in health behaviours that align with that view (Smith et al., 2017). These individuals will perform identity-congruent behaviours because they affirm one's identity as well as one's association with similar others through social group membership (Smith et al., 2017). For example, one qualitative study found that an individual with a strong health identity – someone who views health as a priority in their life – is more likely to feel motivated to make healthy choices and maintain health behaviours (Eriksson et al., 2025). In the study, participants who

were categorised as having the strongest type of health identity described themselves as being 'devoted to living a healthy life'. They talked about setting health goals, constantly challenging themselves, being physically active and valuing their integrity as a someone who lives a healthy lifestyle. In contrast, participants who were categorised as having the weakest health identity – those who felt health was not a major concern in their lives – were more likely to describe themselves as overweight and physically inactive. These participants described low levels of motivation to enact health behaviours because they did not feel those actions would be helpful or enjoyable. The findings of this qualitative study supported the link between identity and behaviour and also provided important insights into how this relationship could help inform improvements to the effectiveness of future health behaviour change interventions. The authors suggested that individuals with weaker health identities who do not value health as much as others may well need additional support in order to engage in health behaviour change. The barriers to behaviour change are vastly different between individuals with different strengths of health identity. Those who prioritise health are more likely to make time to be physically active and eat healthily but may still find environmental barriers such as long working hours or childcare responsibilities challenging. Those who value health less are more likely to describe their main barriers to a healthy lifestyle as related to personal motivation and support, with practical barriers being a secondary issue.

2.2.2 Mechanisms of identity-related behaviour change

Theories and models of identity formation suggest how identity is formed and have also helped psychologists to understand why having a fully formed identity is so important for both individual behaviour and social relationships. Many of the models described in this chapter suggest that adolescent autonomy in decision making and problem solving is one of the key elements of the identity formation process. In exploring and committing to fully formed identities, young people, in many cases for the first time in their lives, find autonomy through discovering their own values and aligning their behaviours with these values.

Autonomy is also one of the three core elements of Self-Determination Theory (SDT; Deci and Ryan (1985)). SDT is based on the assumption that all humans possess an innate tendency towards internal, psychological growth; that people are driven to challenge themselves, discover new perspectives and find ways to maximise their own potential (Ryan & Deci, 2002). The theory summarises this innate drive as three basic psychological needs that all people strive for: *autonomy*, *relatedness* and *competence*. Autonomy and relatedness refer to the drive to develop a unified sense of self (autonomy) that facilitates the development of social connections with others (relatedness). Competence refers to a feeling of mastery and confidence over one's actions. In recent years, researchers have begun to understand that

these three constructs of SDT align well with theories of identity formation and that achievement of those three needs may be beneficial, and perhaps even necessary, in order to develop secure identities. It is likely that the sense of competence that adolescents gain from having achieved a stable identity that aligns with their own values allows them to satisfy their natural desire for autonomy, and that the social identities they align themselves with allow them to find relatedness with their peers and friends.

In terms of the relationship between identity and behaviour, research has shown that achievement of the three basic psychological needs of autonomy, competence and relatedness creates a psychological environment that allows young people to progress positively through the identity formation process (Luyckx et al., 2009). Luyckx et al. (2009) found that achievement of the three basic psychological needs was positively associated with exploration in breadth, exploration in depth, identification with commitment, and commitment making, and negatively associated with ruminative exploration amongst a sample of adolescents. Their findings suggested that adolescents who felt they had achieved any or all of the three basic psychological needs also experienced a healthy identity formation trajectory; that is, exploring different identities and making commitments to identities that aligned with their values. In contrast, adolescents who had not experienced true autonomy, relatedness or competence were more likely to experience a ruminative exploration phase and, potentially, an unresolved identity moratorium in which they were not able to positively explore or commit to any valued identities.

Luyckx' research suggests that achievement of the three basic psychological needs may be an essential precursor to achieving a healthy identity formation trajectory and engaging in identity-congruent behaviours, and that a key factor in this relationship may be the presence, or absence, of autonomous motivation. Autonomous motivation, a form of intrinsic motivation, is characterised by engaging in behaviour of one's own volition rather than a sense of duty or pressure from external sources, and can facilitate identity exploration, behaviour change, and long-term maintenance of behaviour (Deci & Ryan, 1985). Alan Waterman (2004) proposed that intrinsic motivation could in fact be considered an additional dimension of identity formation, alongside exploration and commitment. He developed and used a questionnaire (Personally Expressive Activities Questionnaire (PEAQ); Waterman (1993)) to measure what he referred to as 'personally expressive activities', to assess intrinsic motivation within the context of identity formation. These 'personally expressive activities' related to behaviours that allowed people to feel fulfilment and behaviours that were identity-congruent, which were measured by statements such as 'this activity gives me my strongest feeling that this is who I really am'.

The identity formation process and achievement of the three basic psychological needs can help young people integrate their new-found selves into society, and part of this is aligning their behaviour with their own values and the values of similar others. For example, strong identification with a particular subculture can induce significant behaviour change in individuals and can lead to the formation of large social movements. One example of this process occurring in relation to food choices is veganism (Toch, 2013). Since the early 2000s, veganism, a social movement characterised by environmental concern and adoption of a plant-based diet, has become more popular, more accessible, and less stigmatized than ever before (Ipsos Mori, 2016; Wrenn, 2019). Plant-based diets, when followed correctly, can be a healthy choice and are associated with a reduced risk of developing certain cancers, type 2 diabetes and coronary heart disease (British Dietetic Association, 2017; Jovandaric, 2021; Qian et al., 2019; Satija & Hu, 2018). Review evidence suggests that veganism is particularly popular amongst young people (aged 15-34 years), perhaps because choosing a plant-based diet is one way for young people to align their behaviour with popular peer values such as social justice and sustainability (Sridevi Krishnaveni et al., 2021). These choices also allow young people to feel closer to achieving autonomy, relatedness and competence; to feel that they are capable of changing the course of their lives in ways that bring them closer to identities that they and their peers value (Ryan & Deci, 2002). If an individual sees being vegan as a part of their identity, they will be motivated to behave in ways that will lead them to be accepted by other vegans, and the same is true for the opposite: one study found that adolescents were reluctant to associate themselves with plant-based food choices if their current ideas about their own identity did not correspond to that type of diet (Ensaff et al., 2015).

In recent years, with the growing popularity of health psychology and behavioural science, psychologists have begun to explore this relationship between identity and behaviour change in relation to a range of health behaviours. It is known that people are more likely to perform and maintain behaviours that align with their personally held beliefs and values (Kwasnicka et al., 2016). Therefore, it seems to follow that a change in identity can result in a change in behaviour. The Maintain IT model proposed both *executive function* and identity as central features of health behaviour change processes (Caldwell et al., 2018). *Executive function* refers to aspects of human cognition such as working memory, inhibitory control, planning, flexibility, reasoning and problem solving; all of which allow people to create goals and adapt their behaviour in order to achieve those goals (Cristofori et al., 2019). Executive functions do tend, however, to be cognitively demanding and generally effortful. To reduce the burden on individuals, the Maintain IT model proposes a shift away from behaviour change interventions that rely heavily on individual executive function, towards thinking about how identity change can lead naturally to behaviour change. The model proposes that identity transformation - a linking of behaviour to

valued identities - can bolster the positive effects that existing behaviour change approaches can have on health behaviours. Caldwell et al. believed that the introduction of an identity transformation into behaviour change approaches could reduce the reliance on executive function that is so often assumed in existing behaviour change interventions.

2.2.3 Identity processes as a foundation for improving adolescent food choices

Having reviewed the literature on identity formation and the important link between identity and behaviour, it is sensible to conclude that identity could play a key role in the process of health behaviour change for adolescents. The research reviewed suggests that if being healthy is integrated into young people's identities, they will be more likely to enact behaviours that align with that identity, such as choosing to eat healthy foods. As well as intrinsic forms of motivation such as autonomous motivation, healthy eating is likely to result from identification with social groups that value good health and nutrition. If researchers, educators, parents and other authority figures can support adolescents to see health as a priority and to see 'being a healthy person' as an integral part of their personal and social identity, it is likely that more young people will find it easier to make healthy choices. This PhD is based on the idea that finding ways of incorporating the knowledge gained from studying the identity formation process into health behaviour change interventions whilst adolescents are primed to explore and commit to a range of different identities, may support them to make positive changes to their dietary choices before any unhealthy health behaviours have become firmly established.

2.3 Rationale for the PhD

It is now widely understood that improving the health of individuals before they conceive their own children - ideally during adolescence, before they have fully cemented their lifelong health behaviours - can result in a triple benefit: to those adolescents now and in adulthood, and to their future children (Patton et al., 2016). This theory is the basis of the rationale for much of the adolescent health research being conducted today. If researchers can support the current generation of young people to make healthier choices, it will not only help them become healthier adolescents, but it will also help them grow into healthier adults and raise healthier children.

Amongst the plethora of health behaviours that contribute to lifelong health and wellbeing, the significance of both food and identity formation in the lives and health of adolescents is clear. From their parents' preconception health and the in-utero conditions they were exposed to before they were born, to the social value placed on food and food-related social activities that become more important as adolescents begin to seek out autonomy and develop their own

sense of identity. Poor nutrition remains one of the biggest barriers to good health in adolescents, but food choice is a health behaviour that can be changed, particularly when researchers understand the complex biological, social and psychological reasons behind adolescent food choices. Hormonal changes, structural brain changes, social factors and personal identity all play a role in the development of health behaviours in adolescence, so opportunities to support positive health behaviour change can come from a plethora of different angles.

Not only do adolescents use food as a way to experiment with autonomy and independence, but food can also become an integral part of their broader search for identity; a means through which they can express themselves and maintain their social status amongst their peers. This, often overlooked, connection between food and identity in adolescence may represent a critical yet underexplored opportunity for designing more effective health behaviour change interventions and policies aimed at improving health outcomes for adolescents. This PhD aims to begin to fill this conceptual gap in the literature, by exploring the link between food and identity from a range of perspectives to ultimately contribute to the development of future health behaviour change interventions that will successfully be able to support young people to meaningfully and sustainably change their food choices and positively impact their health.

2.4 Aims of the PhD

2.4.1 Hypothesis

This PhD project aims to investigate the following hypothesis:

Representations of food and eating habits on social media are used by adolescents to shape their diets and their identities.

2.4.2 Research questions

The hypothesis will be tested using four overarching research questions. Each of the following research questions map onto their corresponding objectives, e.g. RQ1 will be addressed by objective 1, RQ2 by objective 2 etc.

1. a) Which concepts from identity-formation theories have been utilised in adolescent health interventions, and how have identity-formation related mechanisms and processes been incorporated into these interventions to improve adolescent health?
b) How successful have interventions using identity-related processes as mechanisms of change been in improving adolescent health behaviours?

2. a) How do adolescents engage with an online story completion task?
b) How effective is narrative analysis for analysing story data?
3. What is the role of social media in shaping and expressing identity and personal dietary choices in adolescents?
4. a) How does narrative analysis of textual data in the form of short stories conducted by LLMs compare with a human analysis?
b) How can analysis using LLMs be optimised to mimic the subjectivity and transparency of human analysis?
c) What are the benefits and drawbacks of using LLMs as tools to assist with textual analysis?

2.4.3 Objectives

- 1) To conduct a systematic review of interventions that have used identity-related processes to support adolescent health.
- 2) To pilot novel, creative recruitment, data collection and data analysis methods that could provide insight into processes of identity formation and explore the feasibility of using these methods with adolescents.
- 3) To conduct qualitative studies to explore adolescent perceptions of influences on their dietary choices; particularly social media and how this relates to their identity.
- 4) To develop and test a novel method of large language model-assisted narrative analysis of story data collected to explore relationships between identity formation and social media.

2.5 Thesis structure

This thesis will consist of eight chapters, as illustrated in Figure 1. Chapter 1 introduced the background to the main topic of the thesis: adolescent health. Chapter 2 reviewed published literature on identity formation in adolescence, providing additional detail to the introductory chapter, and concluded by providing the rationale, hypothesis, research questions and objectives of the PhD.

Chapter 3 will outline the methodology used in the PhD, including the epistemology and philosophical approach and the different methods used throughout the project. Chapters 4 to 7 comprise a set of studies that underpin this PhD, presenting the findings of four different pieces of research conducted to answer the corresponding objectives and research questions outlined

Chapter 2

above (objectives 1-4 and research questions 1-4). Chapter 4 describes a systematic review of identity theory-based adolescent health interventions, Chapter 5 describes a pilot story completion study, Chapter 6 describes the subsequent main story completion study, and Chapter 7 describes the development of a novel qualitative analysis method incorporating artificial intelligence (AI). The thesis will conclude with Chapter 8, which will provide an overall discussion for the research conducted, addressing each research question in sequence. It will then reflect on the key strengths and limitations of the research, as well as its implications for future research and policy.

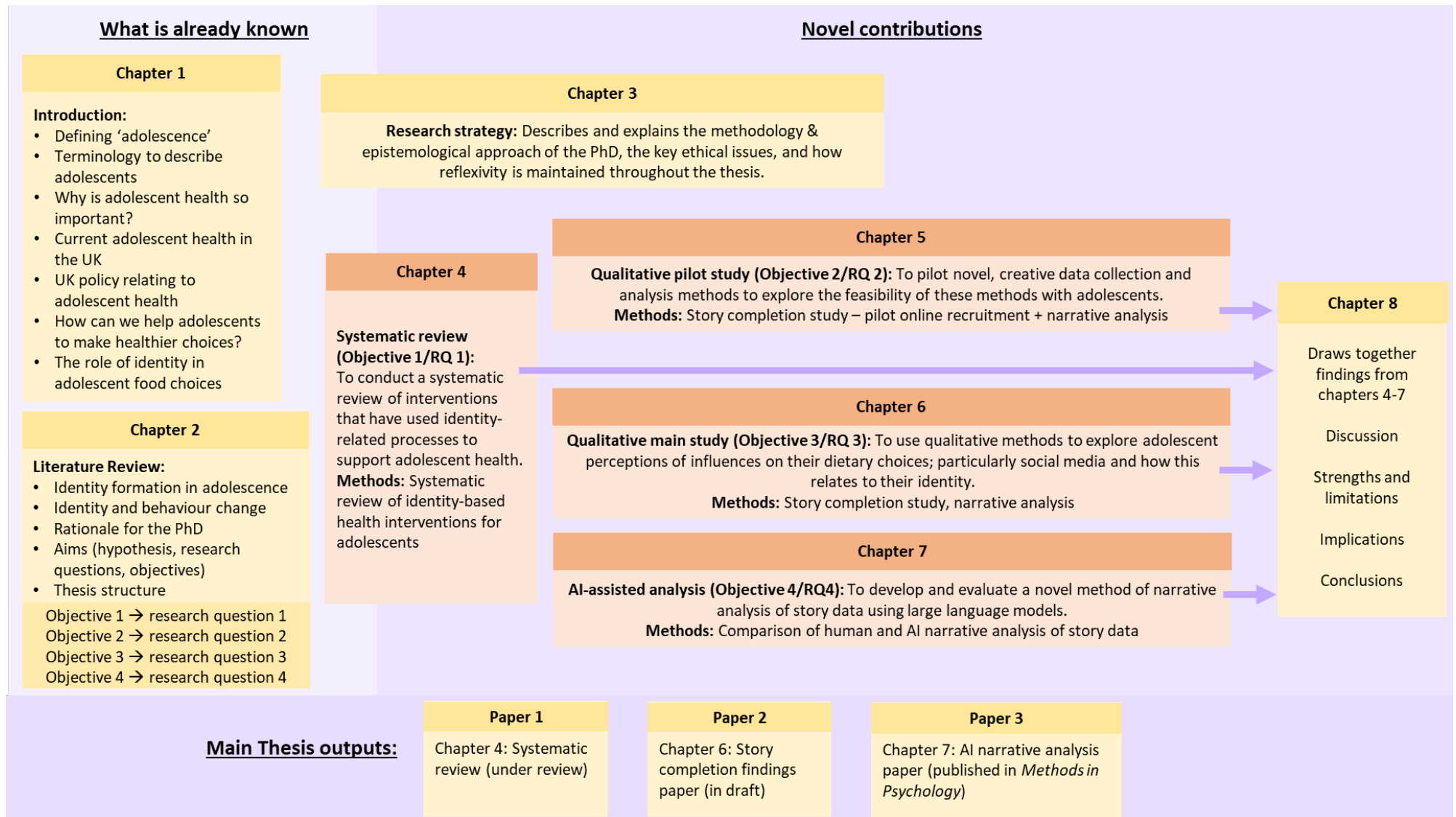


Figure 1. Structure of the present PhD

Chapter 3 Methodology

Chapter summary: This chapter outlines methodology used in this PhD as well as the philosophical approach, and the main ethical issues relevant to the project.

3.1 Systematic review methodology

The data chapters of this thesis (Chapters 4-7) begin with Chapter 4, which describes a systematic review that was conducted to answer Research Questions 1a and 1b, and address Objective 1 of the PhD:

Research Questions:

- 1a) Which concepts from identity-formation theories have been utilised in adolescent health interventions, and how have identity-formation related mechanisms and processes been incorporated into these interventions to improve adolescent health?
- 1b) How successful have interventions using identity-related processes as mechanisms of change been in improving adolescent health behaviours?

Objective:

1. To conduct a systematic review of interventions that have used identity-related processes to support adolescent health.

The review was conducted by the author with support from colleagues and members of the PhD supervisory team, in accordance with established standards for conducting and reporting of systematic reviews including PRISMA (Page, 2021). The methodology is described in detail in section 4.2 of Chapter 4.

3.2 Qualitative methodology

Chapters 5-7 of this thesis describe three studies which used a qualitative methodology to explore the topics of identity and health behaviour change through the eyes of young people, to gain insight into their worlds and lives. Methodologies are frameworks that underlie the various different approaches to research, with a qualitative methodology referring to the values, assumptions, ontologies and epistemologies that are associated with qualitative research (Dew, 2007).

Qualitative research uses words as data, is interested in meaning and subjectivity, and generally takes an inductive, data-driven approach (Braun & Clarke, 2013). Qualitative methods aim to support participants to feel comfortable describing their personal thoughts, feelings and

experiences so that researchers can interpret and report on them (Hennink et al., 2020). A qualitative methodology generally does not align with the positivist tradition that has dominated the field of psychology, largely through the disciplines of behavioural and cognitive psychology, for the last two centuries (Braun & Clarke, 2013). Positivism, a paradigm that is most commonly associated with the physical sciences and quantitative methodologies, is characterised by a search for universal truths, generally through hypothesis testing and experimentation (Howitt & Cramer, 2010). Positivism is an appropriate paradigm for many scientific disciplines and has supported some of the greatest advances to scientific thought and knowledge in human history, for example, the definition of the laws of nature by scholars such as Copernicus and Galileo (Park et al., 2020). However, positivism is not compatible with empirical approaches that aim to document and understand how individuals make sense of phenomena and experiences, such as those use within a qualitative methodology. Qualitative research does not aim to discover objective truths or universal laws. Instead, qualitative researchers acknowledge that every individual person's experience of their life and their world is unique and subjective, rejecting positivist assumptions in favour of interpretivist or constructivist stances. This will be discussed in more detail in the below section 3.3.

This PhD project also utilises creative qualitative methods, which are methods that align with the structures and values of the qualitative paradigm and incorporate human creativity in their approaches to study design, data collection, analysis, interpretation and dissemination of findings. Creative methods can include; arts-based research, embodied research and transformative frameworks such as participatory, community-based, feminist or queer methodologies (Kara, 2020). Creative research rejects the idea that art and science are opposite ends of a spectrum where one or the other, but not both, can be used to explore the world, instead believing that art can be science, and vice versa (Gergen & Gergen, 2012). Creative research methods, such as photo-elicitation (Palacz-Poborczyk et al., 2025), story completion (Pong et al., 2024; Urry et al., 2023) and poetry (Seymour & Murray, 2016; Sjollemma & Hanley, 2014) have been used in health research to explore individual perceptions of various health issues and behaviours, and gain insight into the contextual factors that influence them.

This PhD aims to understand young people's experiences and explore how to support positive health behaviour change in adolescents by combining scientific, psychological approaches with creative, constructivist approaches, weaving together insights from the arts, humanities and social sciences. The rationale for integrating creative methods into this PhD relates to the importance of supporting young people - who are considered by many to be a vulnerable population - to take part in research that is enjoyable, meaningful and designed with adolescent psychology in mind. Importantly, creative research methods can facilitate greater development of trust and rapport between adult researchers and young people who take part in the research,

can help facilitate communication between young people and researchers that is appropriate and comfortable for them, and can help to minimise the negative impacts of imbalanced power dynamics between adults and young people (Johnson & West, 2021). Prioritising inclusive and empathetic research environments is thought to increase the quality of data collected, and using creative research methods can do this by overcoming some of the limitations of more traditional qualitative approaches such as interviews and focus groups, which can exclude those who feel less confident verbally articulating their ideas to people they are not familiar with, as well as those who struggle to engage or concentrate within structured or rigid environments (Dadich et al., 2025). Creative research methods allow participants to express themselves in ways that work for them. By reducing researcher centrality, creative research methods can improve equity between researchers and participants by focusing on identifying the data collection methods and tools that work best for individual participants (Golden, 2022).

The qualitative elements of this PhD begin with Chapter 5 of this thesis, which describes a pilot study that used a story completion method and narrative analysis to answer Research Questions 2a and 2b, and address Objective 2 of the PhD:

Research Questions:

2a) How do adolescents engage with an online story completion task?

2b) How effective is narrative analysis for analysing story data?

Objective:

2. To pilot novel, creative recruitment, data collection and data analysis methods that could provide insight into processes of identity formation and explore the feasibility of using these methods with adolescents.

Chapter 6 then describes the subsequent main study that was conducted following the successful pilot described in Chapter 5. The main study used a story completion method and narrative analysis to answer Research Question 3 and address Objective 3 of the PhD:

Research Question:

3. What is the role of social media in shaping and expressing identity and personal dietary choices in adolescents?

Objective:

3. To use qualitative methods to explore adolescent perceptions of influences on young people's dietary choices; particularly social media and how this relates to identity.

Concluding the qualitative section of the thesis, Chapter 7 describes a study conducted to develop and test a novel method of using large language models, a form of generative artificial intelligence, to analyse the story completion data collected for the study described in Chapter 6. The study described in Chapter 7 aimed to answer Research Questions 4a, 4b and 4c, and address Objective 4 of the PhD:

Research Questions:

- 4a) How does narrative analysis of textual data in the form of short stories conducted by LLMs compare with a human analysis?
- 4b) How can analysis using LLMs be optimised to mimic the subjectivity and transparency of human analysis?
- 4c) What are the benefits and drawbacks of using LLMs as tools to assist with textual analysis?

Objective:

- 4. To develop and test a novel method of large language model-assisted narrative analysis of story data collected to explore relationships between identity formation and social media.

The story completion method used in Chapters 5 and 6, as well as the analysis methods used in Chapters 5-7 are described in detail in each of the chapters.

3.3 Epistemology and philosophical approach

This PhD is conducted in line with a critical realist approach, which brings together a realist ontology and a constructivist, relativist epistemology (Willis, 2023). Critical realism posits that a 'real', objective world exists, but that people's knowledge of this world is constructed through their shared, subjective experiences (Maxwell, 2012). It does not separate 'reality' from people's personal experiences, but sees them both, combined, as a representation of the depth and breadth of human experience (Bhaskar & Hartwig, 2016). The critical realist stance of this thesis aligns best with the approach of Bhaskar (2013), who emphasized the role of critical realism in understanding how to improve the world and make life better for the people who live in it. These ideas align with the goals of the discipline of health psychology, which are to understand the underlying biopsychosocial factors that contribute to good and poor health, and to develop ways to support individuals to make positive health behaviour changes (Ogden, 2019).

Through a Bhaskarian critical realist lens, health psychologists acknowledge the *empirical*, the *actual* and the *real* layers of human experience (Bhaskar & Hartwig, 2016). The *empirical* relates

to the observable; for example, a doctor sees a patient who is overweight, with high blood pressure, who wants to change their lifestyle but is struggling. The *actual* layer delves into the processes that drive behaviour that may not be observable or known; for example, emotional stress causing the patient to consume foods that are high in fat, salt and sugar in excess. The *real* layer reveals the hidden mechanisms that shape the emotions and experiences that drive behaviour. This could include the patient's beliefs about their own capabilities for behaviour change, their self-esteem and self-efficacy. It could also include broader environmental, social or cultural factors. For example, perhaps the patient lives very near to a fast-food restaurant. They don't have a car, so going to a supermarket to buy healthy food is more inconvenient and time consuming than stopping for a burger on their way home. They grew up eating fast-food because their parents did not have time to cook, so it would be odd for them to suddenly show an interest in cooking, and they feel their parents might be offended if they criticise their upbringing. This is an example of the range of different factors that might influence an individual's behaviour and how a critical realist might approach understanding the different layers that, when combined, provide a full picture of the person's world.

This thesis aims to understand the *empirical*, *actual* and *real* layers behind the relationships between identity and food choice. The systematic review reveals the *empirical*, or 'what is happening' and attempts to explain the *actual*, or 'how it is happening', by synthesising the existing literature about what is known. Then, the qualitative studies will provide alternative insight into *what* is happening, and *how*, as well as exploring the *real* layers, or 'why it is happening', from the perspective of young people. In qualitative research, interpreting participants' words through a critical realist lens allows researchers to understand their participants' experiences and interactions with the world, as well as how they make sense of these experiences and how they have been shaped by them.

3.4 Reflexivity

Acknowledging the role of the researcher as an active agent of knowledge construction and the impact of the researcher's own characteristics is an essential part of reflective and reflexive qualitative research (May & Perry, 2014). Characteristics of the researcher such as their age, gender, education, social position, cultural background, ethnicity, or political affiliation will inevitably impact the ways in which they conduct their research. Unlike in quantitative research, these biases can be seen as strengths in qualitative research rather than weaknesses, as long as they are reflected upon throughout the research process and mitigated if and when necessary. In particular, when working with participants for recruitment and data collection activities and when analysing the data that are collected, researchers should be aware of and

transparent about recording how their own traits, beliefs and experiences affect the decisions they make and the ways in which they interact with their participants and their data. Researcher self-awareness is key to observing when biases arise, what effect they have on the project, and what value they might bring. One way this can be achieved is through a research journal (Watt, 2007). This thesis is largely written using the third-person perspective (using the term, 'the author') in line with traditional thesis requirements, except in qualitative chapters (Chapters 5 and 6), as well as other sections where the author writes reflexively, commenting on her own perspectives and experiences of conducting the research. In the qualitative chapters and all reflexive sections, first-person perspective ('I') will be used, as below, which is aligned with recommendations from the APA 7th style manual (American Psychological Association, 2020) as well as established qualitative methodology traditions (Braun & Clarke, 2024; Zhou & Hall, 2018).

I am a young, white British woman who, at the time of writing, is a PhD student in psychology and lecturer in child and adolescent health at a UK university. I kept a research journal throughout the duration of this PhD and believe this helped me to understand what kind of researcher I was, what kind of researcher I wanted to be, and how my own beliefs shaped the data I collected and the findings from my analyses. I will present my reflexive notes throughout this thesis, in each of the qualitative chapters (Chapters 5, 6 and 7) as well as in the final chapter (Chapter 8).

3.5 Ethics

All elements of this PhD project followed standard ethical guidelines as dictated by the University of Southampton School of Psychology and were granted ethical approval by the school's ethics committee. Objective 1 (described in Chapter 4), the systematic review, was not subject to ethics procedures because no human participants were involved and all analysis was conducted on publicly available published research. Objectives 2, 3 and 4 were covered by ethics application #78591 which was initially approved on the 24th February 2023 for the pilot study (Objective 2, Chapter 5). A further amendment, approved on 14th July 2023 (#78591.A1), covered the main story completion study (Objective 3, Chapter 6), and a final amendment, approved on 3rd April 2024 (#78591.A2), covered the artificial intelligence-assisted analysis of story completion data (Objective 4, Chapter 7).

As per the University of Southampton's ethics guidelines for research involving human participants, all participants who took part in the qualitative studies described in Chapters 5 and 6 who were aged 16 years and above provided written informed consent and all participants under the age of 16 years provided written informed assent, as well as written parental consent.

Chapter 3

Assent forms, as dictated by the University of Southampton' ethics guidelines, are required to be used with participants under the age 16 years, who are deemed too young to give informed consent on their own behalf. For these participants, consent from a parent or guardian must also be obtained. Participants aged 16 years and older can complete a consent form on their own behalf and so parental/guardian consent is not necessary. All participants and parents were provided with information sheets and consent forms that were suitable for their age and which detailed participants' right to withdraw, right to anonymity and confidentiality as appropriate, and reminded them that they could ask questions of the researchers at any point. All participants were remunerated with cash or Amazon vouchers (to the equivalent monetary value) representing a fair hourly rate as required by the ethics committee and the funder of the research (UKRI ESRC SCDTP).

Chapter 4 How have theories of identity been incorporated into interventions to improve adolescent health behaviour? A systematic review and integrative model

Chapter summary: *This chapter describes a systematic review that was conducted to answer Research Questions 1a and 1b and address Objective 1 of the PhD project, adding to the body of literature on the use of identity theories and concepts in health behaviour change intervention design.*

Statement of contribution: *The work presented in this chapter was led and conducted by the author, with support from colleagues as is consistent with standard practice for conducting a systematic review. The search strategy was developed in consultation with a University of Southampton librarian and the supervisory team, and its reproducibility was confirmed by independent repeat searches conducted by a student voluntary research assistant. Screening of retrieved articles was conducted by the author, following which, members of the supervisory team independently screened 25% of retrieved articles. Following completion of full data extraction and risk of bias assessment of included studies by the author, both processes were independently replicated (two colleagues conducted data extraction on 50% of included studies each and another colleague conducted risk of bias assessment on all included studies). The ‘synthesis without meta-analysis’ was conducted by the author with support from a statistician with experience of the method.*

4.1 Introduction

As outlined in Chapters 1 and 2 of this thesis, one of the key developmental tasks of adolescence is identity formation (Erikson, 1968). It is during this time that adolescents begin to explore and form their own self-concept as well as how they relate to their peers and other social groups. It is known that identity is closely linked to behaviour (Oyserman & Destin, 2010; Simons, 2021), and adolescence is also a critical time for the development of health behaviours, during which behaviours that will track into adulthood are formed (Patton et al., 2018). Adolescents have immature reward-processing and inhibitory control systems, meaning they can find it difficult to resist engaging in health-risk behaviours such as excessive consumption of ultra-processed foods (Constantinidis & Luna, 2019). These biological factors, the identity formation process, social factors such as a heightened desire for peer acceptance, and environmental factors such as high availability of unhealthy foods, are just some of the

influences that contribute to adolescents having the least healthy diets of any age group in the UK (Vogel et al., 2023).

Existing interventions aimed at improving adolescent health behaviours have had limited success for various reasons, which are discussed in detail in Chapter 1 of this thesis. These reasons include; intervention techniques not being suitable for the target population (Champion et al., 2019), lack of effective participant engagement with intervention materials (Walton et al., 2017), and, perhaps most significantly, interventions not taking into account adolescent values or priorities (Strömmer, Lawrence, et al., 2020). It is known that adolescents commit a large portion of their cognitive resources to the identity formation process, and that as part of this process they begin to place higher value on peer acceptance and social status (Foulkes & Blakemore, 2016). It is sensible, therefore, for researchers to consider the significance of the relationship between identity and behaviour (Caldwell et al., 2018; Kwasnicka et al., 2016) and of peer group relationships when designing health behaviour change interventions aimed at adolescents (Kurtines et al., 2008).

Previous interventions with adult populations have had some success in utilising identity theory-based intervention strategies to improve health outcomes. One study used an intervention based on Social Identity Theory to support adults with high self-reported social isolation (Haslam et al., 2016). In this study, the researchers used the social identity approach (Haslam, 2004), which proposes that social identities may be even more critical to a person's self-concept than their individual, personal identities, and that social identification becomes particularly salient in the domains of health and wellbeing. The 'Groups 4 Health' intervention was based on the social identity model of identity change (SIMIC; Iyer et al. (2010)), which identifies four aspects of social identity that impact wellbeing: multiple group memberships, group compatibility, group continuity and new group acquisition. The intervention aimed to provide individuals with the skills to manage and maintain their social group memberships and social identities, with five modules designed to address the four aspects of social identity as proposed by SIMIC. Haslam et al. (2016) found that participation in the intervention led to improved mental health, wellbeing and social connectedness amongst participants for at least six months following the intervention. They also reported that the participants' increased sense of group identification – due to the group delivery method of the intervention modules – was a key factor in facilitating social identity change, and therefore the improvements found in participant wellbeing following the intervention. This is an example of a simple, yet effective strategy for incorporating concepts of identity theory into intervention design and delivery.

A review of interventions that incorporated elements based on Social Identity Theory, including the social identity approach (Haslam, 2004), into their design found that these interventions had

moderate-to-strong positive effects on health outcomes and concluded that further work was needed to synthesise findings from identity-based health intervention studies (Steffens et al., 2021). The review evaluated interventions with Social Identity Theory-based elements such as group activities, group decision making, and therapy programmes, all of which aimed to develop a sense of community and build social identities amongst participants. Whilst many of these interventions were conducted with adults and older adults, several were conducted with high school or university students and though Steffens et al. did not assess differences in outcomes between different age groups, their findings suggest no reason why Social Identity-Based interventions would not be effective in adolescent populations.

Focusing more on personal, rather than social, identity, a meta-analysis conducted by Epton et al. (2015) of the effects of self-affirmation on behaviour change reported that self-affirmation inductions had positive effects on participants acceptance of health information as well as their intentions to change and subsequent behaviour. The interventions analysed by Epton et al. were based on self-affirmation theory, which proposes that people are naturally motivated to maintain a sense of personal integrity and will perform behaviours that affirm a valued identity and reject behaviours that conflict with that identity (Steele, 1988). Within the context of health behaviour change, self-affirmation theory posits that people may respond defensively to – that is, dismiss or criticise - health information that threatens their personal integrity by suggesting that their current behaviour is harmful. Most of the interventions in the Epton et al. meta-analysis used self-affirmation inductions, also referred to as manipulations, which are simple tasks used to increase the salience of an identity that is related to a person's most importantly held values and therefore increase their self-efficacy for positive behaviours related to those values (Cohen & Sherman, 2014). For example, a common self-affirmation manipulation involves asking participants to rank a list of values according to their personal importance and to write a short essay about their highest ranked value (Knight & Norman, 2016). Self-affirmation theory assumes that participants who write about why health is important to them will be primed to be more receptive to health-related information and more likely to perform behaviours that are beneficial to their health in order to maintain personal integrity as 'someone who values their health'. This is because re-affirming health as an important personal value is thought to reduce participants' defensive processing of health information, making them more receptive to change (Iles et al., 2022).

Another identity theory that is relevant to health behaviour change is role identity theory. Role identity theory states that people construct their identities through the repeated performance of behaviours that correspond to social roles (Charng et al., 1988). These roles can relate to an individual's personal life, social relationships, education, work/career or hobbies (Theodorakis, 1994). For example, a person may regularly give money to charity in order to maintain an identity

as a generous, selfless person. These types of identities can become more or less salient depending on a person's life stage and current values. Role identity theory suggests that the roles people occupy and identify with can also shape their behaviour towards others, and therefore their membership of social groups and organisations that align with their shared beliefs (Mlotshwa et al., 2015). This is of particular interest when thinking about adolescents, who tend to prioritise social group membership and social acceptance, and who may therefore alter their behaviours, and identities, in order to fit in with peer groups (Yau & Reich, 2019).

4.1.1 Aims and research questions

Although identity theory-based interventions have shown promise with adults, their effectiveness with adolescent populations has been studied less. This could be considered a missed opportunity within the field of adolescent health behaviour change intervention development, given the plasticity of the brain and behaviour and the significance of identity formation during adolescence. Therefore, the current chapter aims to address this gap in the literature by reviewing studies describing a range of identity theory-based health behaviour interventions that have been implemented with adolescents. Using a systematic review method, this chapter will critically assess intervention strategies to evaluate how successful identity theory-based intervention strategies have been with adolescents and to suggest how intervention designs could be improved.

The review will answer Research Questions 1a and 1b of the PhD:

- 1a) Which concepts from identity-formation theories have been utilised in adolescent health interventions, and how have identity-formation related mechanisms and processes been incorporated into these interventions to improve adolescent health?
- 1b) How successful have interventions using identity-related processes as mechanisms of change been in improving adolescent health behaviours?

4.2 Materials and methods

This review was registered on the International Prospective Register of Systematic Reviews (PROSPERO) database (#CRD42022308153) on 1st February 2022 and a protocol can be found there. Minor amendments to information provided in the protocol have been documented according to PROSPERO guidelines. The review was carried out following guidance on the conduct of systematic reviews in healthcare, developed by the Centre for Reviews and Dissemination (CRD) and is reported in line with the Preferred Reporting Items for Systematic

Reviews and Meta-Analyses (PRISMA) checklist (see Appendix A) (Centre for Reviews and Dissemination, 2009; Page et al., 2021).

4.2.1 Search strategy

The search strategy (see Appendix B) was developed in consultation with a university of Southampton librarian specialising in systematic reviews. Six electronic databases were searched: PsycINFO, MEDLINE, Web of Science, EMBASE, CINAHL, and ERIC. These databases were selected to cover health, medicine and psychology literature, where the majority of usable articles were expected to be found. All published articles from the inception of each database until 1st February 2022 were searched by the author (updated searches were carried out 20th February 2023, which yielded one new study which was included in the review, 14th February 2024 and 14th August 2025, both of which yielded no new study inclusions). A combination of medical subject headings (MeSH) and free-text words and phrases relating to ‘health behaviours’, ‘identity’ and ‘interventions’ were included in the search. The search included a range of health behaviours and identity-related concepts. A list of specific health behaviours was developed by the author and the supervisory team to ensure that all physical health behaviours relevant to adolescents were covered by the search. The search also included general mentions of ‘health interventions’ and similar phrases to cover any interventions targeting health behaviours that had not been addressed in the list.

Additionally, hand searching in the form of backwards and forwards citation searching of key papers and reviews was conducted. A second reviewer (a student voluntary research assistant) conducted the searches independently to confirm that the search strategy was replicable.

4.2.2 Eligibility criteria

4.2.2.1 Study requirements

All articles were screened by the author using predefined inclusion and exclusion criteria (see Appendix C). Randomised controlled trials (RCTs), quasi-randomised controlled trials, and any other pre-post measure intervention or experimental studies were included. Parameters limited the search to articles published in peer-reviewed journals and written in English.

4.2.2.2 Participants

Participants were adolescents of any gender aged between 10 and 24 years who were drawn from the general population. Clinical populations were excluded as well as selective samples such as those with a diagnosis of autism spectrum disorder. Participants from any geographic

location, any socioeconomic background and any ethnicity were included, excepting those in studies where the whole sample was selected from a religious or cultural group such as Native American or Amish populations. Samples from these types of populations would likely bias the findings because their attitudes and behaviours would be influenced by culturally specific values and traditions.

4.2.2.3 Interventions

Studies describing interventions that used identity-based intervention strategies such those consistent with self-affirmation theory, were included. Studies that mentioned theories of identity or identity formation in relation to the design or implementation of the intervention were also included, even if they did not explicitly reference a formal theory of identity or identity formation.

4.2.2.4 Outcome measures

Outcomes included those that related to any physical health behaviour, for example, smoking cessation, healthy diet, physical activity, safe sex, sun protection, sleep etc. Observational, self-reported and validated measure-reported behaviours were included.

4.2.3 Data management, screening and data extraction

Following deduplication using Endnote X9 software (The EndNote Team, 2013), screening was conducted using the Rayyan web application (Ouzzani et al., 2016). All articles were screened by title and abstract by the author. In addition, three reviewers (members of the supervisory team) independently screened the same 25% subset of the total number of articles by title and abstract. A total of six discrepancies occurred between reviewers. Discrepancies were discussed in detail amongst the supervisory team and the decision was made to exclude all six articles. After screening every article by title and abstract, full-text screening of the remaining articles was conducted by the author.

Once the screening phase was complete and the list of included studies finalised, data extraction was conducted by the author in full and two additional reviewers (colleagues of the author) completed 50% each, meaning all papers were subject to data extraction by two different reviewers for rigour. Data were extracted into a table in Microsoft Excel (see Supplementary Materials 1).

The data extraction process captured data relating to: study aims, setting, study design, participant details, health behaviour targeted, outcome(s) of interest, outcome measures/assessment methods, identity concept/theory, other concepts/theories, behaviour

change techniques (BCTs) used, description of intervention, comparison/control condition, analysis methods, summary of results, main findings/conclusions. Any missing or unclear information was reported as such.

4.2.4 Risk of bias assessment

A tool developed for assessing risk of bias in studies reporting on digital health interventions was adapted to the current review and applied to all included studies (Rose et al., 2017) (see Appendix D). This tool was designed according to the quality assessment criteria described by the Centre for Reviews and Dissemination (Centre for Reviews and Dissemination, 2009) and aimed to assess risk of bias resulting from study design, randomisation, blinding, baseline group similarities, group selection, attrition, health behaviour assessment, behaviour change component, performance bias, analysis, and handling of confounding. Two reviewers (the author and colleague) assessed all included studies independently and any disagreements were discussed and resolved. Each study was given a total risk of bias score which corresponded to one of the following categories: low (scores above +2), medium (scores between -2 and +2) and high (scores below -2).

4.2.5 Data synthesis

Differences in study design, behavioural outcomes and outcome measures all contributed to methodological and statistical heterogeneity. There was also a high proportion of included studies with either high or medium risk of bias. In addition, the main purpose of the review was to critically assess how identity theories had been integrated into intervention design, and to summarise what types of identity-based intervention strategies had been used, rather than to statistically measure effect sizes for included interventions. Consideration of these factors as well as published recommendations (Lensen, 2023) meant that a decision was made not to conduct a meta-analysis and results are presented as a narrative synthesis, in line with published guidance (Boland et al., 2017).

In line with Cochrane guidelines for conducting systematic reviews where meta-analysis is not possible (McKenzie & Brennan, 2019), a vote counting method was used to assess the direction of effect for each intervention. This approach (conducted by the author and colleague) involved categorising relevant health behaviour outcomes from each study into those that showed benefit (favoured the intervention), harm (did not favour the intervention), or no effect.

Information extracted from the included studies is presented in a narrative summary below. The studies are grouped according to the identity theory on which the intervention design was based: self-affirmation theory, role identity theory, theory of emerging adulthood and 'other',

which describes two studies which did not report use of a formal identity theory but aimed to support identity development. Within each of these groups the studies are ordered according to the health behaviour targeted by the intervention, and the number of studies that fall under each category.

4.3 Results

4.3.1 Study selection

The full screening process is presented in Figure 2. A total of 5197 articles were identified by the database search. After deduplication 3339 articles were imported into the Rayyan web application (Ouzzani et al., 2016) along with 37 additional articles identified through hand citation searching. A total of 162 articles underwent full-text screening. An updated database search on 20th February 2023 yielded 392 publications but no new inclusions. However, one additional study was included as a result of correspondence with the first author of a study included in the review as a result of the original search. Another updated search on 14th February 2024 yielded 418 publications but no new inclusions, and a final updated search conducted on 14th August 2025 yielded 272 publications but no new inclusions. The screening process identified 17 studies from 16 articles (one article reported on two studies testing the same intervention with different samples and different outcome measures, both of which were included in the review).

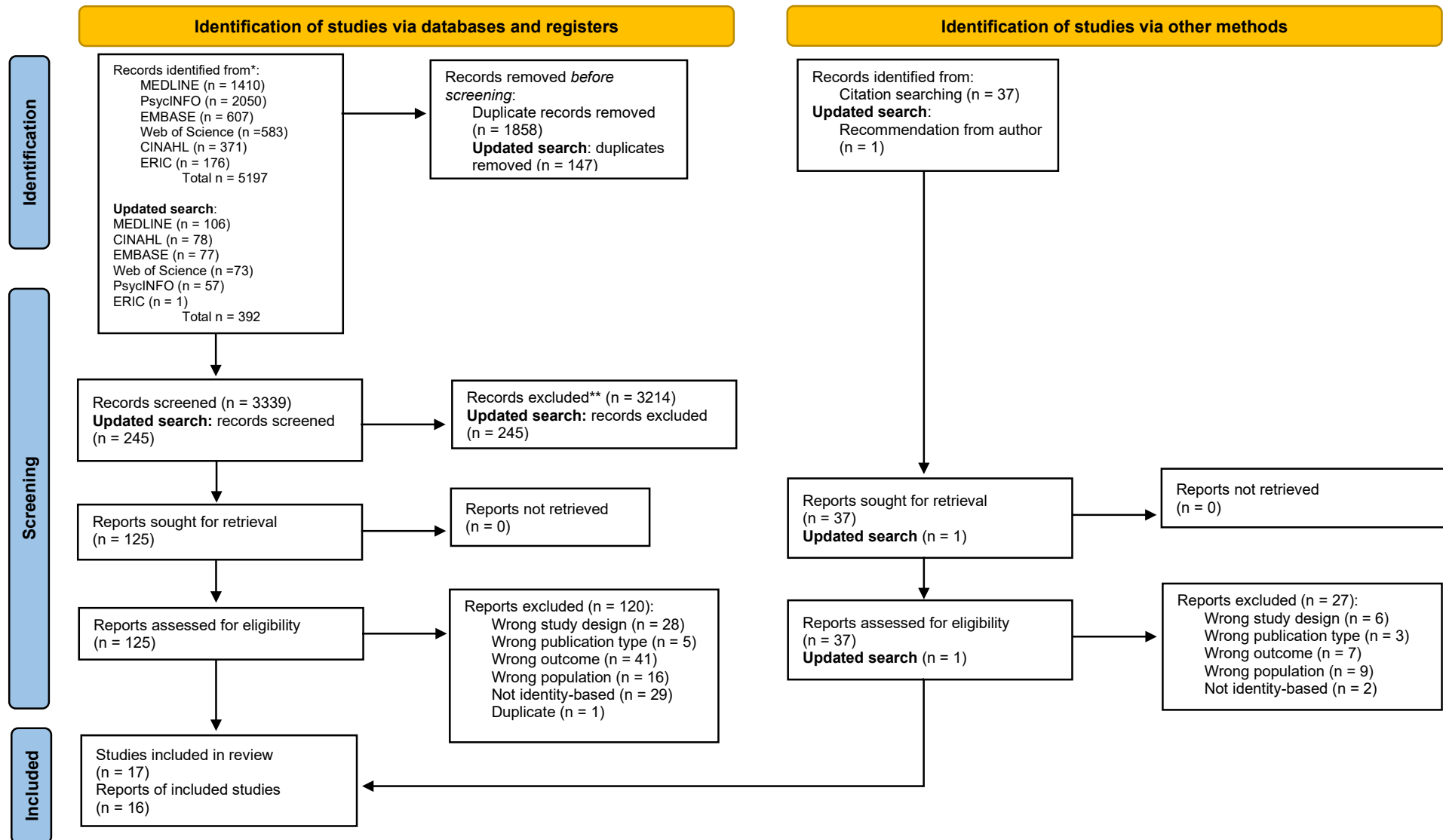


Figure 2. PRISMA flowchart of screening process.

4.3.2 Study characteristics

A summary of characteristics of included studies is presented in Table 1. Six studies identified alcohol use as a primary outcome, five assessed multiple relevant health outcomes (including tobacco smoking, alcohol use, drug use, diet and physical activity), three focused on physical activity, and three focused on diet. The earliest study was published in 2005 and the most recent in 2021. Twelve studies used self-affirmation theory as a basis for their intervention, two used role identity, two did not report a formal theory but their interventions were designed to support identity development and one used the theory of emerging adulthood. The smallest reported sample size was 80 and the largest was 2682. Participants ranged in age from 11 to 24 years, were recruited from six different countries and from secondary schools (or local equivalent) or universities. Data from these studies are presented in a narrative synthesis.

Chapter 4

Table 1. Characteristics of included studies (based on information from the data extraction table).

Author; location	Sample size	Mean Age (SD) (years)	Identity theory used	Identity Intervention	Other intervention component(s)	Comparison/control condition	Design	Outcome measures	Follow-up
Norman et al. (2018); UK	2682	18.76 (1.94)	Self-affirmation theory	Self-affirmation questionnaire	Theory of planned behaviour (TPB)-based messages about binge drinking; formation of implementation intentions	Comparison between groups	2 (self-affirmation) x 2 (TPB-based messages) x 2 (implementation intention) between-participants factorial design	Self-report recall of units of alcohol consumed + episodes of binge drinking per week	1-week; 1- & 6-months
Epton et al. (2014); UK	1445	18.9 (SD not reported)	Self-affirmation theory	Self-affirmation task: select most important value and explain why it is important	TPB-based messages about target behaviours; formation of implementation intentions	Measurement-only control group (no additional information reported)	Participants randomly assigned to either intervention or control arm	Portions of fruit and vegetables per day + number of cigarettes smoked - items based on the Health Survey for England (HSE); Physical activity - Short Form of International Physical Activity Questionnaire (IPAQ-SF); Alcohol consumption - items from the General Lifestyle Survey (units of alcohol per week + number of binge sessions per week); recreational drug use - Single Sample Count Method	1- & 6-months
Cameron et al. (2015); UK	2621	18.80 (SD not reported)	Self-affirmation theory	Self-affirmation task: select most important value and explain why it is important	TPB-based messages about target behaviours; formation of implementation intentions	Measurement-only control group (no additional information reported)	Participants randomly assigned to either intervention or control arm	Fruit + vegetable intake portions per day – 2 item dietary questionnaire; physical activity - Short Form of International Physical Activity Questionnaire (IPAQ-SF); alcohol consumption – retrospective 7-day recall diary (units consumed per day); cigarettes smoked – items based on the Health Survey for England (HSE); recreational drug use – Single Sample Count Method	1- & 6-months

Chapter 4

Author; location	Sample size	Mean Age (SD) (years)	Identity theory used	Identity Intervention	Other intervention component(s)	Comparison/control condition	Design	Outcome measures	Follow-up
Norman & Wrona-Clarke (2016); UK	348	22.58 (6.31)	Self-affirmation theory	Self-affirmation task: asked to write about their most important value	Formation of implementation intentions; health-risk message about binge drinking	Comparison between groups	2 (self-affirmation: yes/no) × 2 (implementation intention: yes/no) between-participants factorial design (all participants exposed to health-risk messages)	Units of alcohol consumed per day + number of binge drinking sessions per week - timeline follow back (TLFB) method	1-week
Pietersma & Dijkstra (2011); Netherlands	537	Not reported	Self-affirmation theory	Self-affirmation task: select most important value and explain why it is important	Threatening health messages about importance of eating fruit and veg.	Writing task: select least important value and explain why someone else might value it	Participants randomly assigned to one of two conditions (no SA vs. SA) of a between-subjects design. All participants exposed to threatening health messages.	Frequency of fruit and vegetable consumption in the last month – validated Dutch questionnaire	1- and 4-weeks
Knight & Norman (2016); UK	307	21.93 (4.45)	Self-affirmation theory	3x self-affirmation manipulations: kindness questionnaire, values essay, attributes questionnaire	Health risk message about binge drinking	“The Personal Opinions Survey” questionnaire on benign topics	Participants randomly allocated to one of the 4 conditions (3x self-affirmation manipulations or control questionnaire). All participants exposed to health risk message.	Timeline follow back (TLFB) method – units of alcohol consumed and frequency of binge drinking	1-week
Good et al. (2015); UK	123	16.57 (0.6)	Self-affirmation theory	Self-affirmation task: asked to write about their most important value	Health risk message about consequences of lack of physical activity (PA) and recommendations for increasing PA	Writing task: asked to write about why their least important value might be important to someone else	Participants randomly assigned to self-affirmation or control condition. All participants exposed to health risk message.	Number of days of moderate-to-vigorous physical activity - items adapted from the PACE+ Adolescent Physical Activity Measure	1-week

Chapter 4

Author; location	Sample size	Mean Age (SD) (years)	Identity theory used	Identity Intervention	Other intervention component(s)	Comparison/control condition	Design	Outcome measures	Follow-up
Cooke et al. (2014); UK	80	20.00 (1.65)	Self-affirmation theory	Self-affirmation task: ranked 11 values and asked to write about their most important value and why it was important to them	Factsheet about risks of lack of PA and benefits of increasing PA	Non-affirmation condition: asked to write about their least important value and why this value could be important to the average student	Participants randomly assigned to self-affirmation or control condition. All participants exposed to PA factsheet.	Physical activity - Godin-Shephard Leisure-Time Physical Activity Questionnaire (GSLTPAQ)	1-week
Scott et al. (2013); Australia	121	20.29 (1.75)	Self-affirmation theory	Self-affirmation manipulation: rated the extent to which a positive value or characteristic applies to themselves, using a 5-point scale ranging from 1 = very much like me to 5 = very much unlike me	Government health promotion posters about consequences of excessive alcohol consumption	Control condition: rated the extent to which each characteristic applies to a well-known celebrity, in this case David Beckham	Participants randomly assigned to self-affirmation or control condition. All participants exposed to health promotion posters.	Self-reported weekly alcohol consumption – number of drinks consumed	1-week
Reid et al. (2019) – Study 1; UK	159	20.37 (1.98)	Self-affirmation theory	Self-affirmation task: ranked 11 values and asked to write about their most important value and why it was important to them	Heavy or light peer modelling of target behaviour	Non-affirmation condition: asked to write about 9 th ranked value and why this value could be important to someone else	2 (self-affirmed vs. not) 9 2 (heavy vs. light peer modelling) between-subjects design. All participants exposed to the peer modelling manipulation.	Alcohol consumption during a lab task – millilitres consumed; 10-item Alcohol Use Disorders Identification Test (AUDIT)	No follow-up (lab task)
Reid et al. (2019)- Study 2; UK	122	21.36 (3.42)	Self-affirmation theory	Self-affirmation task: ranked 11 values and asked to write about their most important value and why it was important to them	Heavy or light peer modelling of target behaviour	Non-affirmation condition: asked to write about 9 th ranked value and why this value could be important to someone else	2 (self-affirmed vs. not) 9 2 (heavy vs. light peer modelling) between-subjects design. All participants exposed to the peer modelling manipulation.	Number of Maryland chocolate chip cookies consumed during lab task	No follow-up (lab task)

Chapter 4

Author; location	Sample size	Mean Age (SD) (years)	Identity theory used	Identity Intervention	Other intervention component(s)	Comparison/control condition	Design	Outcome measures	Follow-up
Meier et al. (2015); USA	110	98.2% were 18-24 (mean and SD not reported)	Self-affirmation Theory	Values-affirmation condition: participants selected their most important value from a 11-item list and wrote about how this value made them feel good about themselves	"A Snapshot of Annual High-Risk College Drinking Consequences" – presentation on the risks of alcohol consumption	No-affirmation condition: participants listed everything they had eaten or drunk in the last 24 hours	Participants randomly assigned to affirmation or control condition. All participants exposed to risk message presentation	Alcohol consumption - Frequency Quantity Questionnaire (FQQ) + one item from the Daily Drinking Questionnaire (DDQ)	2-weeks
Tsorbatzou dis (2005); Greece	335	14.8 (0.8)	Role identity theory	Lectures and posters on importance of healthy eating; leaflet for teachers about how to teach young people the importance of healthy eating	None	Usual school curriculum	Three schools assigned to intervention arm, three schools assigned to control arm	Healthy eating habits - Greek Adolescents' Food Frequency Questionnaire	2-months
Tsorbatzou dis (2005); Greece	366	14.2 (0.69)	Role identity theory	Lectures and posters on importance of exercise; leaflet for teachers about how to teach young people the importance of exercise	None	Usual physical education curriculum	Two schools assigned to intervention arm, two schools assigned to control arm	Exercise habits – 16-item Baecke Questionnaire of Habitual Activity	4-6 weeks
Stein et al. (2018); USA	226	21.2 (SD not reported)	Theory of emerging adulthood (including identity exploration and development)	Emerging adulthood themed motivational intervention	None	Health education intervention	Participants randomly assigned to emerging adulthood themed motivational intervention or control group (health education intervention)	90-day recall of alcohol use (number of drinks + binge drinking), marijuana use and dual use - timeline follow back (TLFB) Method	1-, 3-, 6-, 9-, 12- & 15-months

Chapter 4

Author; location	Sample size	Mean Age (SD) (years)	Identity theory used	Identity Intervention	Other intervention component(s)	Comparison/control condition	Design	Outcome measures	Follow-up
Allara et al. (2019); Italy	1766	12 (0.54)	'Other' (Intervention acknowledged and sought to support identity development)	'My Health Diary': School-based programme using aspects of identity to encourage healthy behaviour	None	Usual school curriculum	Schools given choice of being assigned to intervention arm ('My Health Diary' intervention) or control arm	30-day recall of cigarette smoking, alcohol intoxication episodes ("how many times did you get drunk?"), dietary habits (e.g., consumption of beverages and foods such as pop drinks, chips, vegetables, and fruits) and moderate and heavy physical exercise (defined as "any activity that increases your heart rate and makes you get out of breath some of the time for at least 60 min")	1-month
Rabaglietti et al. (2021); Italy	2078	12 (SD not reported)	'Other' (Intervention acknowledged and sought to support identity development)	'My Health Diary': School-based programme using aspects of identity to encourage healthy behaviour	None	Usual school curriculum	Schools randomised to either intervention or control arm	30-day recall of cigarette smoking, unhealthy eating habits, alcohol consumption and physical activity	6-months

4.3.3 Synthesis of results

To compliment the narrative synthesis, vote counting was used to assess direction of effect on health behaviour outcomes from each study. These outcomes were categorised into five groups: alcohol, diet, physical activity, smoking and substance use. Direction of effect (without looking at significance) was extracted for each outcome and summarised for each outcome category (see Table 2). Each of the arrows in table 2 represent either a positive (\uparrow), negative (\downarrow), or neutral/inconclusive (\leftrightarrow) direction of effect for each outcome within each study, without taking into account statistical significance or effect size. This approach was based on existing criteria as recommended in the Cochrane Handbook for Systematic Reviews of Interventions (McKenzie & Brennan, 2019), where upward arrows represent an effect estimate that has been categorised as showing benefit (favouring the intervention), and downwards arrows represent an effect estimate that has been categorised as showing harm (not favouring the intervention). Studies were also grouped according to the identity theory or concept that the intervention was based on. For category 1 (self-affirmation theory) overall 95% confidence intervals were calculated using the Wilson Interval method and p-values were calculated using the *Bitesti* function in Stata statistical software (StataCorp, 2023). This was not done for any other categories because of the small numbers of studies in each group. Analysis of the group of interventions to address alcohol consumption produced a significant p-value, indicating that most studies using self-affirmation theory were able to produce a positive effect on alcohol related outcomes. The full method and results of the vote counting are available in Supplementary Materials 2a and 2b.

Overall p-values were also calculated for each health behaviour outcome category for each intervention and none were significant.

Table 2. Effect direction plot.

Study	Risk of bias	Sample size	Identity theory	Follow-up	Effect direction for each study in each health behaviour outcome category				
					Alcohol	Diet	Physical Activity	Smoking	Substance use
Category 1: Self-affirmation theory									
Pietersma & Dijkstra (2011)	high	537	Self-affirmation theory	4-weeks		↑			
Norman et al. (2018)	medium	2682	Self-affirmation theory	1-month	↑				
Epton et al. (2014)	low	1445	Self-affirmation theory	1-month	↔	↑	↑	↓	↑
Cameron et al. (2015)	low	2621	Self-affirmation theory	1-month	↑	↑	↑	↓	↑
Norman & Wrona-Clarke (2016)	medium	348	Self-affirmation theory	1-week	↔				
Knight & Norman (2016)	high	307	Self-affirmation theory	1-week	↔				
Good et al. (2015)	medium	123	Self-affirmation theory	1-week			↓		
Cooke et al. (2014)	medium	80	Self-affirmation theory	1-week			↑		
Scott et al. (2013)	low	121	Self-affirmation theory	1-week	↑				
Reid et al. (2019) – Study 1	medium	159	Self-affirmation theory	No follow-up (lab task)	↑				
Reid et al. (2019)- Study 2	medium	122	Self-affirmation theory	No follow-up (lab task)		↓			
Meier et al. (2015)	medium	110	Self-affirmation Theory	2-weeks	↑				
Proportion of effects favouring the intervention					5	3	3	0	2
95% CI					0.57, 1	0.30, 0.95	0.30, 0.95	0, 0.66	0.34, 1
p-value					0.031*	0.313	0.313	1	0.25

Chapter 4

Study	Risk of bias	Sample size	Identity theory	Follow-up	Effect direction for each study in each health behaviour outcome category				
					Alcohol	Diet	Physical Activity	Smoking	Substance use
Category 2: Role identity theory									
Tsorbatzoudis (2005)	medium	335	Role Identity	2-months		↑			
Tsorbatzoudis (2005)	medium	366	Role Identity	4-weeks			↑		
Category 3: Theory of emerging adulthood									
Stein et al. (2018)	low	226	Theory of Emerging Adulthood	1-month	↓				↑
Category 4: Other (intervention seeks to support identity development)									
Rabaglietti et al. (2021)	High	2078	Intervention acknowledged and sought to support identity development	6-months					
Allara et al. (2019)	High	1766	Intervention acknowledged and sought to support identity development	1-month	↔	↑	↔	↓	
Overall					Proportion of effects favouring the intervention				
					0.86	0.71	0.67	0.25	1
95% CI					0.4869 , 0.9743	0.3589 , 0.9178	0.3 , 0.9032	0.04559 , 0.6994	0.4385 , 1
p-value					0.0625	0.226563	0.34375	0.9375	0.125

*p<.05; Abbreviations: 95%-CI = 95% confidence interval (Wilson score interval); p-values for categories 2-4 not calculated due to inadequate sample size

4.3.4 RQ1: Which concepts from identity-formation theories have been utilised in adolescent health interventions, and how have identity-formation related mechanisms and processes been incorporated into these interventions to improve adolescent health?

Twelve studies from eleven papers incorporated self-affirmation theory into their interventions (Cameron et al., 2015; Cooke et al., 2014; Epton et al., 2014; Good et al., 2015; Knight &

Chapter 4

Norman, 2016; Meier et al., 2015; Norman et al., 2018; Norman & Wrona-Clarke, 2016; Pietersma & Dijkstra, 2011; Reid et al., 2019; Scott et al., 2013). Most of these studies incorporated a self-affirmation manipulation alongside other behaviour change strategies as part of a multicomponent intervention. Several studies included intervention elements based on the theory of planned behaviour (for example development of implementation intentions) (Cameron et al., 2015; Cooke et al., 2014; Epton et al., 2014; Norman et al., 2018; Norman & Wrona-Clarke, 2016) or distributed health-promotion or health-risk information (Good et al., 2015; Knight & Norman, 2016; Meier et al., 2015; Pietersma & Dijkstra, 2011), in addition to a self-affirmation manipulation. In most cases the different intervention components were not evaluated separately, therefore it is impossible to ascertain the degree to which the outcome effects were the result of the identity theory-based elements of the interventions, and which effects were the result of other elements of the interventions.

Other types of identity theory were used to underpin interventions in more subtle ways. For example, two studies did not reference any particular identity theory but used various methods of encouraging young people to think about their own identities in relation to health (Allara et al., 2019; Rabaglietti et al., 2021). Both studies evaluated the same intervention (the second study evaluated an updated version); a school-based programme consisting of five sessions delivered by trained teachers, a narrative booklet for students and a narrative booklet for parents. Based on Botvin's Life Skills training (Botvin et al., 1998), the 'My Health Diary' intervention consisted of stories, role play and group discussions about young people 'becoming men and women' and navigating identity development. Stories and activities were designed to encourage adolescents to develop skills in emotion recognition and management, critical thinking, and communication about topics such as mental wellbeing, the physical changes of puberty, smoking, alcohol consumption, healthy eating and physical activity. The programme was designed to promote good psychological and behavioural wellbeing, to which identity formation is central.

Another pair of studies that evaluated one intervention with two different samples incorporated role identity theory in their intervention design (Tsorbatzoudis, 2005a, 2005b). Both studies used concepts from role identity theory to design an intervention to encourage young people to associate healthy lifestyles and behaviours with positive emotions and with values of self-improvement and future health. One element of the intervention was designed to support participants to 'develop positive thoughts and emotions for healthy eating and negative ones for

inactivity and unhealthy lifestyles', which aimed to help the adolescents to integrate healthy eating and physical activity into a positive role identity (the role of a healthy person).

The intervention in another study (Stein et al., 2018) was based on the theory of emerging adulthood, which describes the life stage during which young people make the transition from adolescence to young adulthood (Arnett, 2000). This intervention aimed to reduce alcohol and marijuana consumption using one-to-one reflective goal-setting sessions with an interventionist as well as two worksheets. The sessions and worksheets were focused on the question "Where do you see yourself in the next 1-5 years, and how do your current behaviours fit with these goals?". Participants were encouraged to evaluate their current behaviours and reflect on how their behaviours could become more aligned with the type of person they would like to be in the future.

4.3.5 RQ2: How successful have interventions using identity-related processes as mechanisms of change been in improving adolescent health behaviours?

Self-affirmation theory (n = 12)

Self-affirmation is not effective for improving behaviours that are tied to social identities

Three studies from the same research group testing similar interventions found no significant effect of self-affirmation on alcohol consumption in university students (Knight & Norman, 2016; Norman et al., 2018; Norman & Wrona-Clarke, 2016). They concluded that self-affirmation may not be an effective tool to reduce alcohol consumption in undergraduate university students. One reason for this may be that frequent and excessive alcohol consumption is a highly accepted social norm within this population and may even be used as a coping strategy for dealing with identity confusion or difficulties achieving a stable identity (Riordan & Carey, 2019). Therefore, interventions aiming to reduce alcohol consumption in students may also have to address the connection between the 'student drinker' identity and associated alcohol consumption in order to have a significant positive effect. It has been suggested that including measures of drinking identity or targeting drinking-related attitudes and beliefs using theory of planned behaviour-based intervention strategies could be helpful (Lindgren et al., 2013).

Another intervention by Norman et al. (2018) used a combination of self-affirmation, and health messages based on the theory of planned behaviour. The participants completed a self-affirmation manipulation in which they were asked to rate the extent to which they could relate

to 32 positive traits (e.g. 'I always try to keep my word'). This task was designed to increase the salience of positive valued identities intended to prime participants to think about and perform behaviours relating to those identities. The intervention was successful in significantly reducing alcohol consumption ($p < .001$) and frequency of binge drinking ($p < .001$) at 6-month follow up, however these results were attributed to health messages rather than the self-affirmation manipulation, which the authors reported had no significant effect. Norman hypothesised that this may have been because participants completed the self-affirmation manipulation shortly before they entered university, a time during which most young people do not prioritise their health. Therefore, the threat of the health messages may have been reduced because the messages were perceived as targeting future rather than current behaviours. The participants were, therefore, less motivated to self-affirm as there was no need to overcome a defensive response. In fact, participants who self-affirmed and viewed the health messages consumed more alcohol at follow up than they had at baseline. In this case, self-affirmation may have inadvertently primed social values associated with alcohol, for example, fitting into the crowd, making new friends or embracing the 'student drinker' identity, which in turn may have increased the amount of alcohol consumed.

In a similar study, Meier et al. (2015) used a combination of self-affirmation and health-risk messages relating to the dangers of alcohol consumption and found that neither strategy was effective in reducing alcohol consumption in a sample of university students. They concluded that self-affirmation did not help participants to overcome their defensive response to the health messages and that pre-existing alcohol-related beliefs had more of an effect on participants' responses to the messages and subsequent behaviour than the self-affirmation manipulation.

Two studies reported in one paper which evaluated similar interventions with two different participant groups and outcome behaviours found no effect of self-affirmation on participants' cookie or alcohol consumption during a lab task (Reid et al., 2019). In addition to the self-affirmation manipulation, however, half the participants were told that the previous participant had eaten a high number of cookies/consumed more alcohol and half were told that the previous participants had eaten a low number of cookies/consumed less alcohol. Participants exposed to a high-consumption peer ate more cookies or drank more alcohol than those exposed to a low-consumption peer, regardless of whether they had self-affirmed or not. The study therefore concluded that the self-affirmation manipulation had not significantly reduced the peer conformity effect that participants experienced as a result of knowing how previous

participants had behaved. Perhaps this is an indication that self-affirmation alone is not enough to change behaviour that is tied to existing social values that most adolescents strive for, such as social acceptance and belonging (Neufeld et al., 2022).

Self-affirmation may improve engagement with other intervention strategies

Some of the interventions using self-affirmation manipulations in combination with other intervention strategies found that the other strategies were more successful than the self-affirmation element. Findings from Cooke et al. (2014) suggested that a self-affirmation manipulation led to a significant increase in self-reported physical activity at follow-up ($p < .001$). They did suggest, however, that the intervention may have been effective only because it gave participants the confidence and motivation to develop spontaneous implementation intentions (making a plan for “If x happens, then I will y...”) which have been consistently positively associated with behaviour change (Ferrer et al., 2012). They also highlighted the positive emotional affect that participants may have experienced following the self-affirmation manipulation, which was thought to have increased the likelihood of spontaneous implementation intention formation (Ferrer et al., 2012). This study confirms previous research suggesting the potential for self-affirmation as a complimentary intervention strategy that could augment the effects of behaviour change techniques such as goal-setting or increased message acceptance.

Another study (Scott et al., 2013) found that self-affirmation prior to exposure to a health-risk campaign was successful in reducing alcohol consumption. They found that self-affirmation significantly reduced alcohol consumption indirectly via increased intentions to reduce alcohol consumption ($p < .001$), and that this effect was greatest in participants who already had a heavier drinking pattern (those who consumed over 14.78 standard Australian drinks per week). There was an interaction effect such that self-affirmation increased intentions to reduce alcohol consumption, and that these intentions then led to a reduction in actual consumption. The findings of this study support the idea that self-affirmation may improve engagement with and reduce defensive processing of health-risk materials, thereby increasing the likelihood of positive behaviour change.

Self-affirmation was only effective for certain types of adolescents and behaviours

Other studies found that self-affirmation was only effective in participants with certain attributes and for certain health behaviours. Pietersma and Dijkstra (2011) found that participants who self-affirmed consumed significantly more portions of cooked vegetables (but

not more portions of fruit) than those in the no-self-affirmation condition at 1-week follow up ($p < .05$) but that this effect was only significant for participants who valued health. The findings of this study highlight the important role of defensive processing in self-affirmation.

Participants who valued health were more likely to feel threatened by a health-risk message and therefore the self-affirmation manipulation was more likely to have a positive effect in helping these participants overcome their defensive processing of the message. It is possible that the effect was only significant for vegetable intake and not fruit intake because fruits are generally seen as easier to consume (sweeter and more readily available) than vegetables, which are less sweet and often require more preparation such as adding seasoning or cooking. This means that participants were more likely to experience defensive processing when encouraged to eat more vegetables, leading the self-affirmation to be more effective in supporting increased vegetable consumption (Pietersma & Dijkstra, 2011).

Good et al. (2015) did not report any significant effect of self-affirmation on physical activity levels and suggested that may have been due to the existing beliefs and cognitions of the participants in the intervention group. They also highlighted that self-affirmation has been associated with an increased tendency to rely on existing beliefs and increased self-confidence, leading to more realistic appraisals of potential goals. In essence, self-affirmed participants who were already quite active may have been doubtful about whether increasing their activity levels would be possible or necessary. Therefore, even if these participants strongly believed that physical activity was important, they may have had lower motivation to change, feeling that they were already active enough to maintain their identity as a healthy individual.

Effective engagement with the intervention was a key factor for success

One study (Epton et al., 2014) described a multicomponent intervention consisting of health messages (to encourage regular exercise and fruit and vegetable intake, and to discourage binge drinking and smoking), implementation intentions, and a self-affirmation manipulation where participants were asked to explain why their most important personal value (e.g. sense of humour, academic achievement, morality etc.) was important to them. The intervention led to reduced rates of cigarette smoking at six-month follow up but did not achieve behaviour change for any other health outcomes (diet, physical activity, alcohol and recreational drug use). In fact, a significantly higher percentage of participants in the intervention group had used drugs at follow up than at baseline ($p < .001$). The authors proposed that participants in the intervention group may have held a perception that their increased drug use was being

compensated for by their attempts to eat more healthily and be more physically active. However, there was little evidence to support this because the intervention group did not differ significantly from the control group on measures of fruit and vegetable intake or physical activity at follow-up.

A repeat of this study by the same research team (Cameron et al., 2015) also found that the intervention had no significant effect on any primary outcomes. The effect for fruit and vegetable consumption at 6-month follow-up approached significance ($p=.024$; Bonferroni correction was used, leading to a significance threshold of $.0127$), however, it was not possible for the authors to isolate which particular element of the intervention had caused this effect, i.e. whether or not the self-affirmation manipulation had led to increased fruit and vegetable consumption at 6 months, or whether other elements of the intervention had a more influential effect on behaviour. A per-protocol analysis showed that participants who engaged with the intervention consumed significantly more portions of fruit and vegetables than those in the control condition ($p=.007$). Both studies concluded that focusing on multiple health outcomes reduced engagement with the intervention, which in turn reduced the effectiveness of the intervention. They also noted that all primary outcomes were self-reported except for two biochemical markers to identify alcohol and cigarette consumption, which only eight percent of the sample provided samples for, meaning that these results were likely to be biased towards participants who felt they had been successful in changing their behaviour or those who already did not smoke or drink alcohol.

Role identity theory (n = 2)

Role identity interventions may be most effective if the wider social environment is considered

Two studies (Tsorbatzoudis, 2005a, 2005b) using the same role identity theory- and theory of planned behaviour-based intervention found statistically significant improvements in dietary outcomes (total energy intake; $p<.05$) and physical activity ($<.001$) respectively. The intervention used a role identity theory-based programme to inform young people about the benefits of exercise or healthy eating and to support young people to develop positive role identities relating to being a person who eats healthily or being an active person. The authors attributed their results to an indirect effect of the identity-based intervention, proposing that the intervention improved participants' attitudes towards healthy behaviours and increased intentions to act on those attitudes as well as their level of perceived behavioural control over

those changes. Participants who were exposed to the intervention programme reported increases in confidence, self-belief, certainty and willingness to try. This suggests that their exposure to health information improved both their attitudes towards the target behaviour, as well as their self-efficacy for performing that behaviour.

Although the intervention was found to improve health outcomes, participants' identities relating to food or exercise were not changed after taking part in the intervention. It is possible that because the intervention focused on addressing participants' personal role identities, but did not address the wider social environment, it was not able to mitigate the effects of social norms and peer group pressure on behaviour.

Theory of Emerging Adulthood (n = 1)

Identity-based intervention strategies may struggle to produce significant results in emerging adults because of their established identity-behaviour associations

Stein et al. (2018) found no significant improvements in either marijuana use or alcohol consumption amongst young people following an intervention based on the theory of emerging adulthood. The intervention used one-to-one reflective goal-setting sessions as well as worksheets which focused on supporting participants to set goals for the next few years and identify behaviours they could change to achieve those goals. The authors suggested that it may have been the strong association between identity and substance use which meant the intervention struggled to achieve significant results. Marijuana use in particular has become an accepted social norm for many young people and is often associated with certain identities and tied to social group membership or shared values (Bilgri et al., 2022; Hammersley et al., 2001). In addition, experimentation is an essential part of the identity formation process and participants may not have interpreted their substance use as problematic if they saw it as fitting within this period of exploration and experimentation.

Other (n = 2)

Identity-based interventions need to be carefully designed and tailored to their target populations

Allara et al. (2019) did not reference any formal theory or model of identity but stated that the 'My Health Diary' intervention sought to support adolescents in their identity development as an important part of adolescent socio-psychological development. The intervention used role-play activities and stories to encourage participants to think about how they saw themselves,

how they perceived others around them, and how they might fit into social groups. The study aimed to improve a range of health behaviours including smoking, alcohol consumption, diet and physical activity but did not report any significant behaviour change for any of those outcomes. Rabaglietti et al. (2021) conducted an evaluation of an updated version of the same intervention two years later and also reported no significant effects on any health risk behaviours. Both Allara et al. (2019) and Rabaglietti et al. (2021) proposed that one explanation for their lack of significant results may have been the fact that they were targeting young adolescents (12-13 year olds) which is pertinent considering exploration of different identities generally starts in mid-adolescence and the peak of identity formation occurs in late adolescence and continues into emerging adulthood (Arnett, 2000). It is possible therefore that these participants were slightly too young to fully engage with and benefit from the intervention, as they may not yet have entered into a period of identity exploration.

The short follow-up periods in both studies were also thought to contribute to their lack of success. Identity formation takes time and it is known that the effects of identity-based intervention strategies can increase over longer follow-up periods (Cooke et al., 2014). Therefore, it is possible that longer engagement times as well as longer follow-up periods may be more appropriate for identity-based interventions.

4.3.6 Risk of bias in included studies

As a result of the risk of bias assessment, four studies were found to have a low risk of bias, ten had a medium risk of bias, and three had a high risk of bias (see Table 3). Studies with a high risk of bias were not removed from the review as they were still believed to provide helpful insights into the use of identity theory in designing and implementing health behaviour interventions for adolescents, but their limitations are discussed below.

One of the studies assigned a high risk of bias score (Allara et al., 2019) did not use randomisation, raising concerns about the validity of the findings. The authors chose not to randomise schools to the intervention or control condition and schools were allowed to choose which arm of the intervention their students would be assigned to. The authors defended this decision, stating that schools in Italy are often resistant to randomisation and that most schools seemed to have chosen to be part of the intervention group because they had a higher perceived need for support across their study population. However, another study (Rabaglietti et al., 2021) which evaluated an updated version of this intervention two years later did use randomisation procedures, so these barriers were ultimately overcome.

Chapter 4

Both of these studies (Allara et al., and Rabaglietti et al.) relied exclusively on self-reported outcome measures for: subjective wellbeing, aggressive behaviour, and health behaviour (frequencies of specific behaviours including cigarette smoking, alcohol intoxication, diet and exercise) which also calls into question the validity of their findings. The authors suggested that incorporating a qualitative element to the study may have allowed them to explore broader perspectives and identify the precise effects of the intervention on the adolescent participants, from the viewpoint of the participants themselves.

The study by Knight and Norman (2016) received a high risk of bias score because it did not report randomisation procedure or blinding methods, had significant differences between groups at baseline for primary outcomes, moderate attrition rates, and used self-reported, unvalidated outcome measures. The study reported no significant findings in relation to the effects of the self-affirmation interventions on behaviour. One concern with this study is their use of a control condition that was similar to the intervention tasks. The 'personal opinions survey' asked participants to answer questions on benign topics, however the example given by the authors ("*I think that houseplants help to brighten the home*") could prime identity-related values. Perhaps this example statement reflects someone who values a well-presented home; possibly someone who takes pride in their appearance generally and who desires to gain the approval of others. Researchers should be cautious when using questionnaires that could inadvertently prime ruminations on identity in a control group, where supporting identity formation is part of the intervention strategy.

Table 3. Risk of bias assessment.

Study no.	Author, year	Study design	Randomisation method	Blinding	Similarity of groups	Selection	Loss to follow-up	Health behaviour assessment	Behaviour change component	Performance bias	Intention to Treat	Analysis	Confounding	Total	Risk of Bias
01	Stein et al, 2018	+1	+1	+1	-1	-1	0	0	+1	0	+1	+1	0	4	low
02	Norman et al, 2018	+1	-1	-1	+1	-1	-1	0	+1	+1	+1	+1	-1	1	medium
03	Allara et al, 2019	+1	-1	-1	0	-1	0	-1	0	-1	-1	+1	+1	-3	high
04	Epton et al, 2014	+1	+1	-1	0	-1	0	0	+1	+1	+1	+1	0	4	low
05	Cameron et al, 2015	+1	+1	-1	+1	-1	-1	0	+1	+1	+1	+1	0	4	low
06	Norman & Wrona-Clarke, 2016	+1	-1	-1	+1	-1	-1	-1	+1	+1	-1	+1	-1	-1	medium
07	Pietersma & Dijkstra, 2011	+1	-1	-1	+1	-1	-1	0	+1	+1	-1	+1	-1	-3	medium
08	Tsorbatzoudis 2005	+1	-1	-1	-1	+1	-1	0	+1	0	-1	+1	-1	-2	medium
09	Tsorbatzoudis 2005	+1	-1	-1	-1	+1	-1	0	+1	0	-1	+1	-1	-2	medium
10	Knight & Norman, 2016	+1	-1	-1	0	-1	-1	-1	+1	+1	-1	+1	-1	-3	high
11	Good et al, 2014	+1	+1	-1	+1	-1	-1	0	+1	+1	-1	+1	-1	1	medium
12	Cooke et al, 2014	+1	+1	+1	-1	-1	-1	0	+1	+1	-1	+1	-1	1	medium
13	Scott et al, 2013	+1	+1	-1	+1	-1	+1	0	+1	+1	-1	+1	-1	3	low
14	Reid et al, 2019 (1)	+1	-1	-1	0	-1	+1	+1	+1	0	-1	+1	-1	-1	medium
15	Reid et al, 2019 (2)	+1	-1	-1	-1	-1	+1	+1	+1	0	-1	+1	-1	-1	medium
16	Meier et al, 2015	+1	+1	-1	0	-1	+1	0	+1	+1	-1	+1	-1	2	medium
17	Rabaglietti et al, 2021	+1	-1	-1	-1	-1	+1	0	0	0	-1	+1	-1	-3	high

4.4 Discussion

4.4.1 Summary of findings

Several identity theories were used as a basis for intervention design, with self-affirmation theory being the most common. Self-affirmation manipulations aimed to increase the salience of important identities and reduce defensive processing of threatening health information. Other theories including role identity theory and the theory of emerging adulthood were implemented into intervention design through activities such as identity-focused role-play and goal setting. Identity-based intervention strategies were often used in combination with other intervention strategies such as the development of implementation intentions, or the provision of either health-promotion or health-risk information.

Although the reviewed identity-theory based intervention strategies were found to be largely ineffective in changing behaviour directly, the findings provide modest support for the idea that identity-based strategies such as self-affirmation may improve attitudes towards and engagement with other intervention strategies (Epton et al., 2015). There is existing empirical support for various established behaviour change techniques in improving a range of health behaviours amongst adolescents. A meta-analysis conducted by Cushing et al. (2014) found that motivational interviewing lead to statistically significant improvements to adolescent health behaviour outcomes including substance use, diet, sexual health, weight management, diabetes and physical activity. Another example is social reframing; Bryan et al. (2016) found that an intervention that aligned healthy eating with existing adolescent values such as autonomy, social justice and prosocial action produced statistically significant improvements to adolescents' food and drink choices 1 day post-intervention ($p=.02$). Bryan et al. (2019) tested the same intervention, which they found was effective in significantly improving adolescents' food choices at school for up to three months post-intervention ($p<.05$). The current review proposes that these well-used methods may be complimented by the addition of identity theory-based strategies. There is, however, also evidence to suggest that combining identity and non-identity based strategies in the same intervention programme can have negative effects on outcomes. For example, it has been suggested that participants who self-affirm may set unrealistic goals when asked to form implementation intentions or may be demotivated to make detailed plans for their goals because their self-efficacy and self-esteem have been bolstered by the self-affirmation manipulation (Jessop et al., 2014). Ultimately, as Cameron et al. (2015) concludes, more studies are needed to test the effects of different

combinations of identity-based and non-identity-based intervention strategies, which may allow researchers to isolate the most effective elements of such interventions.

This review also found that self-affirmation was more effective with certain types of participants. This supports findings from published evidence showing that self-affirmation can be particularly helpful for participants who are experiencing identity crises or whose identity is vulnerable; for example students who are experiencing academic challenges for the first time (Sweeney & Moyer, 2015). The identity formation process, which involves periods of identity crisis and resolution (Stephen et al., 1992), is an important part of psychosocial development during mid-to-late adolescence, so this may be a prime period to implement identity-based intervention strategies. Interventions targeting behaviours such as smoking, vaping or alcohol consumption which are often tied to adolescent identity as well as rebellion against adult authority figures (Wills et al., 2015) may elicit a heightened defensive response amongst adolescent participants. It is likely that self-affirmation could play a specific role in helping to reduce defensiveness in adolescents who feel particularly threatened by intervention strategies that aim to reduce behaviours that they feel are integral to their identities as adolescents.

Furthermore, identity-based intervention strategies may be able to decrease defensive processing of threatening health information and improve attitudes towards health behaviours. But what about individuals who do not identify with positive health behaviours at all? For many individuals it is likely that a change in identity, a shift to more positive health-related identities, is a necessary first step towards positive health behaviour change. It is well known that identity and behaviour are linked (Kearney & O'sullivan, 2003), and as this review shows there is a small, emerging body of evidence suggesting that interventions that are designed to support individuals to adopt or strengthen health-related identities may be able to facilitate changes in health behaviour, when conducted in the right way (Barnett et al., 2021). It is thought that social identity is integral to this process and that understanding how identity is embedded into social, educational, economic and political contexts is an essential next step in the development of identity interventions (Schwartz, 2001).

4.4.2 Strengths of the review

A key strength of this review is the application of rigorous synthesis methods despite meta-analysis not being possible or appropriate. Meta-analysis was not conducted due heterogeneity of included studies and because the primary research question of the review was to explore how identity theories had been integrated into health intervention designs. Vote counting based

on direction of effect was used to summarise results for each outcome from each study. This approach is recommended by the Cochrane handbook in cases where there are inconsistencies in the effect measures or data reported across different studies (Higgins Jpt et al., 2022). The vote counting method and results are available in Supplementary Materials 2a and 2b. This systematic review followed PRISMA reporting guidelines for transparency, and was conducted to a high standard of rigour throughout, from the searches to the synthesis, using methods such as double searching and double screening of search results, and data extraction and risk of bias assessment being carried out by multiple reviewers, with disagreements or discrepancies being discussed at every stage.

4.4.3 Limitations of the review

There are a number of limitations to the current review that must be considered. First, there is no standardised definition of identity-based interventions, so studies were assessed for inclusion using a collaborative screening process in which several researchers discussed which studies had evaluated identity-based interventions. Attempts to minimise researcher bias during this stage included giving examples of identity theories in the inclusion criteria, and constant discussions between researchers. However, some bias in selecting studies for inclusion may have remained. Second, the wide range of follow up periods in the intervention studies meant that comparing effects on health outcomes between studies was challenging. For example, it is known that the effects of self-affirmation manipulations can increase over time, persisting for months or even years after they have been used (Cohen & Sherman, 2014). In contrast, many traditional interventions used with adolescents struggle to maintain behaviour change in the long term (Rose et al., 2017). It was not possible to assess the differences between different follow up periods using vote counting due to the small sample size. Lastly, the relatively small number of studies included in this review meant that vote counting was unlikely to, and indeed did not, lead to any significant p-values. The review findings are reported in a narrative structure, with vote counting used as a complimentary, rather than exclusive, method of synthesis.

4.4.4 Implications and future directions

Interventions that aim to improve adolescent health using identity-based intervention strategies have had limited success so far, but there remain lessons to be learned from their findings. Notably, much of the current literature does not discuss the impact of social norms on behaviour, so perhaps an alternative approach, acknowledging the significance of social and

peer norms in development of adolescent identity and behaviour is needed. For example, one study looking at alcohol consumption norms amongst older adolescent students suggested that intervention strategies with university students may be more effective if they acknowledge and target the ‘student drinker’ identity as well as the associated social norms (i.e. binge drinking, frequent drinking, social drinking etc) (Luquiens et al., 2018). There is a strong evidence base for the impact of social norms on health behaviours including alcohol consumption, healthy eating, recreational drug use, smoking and hand washing (Cislaghi & Heise, 2018; Higgs et al., 2019; Pedersen et al., 2015), but social identity is not always considered. It is likely that similar social norms now exist for vaping due to the increasing popularity of the practice amongst adolescents (Kim et al., 2022), which is something for future research to focus on.

Identity-based intervention strategies such as self-affirmation may be able to reduce defensiveness to health information that threatens health behaviours, but ultimately if these behaviours are tied to adolescent values, it is the development of identity itself that must be addressed. For adolescents, developing a fully-formed identity that represents their unique combination of beliefs and principles is a valued psychological exercise (Brünker et al., 2019; Bryan et al., 2016). Adolescents are generally highly motivated to curate their own identities, both from a personal and a social perspective. Most individuals strive to maintain morality for their own psychological comfort, but ultimately what matters is how they are perceived by others.

4.4.5 How do we harness identity formation processes during adolescence to support positive health behaviour?

Using the findings of the current review, an integrative model describing the role of identity-based interventions in health behaviour change is proposed (Figure 3). The model outlines a conceptual system or ‘machine’ consisting of four interconnecting cogs. The cogs in this machine are driven by a continuous cyclical process that requires ‘energy’ input from four external sources, as well as the momentum the system itself creates, in order to maintain movement and create output. The four cogs represent intervention strategies which, based on evidence from this review, are hypothesised to work together to produce positive health behaviour. Identity-based intervention strategies such as self-affirmation support identity formation adolescents, which in turn may improve engagement with the other types of interventions. Identity formation is a cycle that involves individuals exploring and making

Chapter 4

commitments to different identities until they find an identity that they choose to commit to in the long term). Interventions that are designed to facilitate the development of, or strengthen, these commitments may have a role in reinforcing positive identities, thus increasing self-efficacy and reducing defensiveness towards new behaviours. Behaviour change interventions such as those using implementation intentions are known to support health behaviour change in adolescents (Conner & Higgins, 2010; Cooke et al., 2014). These intervention strategies provide the 'energy' for adolescents to develop healthy habits but cannot guarantee long-term maintenance of behaviour, so additional intervention input is needed. It is suggested that this should come in the form of interventions that are aligned with adolescent social norms and values (Bryan et al., 2019; Bryan et al., 2016), which support achievement of the three essential basic psychological needs described by Self-Determination Theory (Ryan & Deci, 2002): autonomy, competence and relatedness. Meeting these three needs gives rise to intrinsic motivation, which increases individuals' positive affect and drive to develop positive health behaviours (Strömmer et al., 2021). When there is adequate energy to drive all four cogs the system yields the output of positive health behaviour. Research suggests that the relationship between identity and behaviour is bi-directional (Oyserman & Destin, 2010). Therefore, not only does identity formation influence an individual's behaviour, but behaviour also reinforces identity. Therefore, positive health behaviours put energy back into the system by reinforcing healthy identities, and the cogs in the 'machine' continue to move. The way this system works reflects the theory of an upwards spiral of lifestyle change (Fredrickson & Joiner, 2018), which proposes that positive affect associated with certain behaviours unconsciously increases motivation for these behaviours. The process continues as behaviours and positive emotions are generated and a self-perpetuating upwards spiral begins.

To maximise the efficacy of adolescent health behaviour change interventions all four elements of the system described should be addressed. This will ensure these interventions have the required 'energy' to facilitate and maintain behaviour change in the long-term. Further research is needed to develop such interventions, and high quality randomised controlled trials are needed to test these interventions in a range of adolescent populations.

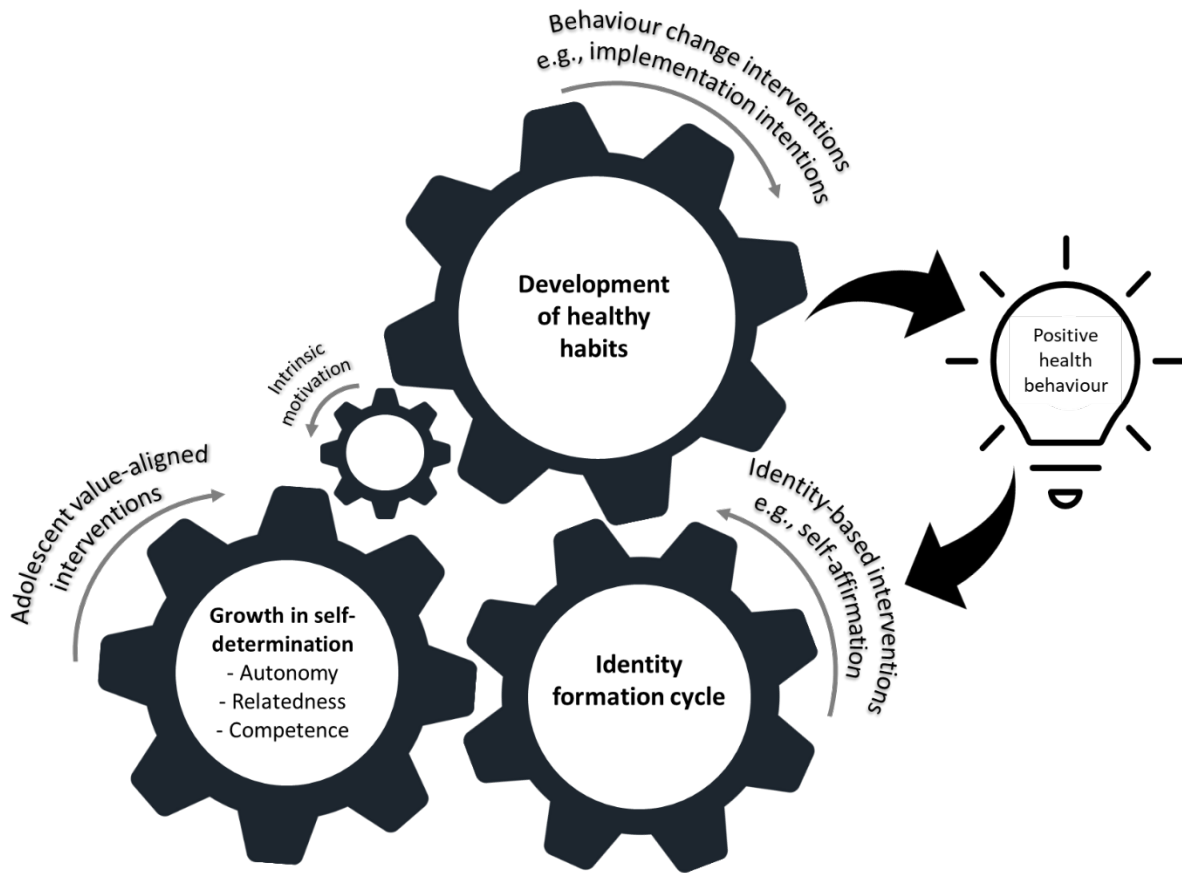


Figure 3. An integrative model of theory-based adolescent health behaviour intervention approaches

4.5 Conclusion

This review found that identity-based interventions, most commonly those using self-affirmation manipulations as behaviour change techniques, showed limited direct effects on behaviour but may have improved engagement with and receptivity to other behaviour change strategies. Adolescents are complex, developing individuals with unique social and psychological environments that should be accommodated if interventions are to be effective (Bundy et al., 2018). Interventions conducted with adolescents need, therefore, to take account of adolescent developmental psychology, of which identity formation is a core element. The current review proposes that combining identity-based intervention strategies with behaviour change techniques that have an existing, strong evidence base, as well as intervention strategies that are aligned with adolescent values, could lead to the development of multicomponent interventions that are able to effectively engage adolescents and support them to make choices that will allow them to live longer, healthier lives. Ultimately, before more identity theory-based interventions can be developed and tested, further research is needed to understand in more depth how adolescent identity formation is linked to health behaviours. It is hypothesised that qualitative research methods will help to build a foundation of knowledge upon which identity-based interventions can be developed. By using qualitative methods and working closely with young people, the author aims to be able to identify how core theories of identity development and adolescent development, such as the Identity Status Model (Marcia, 1966), the Integrative Model of Identity Formation (Luyckx et al., 2006; Luyckx et al., 2008) and Self-Determination Theory (Deci & Ryan, 1985) could be applied to young people's own understanding of the link between adolescent identity formation and food choices. The following two chapters of this thesis will aim to explore this using a qualitative methodology.

Chapter 5 Piloting a story completion task with young people

Chapter summary: *This chapter will introduce story completion as a creative qualitative method used in this PhD, as well as a novel use of narrative analysis to analyse the story completion data. The study described in this chapter will answer Research Questions 2a and 2b to address Objective 2 of the PhD project. A pilot study was conducted to test: the feasibility of an online recruitment and data collection platform for a story completion task (www.prolific.com); young people's engagement with an online story completion task, and the effectiveness of using narrative analysis as a method for analysing story data.*

Statement of contribution: *The work presented in this chapter was led and conducted by the author with support from the supervisory team. The story stems were developed by the author with support from two experts in story completion (Dr. Emma Anderson, University of Brighton, and Dr. Toni Williams, Durham University). The narrative analysis method was developed in consultation with Dr. Toni Williams.*

5.1 Introduction

5.1.1 Story completion

Story completion is a creative qualitative data collection method that involves participants writing (or sometimes speaking, drawing or acting out) fictional, third-person stories. Usually, researchers will provide pre-written story 'stems' that briefly introduce a character and a scenario in one or two short sentences. Participants are given the stem and asked to write the rest of the story however they wish. Researchers sometimes provide participants with prompts to encourage – but not lead – them in their writing. Some studies require participants to write multiple stories from different stems. Often a minimum time or word limit is imposed to ensure that a satisfactory quantity of data are collected, which also serves to enhance the quality of the dataset as a whole by encouraging participants to spend sufficient time thinking about and crafting their stories (Clarke et al., 2019). Story completion tasks can encourage openness and honesty, giving participants a vehicle through which to creatively express their understanding and perceptions of a given topic (Braun et al., 2019).

Sitting within the field of narrative research, the first uses of story completion in clinical practise and research originated from projective psychological tests such as the Thematic Apperception Test (TAT; Murray (1943)). Rooted in psychoanalytic theory, the TAT was historically used by

psychiatrists and clinical psychologists to evaluate their patients and clients. The test was believed to reveal thoughts, emotions or beliefs that people may not have been consciously aware of and has been used by psychoanalytic therapists to assess personality and predict behaviour (Vane, 1981). The original TAT used images of male and female characters presented in a range of scenarios (Murray, 1943). Patients were shown a selection of the images and asked to construct a story describing what was happening in each scenario. They were often instructed to be as dramatic as possible in their imaginings and were given prompts such as: What has led up to the event that is happening? What is happening at that moment? What are the characters thinking and feeling?

The TAT has come under criticism over the years because of the subjective nature of how the stories told by patients were interpreted by clinicians and because of its general lack of reliability and validity as a method (Rossini & Moretti, 1997). Over time, use of the TAT in clinical practice has declined but similar approaches based on storytelling and story writing have emerged for use in research. Since around the mid-20th century, story completion has been used by developmental psychologists as a creative research method to explore young children's attachment representations (Allen et al., 2018), largely through doll role play (Bretherton, Ridgeway, et al., 1990). This method involves using toys to encourage young children to act out scenarios using parent and child doll figures. Psychologists interpret children's interactions with the dolls, as well as how children show the dolls interacting with each other, to infer information about the children's own attachments and their perception of family dynamics and relationships. In the early years of its usage, story completion - particularly doll role play, which was the most popular form of the method in its early years - came under criticism as a weakly conceptualised and unstandardised research method (Sears, 1947). Sears suggested that there needed to be scientifically validated methods for measuring, recording and interpreting the content of doll role play tasks and more consistent procedures for how the tasks were presented to young children. He hoped that, eventually, once benchmarks for the method had been established, story completion role play would become a rigorous, empirical method which would allow researchers to understand and isolate children's experiential representations of relationships and attachments.

Sears' proposed standards, along with suggestions from other scholars who wrote about the need for standardisation within the field of story completion research, were eventually reflected in practise. In the years following, the method evolved and standard procedures and scripts were developed; most notably the Structured Doll Play (SDP) test (Lynn & Lynn, 1959) and the MacArthur Story Stem Battery (MSSB; Bretherton, Oppenheim, et al. (1990)). The SDP test was a projective doll role play technique developed as a tool for use primarily within clinical settings. It provided a list of situations for researchers to choose from, representing a range of different

scenarios to be presented to children using dolls. The SDP test formed a foundation upon which more comprehensive guidance could be developed, such as the MSSB, which provided detailed story stems, prompts and instructions for researchers, and has since been considered the gold standard for story completion tasks used in the child development field (Kelly & Bailey, 2021).

From its origins as a projective test used mostly in developmental and clinical psychology, story completion today has been adapted for use by qualitative researchers across various fields to preserve the rich detail that can be found within story data, whilst maintaining rigour and credibility. There are many benefits to story completion as a qualitative method, which have been described by Clarke et al. (2017) and which I discuss below.

Firstly, story completion is particularly suited for studies that explore sensitive or highly personal topics; for example, sexual behaviour, relationships and identity (Clarke et al., 2015; Frith, 2013). It has also been used to explore controversial and uncomfortable topics such as child sex offending (Gavin, 2005). Story stems are hypothetical and often written in the third person, meaning that the method can provide researchers with insight into a wide range of participant responses, including those which may be considered socially undesirable or shocking. When asked about particularly sensitive or personal topics, some participants may find it difficult or intimidating to speak about their own experiences or views using more common qualitative methods such as interviews. Writing stories in the third person can help participants feel a certain level of detachment, knowing they are writing about a character and a hypothetical scenario rather than themselves and their own experiences (Will et al., 1996). This can also be particularly helpful when working with people who are vulnerable, or who struggle with feelings of anxiety or shyness when speaking with researchers. Story completion is, therefore, considered to be a highly flexible and adaptive method.

Story completion is also considered to be less time and resource intensive than other qualitative data collection methods such as interviews or focus groups. Because participants can generally work on their stories independently, the input from the researcher is often minimal; perhaps including a simple explanation of the task, giving out instructions and story stems, and collected participants' stories once completed (Clarke et al., 2017).

Lastly, story completion offers participants a higher degree of control over how they participate in research and how they choose to express themselves and their creativity. The flexibility of the method in terms of the different ways in which stories can be completed other than writing – for example, through speaking (Fey et al., 2004), drawing (Trombini et al., 2024), role play (Yuval-Adler & Oppenheim, 2014), or digital art (Hayfield & Wood, 2019) – means that researchers can give participants options that allow them to best and most comfortably express themselves. In terms of creativity, the possibilities for different stories and narratives are endless. Within one

study, a researcher may collect stories from hundreds of participants (Moore et al., 1997; Whitty, 2005) and will likely not see two stories that are exactly the same. Many researchers using story completion will encourage their participants to be as creative as possible because they want to collect a wide range of different viewpoints and narratives. Generating story stems that encourage participants' creativity is an important consideration for researchers. Story stems that are too specific or prescriptive may result in short or shallow responses from participants because they do not set up the story in a way that will allow for a wide range of story trajectories to be constructed (Clarke et al., 2017).

As discussed in the introduction to the current chapter, traditionally most story completion studies have recruited either young children (in the case of historical clinical and developmental uses of story completion as projective tests or attachment assessment tasks; (Bretherton, Oppenheim, et al., 1990)) or adult participants (often undergraduate students, in many recently published qualitative studies; (Braun et al., 2013; Frith, 2013)). Published examples of story completion studies that have used adolescent participants are few and far between (McKeough & Genereux, 2003; Moore et al., 1997; Stavinoha & Maričić, 2018); it is much more common to find recent examples of published studies conducted with adults. Despite this, given story completion's flexibility, creativity and suitability for use with participants who may not be comfortable discussing sensitive or highly personal topics in interviews, it is probable that story completion is particularly suited to research conducted with young people. Adolescents can be particularly prone to producing socially desirable responses when taking part in research (Barry et al., 2017) and are known to censor what they reveal to researchers in qualitative studies, so the projective element of story completion – which allows participants to project their own beliefs and emotions onto a topic without directly revealing them – is likely to be well suited to young people (Moore et al., 1997).

For this reason, in the current study I employed a story completion method with the aim of providing participants the creative freedom to express themselves through fictional characters rather than asking them to recount personal experiences that may be difficult to talk about given the potentially sensitive nature of the topic. Though, on the surface, the topic of food may seem innocuous, discussions about food and eating can often trigger thoughts about body image, dieting, or disordered eating, particularly amongst adolescents (Neumark-Sztainer, 2011). I, therefore, hypothesized, that story completion may be a less intimidating way to of asking adolescents to think about people's eating habits and experiences. In addition, creative research methods such as story completion can make research more appealing to young people, minimise power imbalances between researchers and young or vulnerable participants, and creating a research environment where young people feel more able to be their authentic selves (Finlay et al., 2013; Trell & Van Hoven, 2010).

When people tell stories, the narratives they construct can reflect their awareness, perception and sense making of a topic in ways that they may not be explicitly aware of, or may not choose to reveal during a direct conversation such as an interview (Clarke et al., 2017). Another reason that I chose story completion was to provide insight into adolescent participants' personal and social identities in relation to food choice and social media. From a sociological perspective, narratives allow storytellers (participants) to understand, construct, claim or reject identities (Frank, 2011). These identities are not thought of as objective or static, but as fluid and dependent on the context within which the story is written and on the topic that is addressed (Stephens, 2011). As discussed in Chapters 1 and 2 of this thesis, identity formation is a key developmental task of adolescence, and the stories that accompany a young person's identity explorations can go some way to revealing why they make certain choices to explore or reject different types of identities. Therefore, story completion is an ideal method for using with young people to encourage them to engage in deeper thinking about the identities that different characters assume and how these identities are linked to their food choices.

5.1.2 Narrative analysis

Many story completion studies have employed thematic analysis to analyse stories collected from participants, however, the emergence of other methods within the field of creative qualitative research has meant that there are other options available to researchers who wish to analyse story data. One of these options is narrative analysis, which has traditionally been used with life-story interview data (Josselson & Hammack, 2021). Narrative analysis is a method of qualitative analysis which involves looking not only at the content of stories, but also at the ways in which the stories have been written and the narratives that have been constructed (Clarke & Braun, 2013). It is a flexible method that has been used in various different forms, one of which is story mapping, which Clarke et al. (2019) introduced as an alternative to thematic analysis for story data. Story mapping involves identifying what Clarke and Braun refer to as vertical patterning within a story, which involves exploring how a story unfolds. It aims to capture conventions in storytelling such as the trajectory of a story (e.g. beginning, middle, end) as well as the presence of genre within a story (e.g. 'happily ever after') and to summarise these elements, as well as the key content points of the story, in map form (an example of a story map can be found in (Clarke & Braun, 2013).

Aside from Clarke and Braun's use of story mapping, narrative analysis has rarely been used in story completion research, despite the obvious alignment between narratives and stories. A story completion study conducted by Williams et al. (2022) described a novel use of narrative analysis which took inspiration from story mapping but focussed more on identifying specific narrative types within the dataset. Williams et al. focussed their analysis on the form and

structure of the stories they collected and identified several distinct narrative types. The method used by Williams et al. (2022) inspired the narrative analysis process that I used in this thesis. As discussed by Clarke and Braun (2013), there is no prescriptive ‘method’ for conducting narrative analysis, rather the stages are defined and developed by the researcher in response to their particular data and research design, as well as the researcher’s own epistemological and ontological stance and how they wish to engage with narrative in their analysis.

5.1.3 Aims and research questions

This pilot study set out to answer research questions 2a and 2b of the PhD:

2a) How do adolescents engage with an online story completion task?

2b) How effective is narrative analysis for analysing story data?

The content of the story completion task itself was designed to answer the research question that will be used for the main story completion study which is described in Chapter 6: What is the role of social media in shaping and expressing identity and personal dietary choices in adolescents?

5.2 Methods

5.2.1 Epistemological and ontological approach

I conducted this study in line with a critical realist approach, which combines a realist ontology (the belief in a real, objective world and ‘true’ experiences) and constructivist epistemology (the belief that knowledge is constructed through shared, subjective experience) (Maxwell, 2012). Critical realism views narratives as representative of both participants’ ‘real’ experiences as well as their conceptualisation of their place in the world and the place of others in relation to the chosen topic (Stephens, 2011). Stories can therefore reflect sociocultural meaning-making (narratives that represent how people understand the social world), and common discourses, norms and tropes that participants may have been exposed to, for example, through media, social interactions or education (Clarke et al., 2017).

5.2.2 Materials

5.2.2.1 Story stem development

I developed three story stems through a process of discussions amongst the supervisory team, feedback from experts in story completion, and input from an advisory panel of young people. The initial stems were constructed based on existing literature suggesting that identity

formation is highly related to food choice (Neufeld et al., 2022), and that identity formation is a key developmental task of adolescence (Branje, 2022; Erikson, 1968). The stems were also informed by self-determination theory (SDT) (Deci & Ryan, 1985) as well as theories of identity formation. Each stem was written to present characters exploring everyday food choices within socially meaningful contexts which related to their natural desire to seek out autonomy, competence and relatedness (Deci & Ryan, 1985). Some stems involved social dilemmas where characters sought to align their behaviour with that of their peers or friends, or were conflicted and attempting to balance their need for autonomy (independent, personal food choices) and relatedness (making the same choices as their friends in order to avoid being outcast from their social group). Other stems introduced characters who were experiencing a notable identity crisis (crisis as defined by Erikson (1968), as a period of growth and exploration). These characters had begun to explore, or think about exploring, new food- or health-related identities, in line with Marcia's Identity Status Model (Marcia, 1966) and Luyckx et al. (2006) Integrative Model of Identity Formation, both of which describe the normal adolescent process of exploring and committing to new identities. These stems were intentionally written to be vague and to prompt participants to think about how a character may continue to explore, or resolve, their identity crisis.

I wrote the stems to introduce several different adolescent characters representing a range of different gender and ethnic groups, each of whom was experiencing a slightly different dilemma in which their current food choices were in conflict with their current or desired identities.

5.2.2.1.1 Public and participant involvement and engagement (PPIE)

An existing 'Young People's Advisory Group' (YPAG) from the Medical Research Council Lifecourse Epidemiology Centre (MRC LEC) at the University of Southampton were involved in the development of the story stems. The group consisted of eight young people (originally nine were recruited and one young person dropped out) from Southampton who attended the group one evening a week for two hours, over a period of 12 weeks. Most young of the young people had either previously taken part in research activities at the University of Southampton or were notified about the role through parents who had links with the university. Their role was to develop a strategy for adolescent health and wellbeing research at the University of Southampton and the University Hospitals Southampton NHS Foundation Trust. The weekly sessions also included opportunities for the young people to provide feedback to and advise researchers about the best ways to engage young people in research. More information about the YPAG can be found in Supplementary Materials 3.

YPAG group demographics

Anonymised, self-reported demographics for the YPAG group are presented in Table 4. The group was made up of five girls and three boys aged between 15 and 17 years; 62.5% self-identified as White British, 25% as Asian or Asian British, and 12.5% as Black African/Caribbean/Black British. According to postcode data (see below paragraph), 37.5% of the YPAG participants lived in areas considered to be among the 50% most deprived neighbourhoods in England.

The young people provided their home postcodes which were converted to IMD (Index of Multiple Deprivation) deciles using the English indices of deprivation 2019 postcode lookup tool (<https://imd-by-postcode.opendatacommunities.org/imd/2019>). The IMD decile gives an indication of the level of deprivation for each of the 32,844 neighbourhoods across England, which are divided into postcodes. On a scale from 1 to 10, a neighbourhood that is designated an IMD decile score of 1 is considered to be amongst the 10 per cent most deprived neighbourhoods in the country, whilst a neighbourhood with an IMD decile score of 10 is considered to be amongst the 10 per cent least deprived areas. The 2019 IMD (the most recent version at the time of writing) was developed based on 39 indicators across seven domains of deprivation: household income, employment, health deprivation and disability, education, skills and training, crime, barriers to housing and services, and living environment (Ministry of Housing Communities & Local Government (MHCLG), 2019). The 2019 IMD is a free resource that members of the public can access online via the postcode lookup tool.

Table 4. YPAG participant demographics

Participant	Gender	Age	IMD decile*	Ethnicity
1	Boy	15	4	Black African/Caribbean/Black British
2	Girl	16	8	White British
3	Girl	15	3	Asian/Asian British
4	Girl	15	8	Asian/Asian British
5	Boy	17	9	White British
6	Boy	15	8	White British
7	Girl	16	4	White British
8	Girl	15	8	White British

*measure of deprivation for the local authority area within which the participant's home postcode is located. 1 = most deprived areas, 10 = least deprived areas.

Structure and purpose of the YPAG group

The group was established by researchers based at the MRC LEC to support the development of a strategy for adolescent health and wellbeing research in Southampton. The aim of the group was to help researchers understand what young people in Southampton saw as the main

health-related issues affecting them and what they felt could be done to give young people happier, healthier futures.

Contribution of the YPAG group to the story completion study

I attended one YPAG evening session in person, where I briefly explained the purpose of the research and gave a simple explanation of story completion as a research method. I then presented the young people with a set of five draft story stems, with accompanying prompts, that had been drafted me:

Stem 1: “Nila has been interested in vegetarianism for a while now and follows lots of people on Instagram who post about being vegetarian. One day she sends her friend a screenshot of one of these posts.”

Prompts: What happens next? What does the post look like? How does her friend respond? How does Nila feel about the response?

Stem 2: “Steph’s friends are all vegan or vegetarian but Steph eats meat. She is sat having lunch with her friends at school.”

Prompts: What happens next? How does Steph feel? How do her friends feel? What reasons do Steph’s friends have for being veggie or vegan?

Stem 3: “Alex wants to start an Instagram account to share the healthy meals they like to cook and eat. Alex decides to talk to their friends about it.”

Prompts: What happens next? How do Alex’s friends react? How does the conversation go?

Stem 4: “Chloe wants to eat more healthily but finds this difficult. She opens up Instagram for inspiration.”

Prompts: What does Chloe see? What happens next?

Stem 5: “Charlie is out with friends at the weekend. Everyone wants to go to McDonalds but Charlie doesn’t.”

Prompts: What happens next? What does Charlie say/do? How do Charlie’s friends react? Does the group end up going to McDonalds?

After giving the young people a few minutes to read through the stems, I asked the YPAG members to give feedback on the stems and prompts through an interactive group discussion which was led by me, and guided by the following questions:

- How would you feel about writing a short story for a research project?

- How long would you want to be able to write for? (I'd probably aim to have everyone write around 1 page of A4. How realistic is that?)
- What would you think the purpose of my study is?
- What would make you want to take part? What would put you off wanting to take part?
- How much would you want to be paid for taking part?
- How would you feel about taking part online or in person (on paper)?
- What do you think about these story starters? Which ones jump out at you?
- Do you prefer the ones that are left quite open or the ones with prompts?

In response to these questions, the YPAG members felt that young people who liked to be creative would find taking part in a story completion study fun, but that those who struggled to be creative would be put off and might prefer to write a story in bullet point form, or to draw out their stories in storyboard form. The YPAG felt that most young people would be happy to spend between 5 and 20 minutes completing a story completion task and would like to be paid between £5 and £10 in return for their participation. They would also like to be given flexibility to complete the story completion task in ways that were easily accessible to them, for example, completing the task at home in their own time rather than during an organised session with the researcher, and being given the choice to write on paper or type their story out on a laptop or tablet. The prompts that accompanied the stems were seen helpful and the young people felt strongly that prompts should be used in the final versions of the stems for data collection.

In terms of the content of the story stems, the YPAG members felt that the stems should reference the social media channels most used by young people their age, which they stated were Instagram, TikTok and Snapchat. The stems should not mention Facebook, as this was not seen as a social media that is popular amongst young people in general. The YPAG members felt that the stems, including the characters and scenarios they were presented with were generally relatable to young people, but that the character names presented in the stems must present a range of different ethnic minority groups and gender identities. They suggested that this could be done by including names from non-white cultures, and by using a combination of gendered (traditionally 'boy' or 'girl' names) and gender-neutral names.

5.2.2.1.2 Revision of story stems by the researchers

Following the session with the YPAG, I discussed the stems, as well as the feedback from the young people, with my PhD supervisory team and two other researchers with expertise in story completion (Dr. Emma Anderson, University of Brighton, and Dr. Toni Williams, Durham University). With their support, I made the following decisions, which led to the development of the final stems used in the pilot study:

Stem 4 was retained, but the character name ‘Chloe’ was replaced with the name ‘Nila’, which is a girl’s name originating from Indian culture. According to the 2021 Census, which was the most recent data available at the time of writing, 3.7% of Southampton residents identified as Indian or British Indian, making it one of the most common ethnic minority groups in the city (Southampton City Council, 2025).

Stem 5 was retained, but the character name ‘Charlie’ was replaced with another gender-neutral name; ‘Ali’, which was chosen because it is a popular name originating from Arabic culture and the Muslim faith. Islam is the second most common religion amongst Southampton residents, after Christianity, and Arabic is one of the top ten first languages spoken in Southampton (Southampton City Council, 2025). This stem deliberately did not include explicit reference to social media because the researchers wanted to see if the topic would come up in the stories organically. The Ali stem instead focused on peer-interactions relating to food choice.

A new stem was created using the character name ‘Dan’, which is a popular White British boy’s name. The new ‘Dan’ stem was developed as an amalgamation of content from several of the original stems but was simplified following feedback from researchers with expertise in story completion. The new ‘Dan’ stem was written as deliberately vague and open-ended, to allow for participant creativity and encourage a range of different story endings.

Though none of the characters were explicitly labelled as adolescents, their presentation within the stems was designed to subtly infer that they represented typical young people from the area within which the study was conducted (the city of Southampton and surrounding areas).

5.2.2.2 Final story stems

Each of the final three story stems are presented below, accompanied by prompts to guide and encourage the young people in their writing. The final stems are as follows:

“Dan wants to start eating more fruits and vegetables, but he is struggling to make a change. He likes looking at healthy recipes on social media.”

Think about:

Why might eating more fruit and veg be important to Dan?

What might be stopping him?

What does he look at on social media?

“Nila wants to start eating healthier. She follows a few influencers and spends lots of time on social media.”

Think about:

Why might eating healthier be important to Nila?

How does social media affect Nila's food choices?

What does Nila look at on social media?

“Ali is out with friends at the weekend. Everyone wants to go to McDonalds but Ali doesn't.”

Think about:

What happens next?

How do Ali's friends react?

Why might this be important to Ali?

5.2.3 Participants

I recruited 20 young people aged 18-25 years from the UK through the platform 'Prolific' (www.prolific.com), a website where members of the public from across the world can sign up to take part in a range of different research studies. Any member of the public aged 18 and over can create a Prolific account and use the website to earn money by taking part in online research studies. Prolific works using an automated system, where study information and materials are uploaded by the researcher prior to starting data collection. Researchers can use Prolific's in built tools to select a desired sample size, and screen participants according to desired demographic characteristics such as age, geographical location etc. They can also indicate an hourly rate for which participants will be paid for taking part in their study. Once a researcher has added sufficient funds their Prolific account, participants will automatically be paid via Prolific's system once they submit a code to evidence their completion of the study task.

In this study, I adjusted the Prolific settings to recruit UK adolescents, aged between 18 and 25 years, who were English speakers. Each participant was paid £10 for their participation in the study via Prolific using funds provided by the ESRC South Coast Doctoral Training Partnership (SCDTP).

Brief demographic characteristics of the 20 participants are described in Table 5. To protect participant anonymity, Prolific does not allow researchers to collect postcode or specific location data from individuals, so these data were not collected. It is, therefore, likely that the participants recruited for this pilot study came from a range of geographic locations around the UK.

Table 5. Pilot story completion study participant characteristics.

Characteristic	Value
Age (years)	
Mean	22.3
Range	18 – 25
Mode	23
Gender (number of participants)	
Women	8
Men	11
Non-binary	1
Current or highest education level (number of participants)	
Sixth form	5
Undergraduate degree	10
Postgraduate degree	4
Apprenticeship	1

5.2.4 Data collection procedure

The study was set up on the Prolific website for participants to sign up and take part. Participants were directed to a Qualtrics web page which hosted the story completion task along with the information sheet, demographics and consent forms. Participants who signed up were first shown an information sheet and provided informed consent. They were then given the opportunity to complete an optional, brief demographics form giving details of their age, gender and current or highest level of education. All participants completed the demographics form despite it being optional. Following completion of the consent and demographics forms they were directed to the story completion instructions and asked to complete all three story stems. Participants were asked to write at least 200 words or 1200 characters for each story. Each participant was automatically randomised by Qualtrics to receive the stems in a different order. The randomisation was counterbalanced to ensure equal representation of presentations. After completing their three stories, the participants were shown a debrief sheet and were then automatically redirected to Prolific to receive their payment.

5.2.5 Analysis methods

I was supported by Dr. Toni Williams via email and video chat to develop the narrative analysis method for this study, which was also based on Williams' published method along with guidance from published narrative analysis guidebooks (Josselson & Hammack, 2021; Williams et al., 2022). For the current study, I developed a five-stage method iteratively through a process of trialling and reflection. In line with existing discourses around qualitative analysis methods that are rooted in reflexive practice (such as reflexive thematic analysis and narrative analysis) (Braun & Clarke, 2022), I conducted the whole analysis independently, without any 'second

coders' or inter-rater reliability testing. The five stages each involved a different 'reading' of the stories (see Figure 4), which I conducted as follows:

Reading 1 consisted of me making handwritten notes on printed copies of the stories and noting down aspects of both story content and structure that were relevant to the research question. This was particularly helpful in allowing me to become immersed in the data and familiarised with the main ideas and themes coming from the stories.

Reading 2 involved line-by-line inductive coding using NVivo qualitative analysis software (QSR International Pty Ltd., 2025). At this point, I coded individual lines or phrases from the stories inductively according to aspects of both content and structure. I then organised codes into story content codes (e.g. 'identity – too busy to be healthy', 'importance of health' etc.) and story structure codes (e.g. 'negative ending', 'resolution of conflict' etc.).

Reading 3 involved printing out each story individually and reading each as one unit of meaning. Rather than dissecting the stories into separate words or phrases as units of meaning, I considered the message or narrative 'type' of each story. Following this, I categorised the stories into four groups representing four different narrative types.

Reading 4 involved looking at each of these groups one by one and thinking about the narrative structure of each. I then wrote a summary of the main elements and themes for each narrative type.

Reading 5 involved discussions amongst the research team to develop a final set of one or two-word labels for each of the narrative types. The labels can be compared to 'theme' names that would traditionally be developed during a thematic analysis and are how the narratives will be presented in the findings section (section 5.3) of this chapter.

Each of these readings was developed in order to further immerse myself in the data, and give multiple opportunities to explore different elements of the stories.

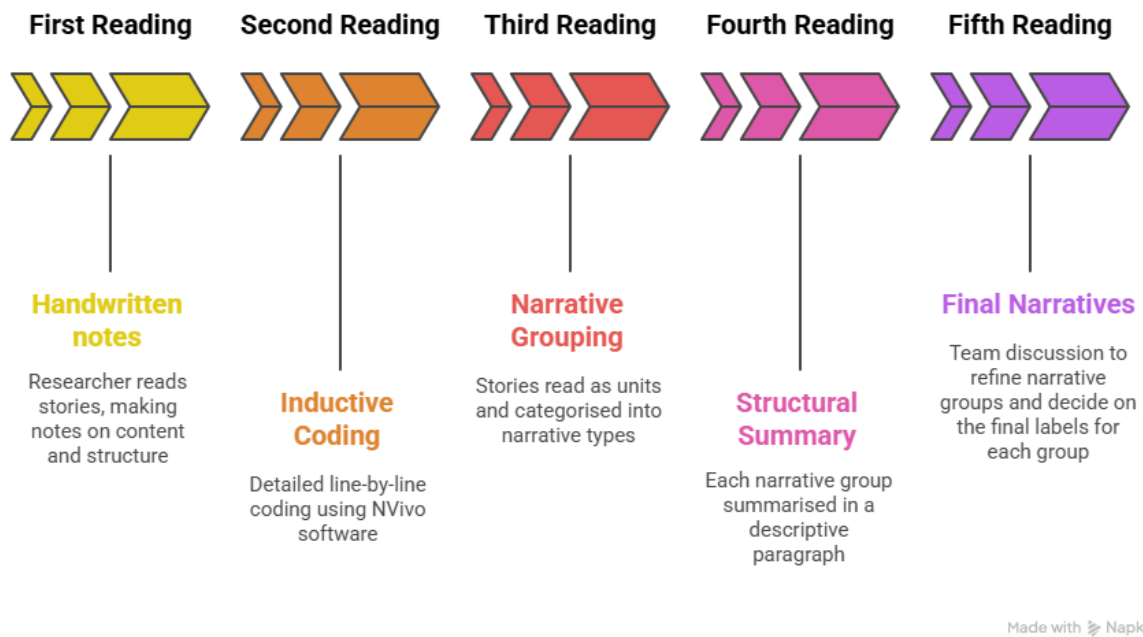


Figure 4. The five-stage narrative analysis method.

5.3 Findings

5.3.1 Stories

A total of 60 stories – 20 for each story stem - were collected from the 20 participants. During the first stage of the analysis (reading 1), I excluded all stories from the ‘Ali’ stem (20 stories) because they did not include any mentions of social media and were therefore deemed unable to help answer the research question about what the role of social media is in shaping and expressing adolescent identity and personal dietary choices. The remaining 40 stories that were analysed (from the ‘Dan’ and ‘Nila’ stems) ranged in length from 207 to 473 words, and each participant spent between 14 and 66 minutes (an average of 27 minutes) completing the task.

5.3.2 Narrative analysis

I used narrative analysis to analyse the remaining 40 stories.

Reading 1

Figure 5 shows the result of the first stage of analysis. These handwritten notes consisted of my initial thoughts about aspects of both story content and structure, with particular focus on identities that were being represented and the trajectories that were being followed, for example, positive and negative endings or conflicts and dilemmas.

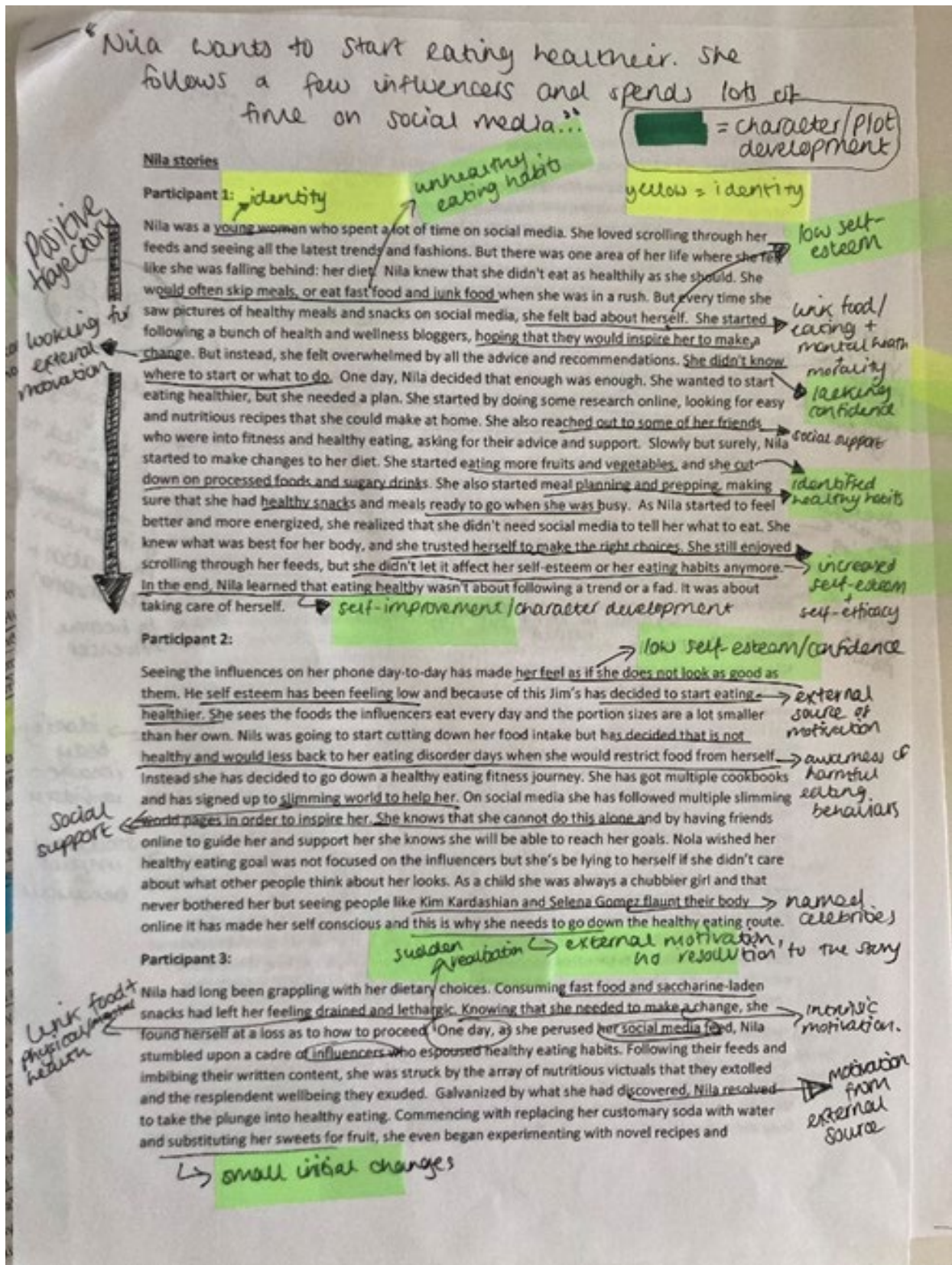


Figure 5. Example of annotated stories from the 'Nila' stem.

Reading 2

Figure 6 shows some examples of the codes that were created during reading 2 of the analysis using NVivo. These codes again related to aspects of both story content and structure but using

NVivo allowed the observations to be coded in more depth and organised more formally than the handwritten notes generated in reading 1, which were considered to be rough initial impressions of the stories.



Story content:	Story structure:
Identity - 'normal person'	Compromise
Identity - student	Conflict or problem not resolved
Identity - too busy to be healthy	Hypothetical narrative
Identity - unhealthy person	Lots of negative language
Identity - young professional	Negative ending
Importance of health	Negative start
Influence of parents on dietary choices	Positive ending
Influencers promoting certain foods or choices	Positive start
Integrity is important	Problem or dilemma
	Proposed solution
	Resolution of conflict

Figure 6. NVivo coding for aspects of story content and structure.

Reading 3

As a result of reading 3, I identified four different narrative groups:

Narrative group A: Stories where social media can be helpful and harmful. Stories contained messages about being conscious about what you look at on social media.

Narrative group B: Stories where social media shows characters how to be healthier and helps them to become a healthier, happier person.

Narrative group C: Stories where social media is portrayed as promoting unrealistic and unattainable lifestyles.

Narrative group D: Stories where social media influencers represent the peak of happiness, success and health and are role models that young characters aspire towards.

Reading 4

In reading 4, I read the stories through group-by-group and constructed summary paragraphs for each narrative group, which summarised the key content and themes that were common amongst stories categorised in each group.

Narrative group A: Stories that involved characters seeing both the good and bad sides of social media, then making an effort to seek out positive content and protect themselves from negative/harmful content to maintain good mental and physical health. This narrative contained themes of responsibility, positive endings, personal agency, curation and being savvy user of social media.

Narrative group B: Stories where characters identified a desire to change their health behaviours (e.g. to eat healthier to lose weight), looked to social media for inspiration, then found content on social media that helped them overcome barriers (e.g. too busy to cook healthy food and having a lack of knowledge about what is healthy) and change their behaviour. This narrative contained themes of overcoming barriers, success, positive endings, social support and intrinsic motivation.

Narrative group C: Stories where characters saw influencers on social media portray 'perfect' bodies and lives, which led to characters feeling bad about their own bodies and lives. Characters wanted to become like these influencers but were generally left feeling disheartened/upset/unmotivated after viewing the content. This narrative contained themes of failure, inadequacy, negative endings, feeling you are a victim, passivity, comparison of identities between influencers and the main character and the fairytale/myth-like quality of influencers.

Narrative group D: Stories where characters saw how happy, successful, popular and beautiful influencers on social media were, and wanted to be like them. Characters followed the influencer's advice and copied their behaviours, and felt better physically, psychologically and socially as a result. This narrative contained themes of aspiration, positive endings, transformation and seeing influencers as idols.

Reading 5

I then developed the final set of four narratives, with one- or two-word labels assigned to each narrative. This section is structured as a combined results and discussion section, which will describe my own interpretations of the stories, alongside illustrative quotes, and will also orient my own analytic commentary in relation to published literature, theories, and existing sociocultural narratives. This is a common way of reporting the findings of narrative analyses

and helps to situate a researcher's personal, subjective interpretations within the broader sociocultural context (Smith, 2016; Williams et al., 2022).

Narrative A: Capability

In narrative A, characters were portrayed as sensible, well-informed social media users who were aware of the pros and cons of social media.

“It is argued that social media is taking over her life, however it is up to debate whether this is damaging. Social media is the main reason Nila has to being motivated and to bettering her life.” (Participant 4, 22-year-old man, Nila stem)

Characters' use of social media to seek out and consume health- and food- related content was conscious and active. They were often portrayed as self-aware and independently took time to consider whether the content they viewed on social media was helpful, harmful, or neutral. Characters in these types of stories showed evidence of autonomy-seeking, through their self-motivated, independent behaviour, as well as attempts to achieve competence by consciously identifying and avoiding potentially harmful or unhelpful health information online. The behaviour of these characters aligns with research suggesting that young people are highly motivated to achieve the three basic psychological needs set out by Self Determination Theory (SDT) (Deci & Ryan, 1985).

“To find more healthy recipes that incorporate fruit and vegetables, he decides to look on tik- tok for healthy recipes. There are numerous search results, but Dan finds that a lot of the recipes are low in calories and focused on weight loss rather than improving health and well-being.” (Participant 13, 24-year-old woman, Dan stem)

Stories generally had positive endings, and any conflicts or dilemmas were resolved. Often, the journey of the character involved not only finding the best ways to achieve their goals in healthy ways but also learning how to evaluate online health content and navigate social media in a sensible way.

“Nila is also going to look at who she follows on social media as she thinks some of the influencers she follows can be quite toxic and she wants to be healthy for herself more than anything so by removing them that should help her. She is very excited to get back to her healthy self.” (Participant 11, 24-year-old woman, Nila stem)

Narrative B: Overcoming challenges

In narrative B, characters were portrayed as using social media successfully for social support, through finding groups or pages dedicated to providing health advice. This finding links to the

desire for relatedness, as outlined in SDT (Deci & Ryan, 1985), where characters in stories categorised under Narrative B often looked to friends or peers for social support to achieve their own goals.

“On social media, Nila might also look at posts from other people in a similar situation as her asking for advice on topics such as how to eat healthier, and what foods to avoid.”

(Participant 20, 19-year-old man, Nila stem)

Scenarios included characters who identified a health goal, often following a negative or traumatic experience; for example, a character whose mental health was negatively affected due to their recent weight gain. This character seemed to have been profoundly affected by negative comments made by others about her weight gain, which lowered her confidence and threatened to unravel her identity as someone whose physical beauty was likely a core element of her self-worth.

“Nila started to notice that she was struggling to have confidence in herself whenever she was going out somewhere, especially if she was going out somewhere that she would be wearing clothes that were a little bit tighter on her skin. She figured it was because she was told by someone a few weeks ago that she had gained some weight which really affected her mental health and how she seen her own body. She decided it might be a good idea to start eating a little bit healthier.” (Participant 5, 23-year-old man, Nila stem)

Characters were depicted as motivated and dedicated, using social media to access supportive, informative communities and pages to help them achieve their desired goal. Most of these stories, though beginning with a negative event or conflict, ended happily, showcasing negative-to-positive trajectories.

“And where better to start this new hobby than by being inspired by millions of other peers on social media? Dan opened his Instagram account and began to search...” (Participant 12, 21-year-old woman, Dan stem)

Narrative C: Inadequacy

In narrative C, characters were often portrayed as victims of passive social media use. Though characters often identified a personal health goal or desire, they rarely achieved this goal, and many stories both began and ended negatively. These characters can be seen as failing to achieve any of the three basic psychological needs (Deci & Ryan, 1985); they did not feel competent enough to be able to behave autonomously, or for their behaviour to truly align with their desired identities, and they failed to relate to others who they perceived as high-status and whose lifestyles they saw as unattainable.

“He views them on TikTok, a hub for aspiring weight watchers to indulge in the fantasy that they will actually make a change in regard to their bodies. As he scrolls through, his eyes surf across the screen, skipping over sushi sensations, kale creations and other vegetable-influenced culinary delights. As he reclines into his chair, his portly body collapses into the sticky leather material. What can he do? His cholesterol is high enough to place him in the most at risk category for a heart attack.” (Participant 8, 23-year-old man, Dan stem)

Social media influencers were commonly depicted as idols who were elevated to an almost mythical status in the eyes of the young characters. The influencers’ lives were perceived as unattainable by the characters, which only exacerbated their existing feelings of unhappiness and inadequacy. Some of these characters seemed to represent an unresolved identity crisis. Their low self-esteem and interpretation of influencers’ lives as successful, yet unrealistic for ‘normal people’ to achieve, contributed to a paralysis of the identity formation process. These characters may not have had the initial confidence to enter a period of identity exploration, which in turn prevented them from committing to valued identities, perhaps leading to identity rumination (Luyckx et al., 2008). The character in the below passage described not believing she was ‘good enough in comparison to the influencers’ and that social media was ‘nothing like real life’. This suggests that perhaps, deep down, her desire to achieve a lifestyle that was comparative to the influencers came not from a genuine alignment with her own desired identity, but from external pressures that had been perpetuated by the toxic social media environment. This identity-incongruence may have been the true reason for her inability to change her behaviour, which aligns with the Identity-Based Motivation model (Oyserman & Destin, 2010).

“Nila follows social media influencers who curate a feed that looks like real life but in reality is nothing like real life. These influencers are skinny, toned, successful, wake up at 5am, spend hours in the gym, seem to survive on green juice and salads and claim to have loads of energy, love being busy and successful and love their life. Nila has bought into this illusion and looks at her own life and doesn’t believe that she is good enough in comparison to the influencers.” (Participant 6, 25-year-old woman, Nila stem)

Narrative D: Transformation

In narrative D, stories often portrayed the achievements and behaviours of social media influencers as aspirational but achievable with hard work and dedication. In line with SDT (Deci & Ryan, 1985), many characters were portrayed as being able to behave autonomously; identifying realistic goals, dedicating time and effort to achieving these goals, and ultimately realising their own potential.

“Dan realized that healthy eating didn't have to be a chore. It could be enjoyable and satisfying too. From that day forward, he started incorporating more fruits and vegetables into his diet, trying out new recipes and experimenting with different flavors and combinations. Dan's journey towards a healthier lifestyle wasn't easy, but with a little bit of inspiration and determination, he was able to make a real change. He felt better than ever before, both physically and mentally, and he knew that he had made the right choice.” (Participant 1, 18-year-old man, Dan stem)

Many characters expressed knowledge of a holistic view of health; an understanding of the importance of balancing physical, social and mental wellbeing. Throughout the stories, characters underwent positive, transformative experiences where they achieved their hard-earned goals and felt that social media had played a significant role in helping them achieve their desires.

“One day, as she perused her social media feed, Nila stumbled upon a cadre of influencers who espoused healthy eating habits. Following their feeds and imbibing their written content, she was struck by the array of nutritious victuals that they extolled and the resplendent wellbeing they exuded... as she persisted with her healthier choices, she experienced tangible improvements in her physical and mental wellbeing. Her energy levels soared, her sleep quality ameliorated, and she even managed to shed some excess pounds. However, now she has never been happier and looks back on the journey with pleasure.” (Participant 3, 23-year-old man, Nila stem)

5.4 Discussion

5.4.1 Summary of findings

This pilot suggests that story completion as a data collection method is feasible for use with people when presented in an online format. No problems with the method itself were reported by participants or experienced by me as the researcher. Recruitment to the study, via Prolific, was relatively quick and easy, with the final sample of 20 participants having signed up and completed the task within 1 hour 45 minutes of the study going live on the website. Prolific and Qualtrics automated much of the process (directing participants to the Qualtrics page, counter balancing, directing participants back to Prolific, approving responses and completing payments), which saved time and reduced the burden on both the author and participants.

Participants engaged well with the task, with all 20 participants producing coherent stories with structured narratives and full sentences that were relevant to the stems. Furthermore, all

stories were rich enough to be analysed and produce a set of clearly defined narrative types. One participant sent me a message via the Prolific anonymous messaging system to say that they enjoyed taking part. Overall, the findings suggest that the young people who took part in the study understood the task instructions and were willing to take the time to write stories of adequate length and quality to be analysed.

Following completion of the pilot study, I re-evaluated the stems with support from my supervisory team and made minor changes which are detailed in Table 6. As a result of these changes, a final set of two stems were developed which were used in the main story completion study which is described in detail in Chapter 6 of this thesis.

Table 6. Changes made to piloted story stems for the main study.

Piloted story stem	Changes made after piloting with young people and feedback from experts	Final story stem to be used in main study
<p>“Dan wants to start eating more fruits and vegetables but he is struggling to make a change. He likes looking at healthy recipes on social media.”</p>	<ul style="list-style-type: none"> • Too much detail in the stem; made the stories more predictable and variation of themes was limited. • Lots of the stories followed very similar, simple narratives involving a positive story arc (Dan resolves his issue and successfully starts eating more healthily). • This stem is quite similar to the ‘Nila’ stem. Also, given the anticipated challenges with recruiting an adequate number of participants through face-to-face recruitment methods, we would like to reduce the workload for each participant so that they only have to write two stories each. 	<p>Decision made to remove stem. Stem was too specific, stories lacked diversity and complexity.</p>

Piloted story stem	Changes made after piloting with young people and feedback from experts	Final story stem to be used in main study
<p>“Nila wants to start eating healthier. She follows a few influencers and spends lots of time on social media.”</p>	<ul style="list-style-type: none"> • Change to a gender neutral character. • Stem is too specific; make broader. • Include element of social media use to help make decisions about food. • Remove mention of influencers as this is too specific and prompted lots of detail about influencers rather than general social media use (we want to see what participants come up with themselves rather than leading them towards influencers). 	<p>“Robin has recently decided to start eating healthier and has been using social media to help them.”</p> <p><i>Prompts:</i> Why might eating healthier be important to Robin? How does social media affect Robin’s food choices? What does Robin look at on social media? What does Robin post on social media and why?</p>
<p>“Ali is out with friends at the weekend. Everyone wants to go to McDonalds but Ali doesn’t.”</p>	<ul style="list-style-type: none"> • No mention of social media; make sure the stem covers all three elements (identity, social media and food choice). • Improve the narrative flow by presenting a scenario. • Keep the character gender neutral (in the pilot Ali was interpreted as both a boy and a girl). 	<p>“Ali has recently started trying to eat healthier. When Ali is scrolling Instagram, an advert for McDonalds comes up...”</p> <p><i>Prompts:</i> Why might eating healthier be important to Ali? What does Ali do next? What does Ali think about the advert? What does Ali look at on social media? How does social media affect Ali’s food choices?</p>

This pilot shows that narrative analysis is effective as a method for analysing story data generated by young people, resulting in a final set of four narrative groups that represented the main themes and narrative types within the dataset. The analysis method, involving five different stages or ‘readings’ of the stories, allowed me to explore both the content and structure of the

stories. The analysis procedure was altered slightly following the pilot, to remove one stage of the process which I did not deem necessary. The alteration consisted of removing the inductive coding element of the analysis process. I decided to remove the 'coding using NVivo' step from the analysis procedure because I did not feel that this stage was helpful in the pilot study. It is rare to see NVivo used for analysis in published story completion studies and the programme does not seem to be particularly useful for narrative analysis because each story is analysed as a whole unit of meaning, rather than in thematic analysis, where words, phrases or sentences can form the unit of analysis. An altered four-stage analysis process, without the use of NVivo, was therefore taken forward and used in the main study, which is described in Chapter 6 of this thesis.

The final set of four narratives provided in-depth insights into the common ideas and viewpoints expressed by the participants through their construction of their stories and characters. The narratives aligned strongly with theories of identity formation and adolescent development, such as Identity Based Motivation (Oyserman & Destin, 2010), the Integrative Model of Identity Formation (Luyckx et al., 2006), and Self-Determination Theory (Deci & Ryan, 1985). Narrative analysis of third-person, fictional stories is limited in that the stories cannot be assumed to represent participants' true opinions or reflect their own experiences. The stories did, however, provide insights into the types of narratives and beliefs that the young people had likely been exposed to via popular culture, social media, traditional media, as well as their own experiences or the experiences of friends and family members.

5.4.2 Reflexivity and reflective notes

Conducting the narrative analysis of the stories was a process of trial and error, as I was learning the method for the first time during this study. I made several observations throughout the analytic process in a reflexive diary, which helped me to make decisions about what worked and what did not work, and therefore, which aspects of the analytic process I would take forward into the main story completion study that is described in Chapter 6 of this thesis. The main aspect of the analysis that I did not find helpful was the NVivo coding. I chose to use NVivo because most of the qualitative analysis I have conducted in my career as a researcher up until this point had been thematic analysis, for which I have found NVivo to be very helpful for organising and grouping codes, and visualising quotes. I discovered, however, during the present story completion study that NVivo may not be suitable for narrative analysis. I preferred to print the stories out and read them on paper, cutting the paper up and placing the stories into physical groups on my office floor so that I could view many stories at once and re-read them with ease.

I found the process of conducting the narrative analysis slightly daunting, as I was unfamiliar with the method prior to researching it for this pilot study and was conscious of how my own views and experiences may affect how I interpreted the stories. Some of the participants were close in age to myself so a lot of things they wrote about were things that I, as a woman in my mid-twenties at the time of the study, could relate to, such as young female characters struggling with body image issues. Other things, however, I could not personally relate to at all, such as stories where Ali was interpreted as a young man. It is possible that I may have subconsciously noticed or placed more importance on scenarios and themes that I could personally relate to or, conversely, paid more attention to scenarios that were unfamiliar and novel to me. My reflexive diary helped me to notice these biases and consider ways that I could mitigate them, such as discussing every stage of the analysis with other researchers who had expertise in narrative analysis, reporting the whole processes transparently in this thesis, and considering how the narratives I identified compared to existing findings from published qualitative literature on the topics of adolescent food choice and health.

5.4.3 Strengths and limitations

A strength of this pilot study was the use of creative qualitative research methods to engage young people and the use of an online recruitment method to recruit participants to take part in the study quickly and efficiently. Using the Prolific online platform to recruit and deliver the study task meant that the workload for both myself and for participants was minimised compared to traditional qualitative recruitment and data collection methods which often require a considerable amount of time, as well as cognitive and practical resources. The fact that this study was able to recruit 20 young people to take part in a relatively effortful task (when compared with multiple-choice surveys which require minimal creativity), in less than two hours, highlights the benefits of using online recruitment methods to encourage young people to take part in research. The participants seemed to engage well with the task, in that they all completed the task according to the instructions and within a reasonably expected length of time. A personal highlight for myself as a researcher was receiving a message from one young person to say that they had really enjoyed taking part. There were no task refusals or unusable responses, and the quality of stories submitted was consistently high.

Though story completion is considered by many to be an innovative, creative and highly flexible research method, there are some limitations of the method that must be considered. In most story completion tasks, participants write about a hypothetical scenario in the third person, meaning that the extent to which researchers can infer information about the participants' own views or experiences is limited. There are, however, those who would argue that pairing narrative analysis with story completion data allows researchers to gain important insight into

the common narratives, ideas, beliefs and events that young people have absorbed through the media they consume and the interactions they have with their peers and the adults in their lives (Clarke et al., 2019).

Another limitation of the story completion task used in this study was the reliance on recruiting only those participants who were willing and able to type out their story independently. This may have excluded young people with lower literacy levels, as well as those without access to the technology required to set up a Prolific account (i.e. a computer or smartphone). In terms of the characteristics of the sample, it is possible that my use of Prolific led to recruitment of a less diverse sample than in-person methods may have allowed, because of the limitations of the platform itself. For example, this pilot study recruited only older young people (aged 18-25 years), whereas the main study will recruit young people from ages 13-25 years, to cover the breadth of adolescence. Limiting participation in this pilot study to those over the age of 18 excluded a significant population of adolescents, however this was due to an unavoidable limitation the Prolific recruitment platform, whereby only individuals aged 18 and above can sign up for an account on Prolific. It is, however, likely that recruiting older adolescents through Prolific improved the response rate, as recruiting young adolescents to take part in research is known to be challenging (Moreno et al., 2017). Another limitation of Prolific that relates to sample characteristics, as well as potential bias in within the sample, is the inability to collect postcode data from participants, so the extent to which the author could comment on the diversity of the sample was limited. It is, however, likely that Prolific users are not a particularly diverse group of people in terms of their educational backgrounds: though anyone can sign up, it is sensible to assume that most people who sign up to a website like Prolific are likely to be more highly educated, have higher levels of digital literacy, and have previous experience of taking part in research. The term, 'professional participants' has been used to describe participants who routinely sign up to take part in online research studies with the sole aim of financial gain (McCaul & Wand, 2018), and have been suspected of misrepresenting their identity and purposely deceiving researchers in order to take part in studies multiple times for additional financial rewards (Ridge et al., 2023). I cannot be sure as to whether this occurred in the current study, however I made every effort to minimise the chances of this happening. For example, Prolific was chosen as a recruitment and data collection platform for this study because of their rigorous quality and identity checks, including bank-grade ID verification and AI/bot detection, which are conducted regularly and routinely on all Prolific participants (<https://www.prolific.com/protocol-data-quality>).

The ease with which participants can sign up for studies on Prolific to get paid instantly also means that the platform may attract people who aim to complete tasks and quickly as possible to maximise their earnings, leading to higher potential for short, shallow responses. Finally,

online recruitment methods may create distance between researchers and participants, meaning that rapport-building is unlikely, and participants may not feel as valued as they would taking part in face-to-face research, where they can meet researchers, ask questions in person and develop a deeper understanding of the value of their participation in the research.

5.4.4 Lessons learned and implications for future research

This pilot study highlighted the benefits of using online recruitment methods to engage young people in research, as well as the feasibility of story completion as a method to use with young people. Though accompanied by its own limitations, Prolific was a highly effective way of recruiting young people to take part in the story completion task quickly and efficiently, with minimal burden to both myself and the participants. The story completion task was completed to a high standard by all participants, suggesting that those who signed up found the task reasonable and, perhaps, enjoyable.

This study also proposes that narrative analysis is a highly effective method for analysing written stories generated by a story completion task. It shows that the method has useful applications beyond its traditional use for analysing life story interviews (Josselson & Hammack, 2021). The high level of immersion required to analyse the stories, which was achieved through conducting five separate 'readings' of all 40 stories, led to a high level of familiarity with the data.

Further research is needed to explore using story completion with a larger, more diverse sample of young people, in line with published story completion studies which tend to have larger samples than more traditional qualitative methods. This will be addressed in the main study, which is described in Chapter 6 of this thesis.

5.5 Conclusion

This pilot study demonstrated the feasibility of conducting an online story completion task using Prolific as a recruitment and data collection platform. Participants engaged well with the task, producing coherent, analysable stories within a short timeframe. The findings provided support for narrative analysis as an appropriate and effective method of analysis for this type of data. Ultimately, this study provided evidence to support story completion as a promising creative qualitative method for engaging young people in research. Learnings from a PPI panel of young people, as well as the findings of this narrative analysis in this study, provided helpful information about the best ways of constructing story stems, and contributed to alterations to both the story stem construction and the narrative analysis procedure that informed the subsequent main story completion study that is reported in Chapter 6 of this thesis.

Chapter 6 Using story completion to understand young people's experiences of using social media in relation to identity development and dietary choices

Chapter summary: *This chapter will answer Research Question 3 and address Objective 3 of the PhD project. It describes a qualitative study that used creative methods with young people. A combination of in-person and online recruitment methods were used to engage young people in a story completion study to examine the relationships between identity, social media and food choice. Narrative analysis was employed to analyse the data.*

Statement of contribution: *The work presented in this chapter was led and conducted by the author with support from the supervisory team, Dr. Toni Williams and Dr. Emma Anderson (both researchers with expertise in story completion and narrative analysis).*

6.1 Introduction

6.1.1 Young people's social media use

Much of the research investigating the effects of social media on young people's development focuses on the negative impacts to mental and physical wellbeing and fears about 'problematic' social media use, despite limited empirical evidence that these fears are justified (Odgers et al., 2020). Social media is integral to the lives of most young people today and many see social media as having a positive impact on their lives. Popular social media platforms such as Instagram, Snapchat and YouTube are used as social, educational and creative tools. Young people can pick and choose which groups or areas of social media they wish to be immersed in, and can filter out content that is not interesting or useful to them (Kaakinen et al., 2020). Many young people see social media as a place for social support and connectedness, something that became particularly significant during the COVID-19 pandemic in the early 2020's (Keles et al., 2024). Young people are also known to acknowledge the benefits of being exposed to content that may validate difficult or negative experiences they have had or beliefs and values they are exploring for the first time as part of their identity formation process (Keles et al., 2024).

Conversely, young people are also aware of the negative impacts social media can have: they consistently report experiences of cyberbullying, exposure to graphic or violent content, 'trolling', and pressure to conform to unachievable body image standards (O'reilly, 2020). They

talk about the direct negative impacts these experiences have on their mental health and behaviour, however, they are also able to talk about the coping strategies they actively use to mitigate the negative effects of social media. Young people have reported using a range of practical strategies such as unfollowing accounts that they felt posted unhelpful or upsetting content and choosing to follow content that made them feel good about themselves, as well as cognitive strategies such as psychological distancing and reframing (Mahon & Hevey, 2021).

Aside from the positive and negative impacts social media is known to have on adolescent mental, physical and social wellbeing, it is also a platform used by many young people as part of the identity formation process. Young people often use social media to engage in self-presentation; curation of their online identity which involves carefully identifying and selecting elements of their persona that they wish to portray to others (Pérez-Torres, 2024). This can involve the construction of both real and imagined identities, the latter of which can represent young people's desired or 'ideal' identities which they strive to achieve (Dunkel, 2000). Social media has also been harnessed by young people to gain inspiration from peers, celebrities and influencers to inform their own identity explorations (Pérez-Torres, 2024). Young people can be exposed to a vast array of information, ideologies, aesthetics and values through social media, all of which can inform their own explorations. Social media can, therefore, be seen as a key contributor to the identity formation process for most young people in developed countries.

6.1.2 Identity and food choices in adolescence

Research findings support the idea that identity is central to the development of health behaviours such as food choice. When asked to talk about their eating habits many people will, perhaps without realising, tell a story of identity. They will describe identities relating to food preferences, eating frequency, or membership of food-adjacent social movements such as veganism or vegetarianism (Bisogni et al., 2002). Using findings from their qualitative study, Bisogni et al. (2002) developed a conceptual model illustrating the bi-directional nature of the relationship between identity and eating behaviours. They reported three main types of eating-related identities: identities related to eating practices, identities related to other personal characteristics, and identities related to reference groups and social categories. Eating practice identities were related to the range and types of foods eaten (being a 'picky eater'), types of meal patterns (being a 'three-meals-a-day person), quantity of food eaten (being a 'hearty eater') and consistency of food practices ('being a 'regular eater'). Identities related to personal characteristics captured health-, body image-, control-, flexibility-, and satisfaction- related aspects of identity (being an 'impulsive eater' or a 'comfort eater'). Identities related to reference groups and social categories reflected ideas about social roles around food such as being a role model for others (e.g. children) and about group membership, such as 'what older

women eat' or food identities relating to particular social classes or professions. People may describe complex explanations for these behaviours, perhaps recounting past experiences, observations or daily challenges, and telling these stories can help them and others make sense of their behaviours.

In addition to the discussions taking place in the published literature around identity development, social media and food choices in young people, there is a place for qualitative research to investigate how young people themselves conceptualise these three elements. The pilot study described in Chapter 5 of this thesis provided evidence to support the use of creative qualitative methods, such as story completion, to support young people to take part in meaningful health research. As shown in Chapter 5, narrative analysis allows researchers to uncover common narratives within participants' stories, which may reflect their own exposure to and understanding of common sociocultural narratives, or narratives that they perceive as being experienced by their friends and peers. Narratives in fictional stories can be used by writers to express their understanding of the social norms around a particular behaviour, to make sense of their own experiences, and consider alternative perspectives (Frank, 2010).

Using a method similar to that which was used in the pilot study described in the previous chapter of this thesis, I used story completion in the current study to encourage participants to respond freely and creatively to the task of thinking about the relationship between food choice, identity and social media amongst young people.

6.1.3 Aims and research questions

The aim of the current study was to use learnings from the pilot study described in Chapter 5 of this thesis to conduct a larger-scale study using the same methods. Recruitment of a larger, more diverse sample was deemed necessary following the pilot study, which was only able to recruit participants aged 18 years and over due to the limitations of the Prolific online recruitment platform, and during which I was unable to collect sufficient sociodemographic information from participants, also due to limitations of the platform.

I therefore used the adapted story completion task to collect short stories from a diverse sample of young people using both online and in-person recruitment methods, and analysed the stories using narrative analysis, using a similar process to that which I had used in the pilot study described in the previous chapter.

This study aimed to answer research question 3 of the PhD:

- 3) How do young people understand the role of social media in shaping and expressing identity and dietary choices?

6.2 Methods

6.2.1 Epistemological and ontological approach

As in the previous chapter, this story completion study aligns with a critical realist approach. Critical realism consists of a realist ontology (the belief in a ‘true’, objective world that ‘exists’) and a constructivist epistemology (the belief that knowledge is constructed through individual, subjective experiences and perspectives) (Maxwell, 2012). Applying this approach to a narrative analysis of stories involved careful consideration of the extent to which participants’ written narratives represented ‘real’ experiences as well as how they represented the ways in which participants constructed and made sense of their understanding of the world around them (Clarke et al., 2017).

6.2.2 Study design

Learnings from the pilot study described in the previous chapter, feedback from Dr. Toni Williams (expertise in narrative analysis of stories (Williams et al., 2022)) and discussions with Dr. Emma Anderson from the University of Brighton (expertise in story completion) helped shape the story stems, recruitment methods and analysis methods for this main study.

6.2.3 Materials

I adapted the story stems used in the pilot study (Chapter 5 of this thesis) using learnings from the pilot which have been described in section 5.4 of the previous chapter. Therefore, the story stems used in the main study described in this chapter are as follows:

“Robin has recently decided to start eating healthier and has been using social media to help them.”

Prompts: Why might eating healthier be important to Robin? How does social media affect Robin’s food choices? What does Robin look at on social media? What does Robin post on social media and why?

“Ali has recently started trying to eat healthier. When Ali is scrolling Instagram, an advert for McDonalds comes up...”

Prompts: Why might eating healthier be important to Ali? What does Ali do next? What does Ali think about the advert? What does Ali look at on social media? How does social media affect Ali’s food choices?

6.2.4 Recruitment

I recruited participants via a combination of online and in-person methods. Following the success of Prolific as a recruitment platform in the pilot study, I decided that using Prolific to recruit to the main study would likely increase the chances of collecting sufficient high-quality data within the required time span allocated for the study as part of a PhD project. Recruiting young people to take part in research is known to be challenging, with young people reporting that they are unlikely to take part in research unless it is relevant and interesting to them personally, fun, convenient, well-incentivised, and associated with minimal time commitment (Jong et al., 2023). The issue of gaining parental consent for adolescents under the age of 16 years can also be a barrier to recruitment. Liu et al. (2017) conducted a meta-analysis of studies recruiting adolescent participants to health research and found that response rates from parents who were asked to provide consent for their children to take part were consistently low. They pointed out that the consent procedure is effortful for parents who are already very busy, and often requires them to read lengthy, detailed information sheets and sign forms. The burden on parents to commit time to reading and understanding what they are signing their child up for can be off-putting and reduce the consent rate.

Despite these challenges, it was necessary to recruit young people using in-person methods in order to access younger adolescents who were not old enough to sign up to use online platforms like Prolific. I approached young people via local youth groups, which I chose to use instead of schools because of the known challenges with recruiting through schools, which include; burden on gatekeepers, teachers and parents, coordinating consent procedures, and logistical organisation which can involve taking students out of lessons or asking them give up their limited free time during the school day (Bartlett et al., 2017).

Following recommendations from published story completion studies (Clarke et al., 2017) and from discussions with experts in the method, I aimed to recruit a minimum sample of 70 young people and for each participant to write more than one story. This was to ensure the data collected were of adequate quality in order for a meaningful analysis to be conducted. Braun et al. (2019) recommend sample sizes of between 50 and 200 participants for story completion studies to ensure that rich data are collected and that patterns or themes can be identified clearly. They advocate collecting an initial sample and then collecting additional data if needed. It was anticipated, from the PhD supervisory team's previous experience of working with young people, that around 40 young people would be recruited from youth groups, with the remaining 30 from Prolific. Additional participants would be recruited via Prolific if necessary.

6.2.4.1 Youth group recruitment

I identified local youth groups across Hampshire (Eastleigh, Fareham and Portsmouth areas) via existing relationships with members of the PhD supervisory team or via Google searches for 'youth groups Hampshire'. I recruited a total of seven youth groups.

Initially I contacted youth group leaders via email and asked them if they and their young people would be interested in taking part in a study being conducted by researchers at the University of Southampton. I sent them the relevant information sheets and consent forms to hand out to young people who they thought might want to take part. In some cases, the youth group leader sent out the study materials to all their young people, whereas in other cases the leaders identified specific young people who they thought would be most keen to take part and who would be likely to get the parental consent form signed in time for the organised data collection session.

Most groups were set up to serve young people from more deprived areas of Hampshire or those who were particularly vulnerable such as care leavers or young people who relied on free school meals. Most of the groups provided evening sessions to their young members once a week or more. Sessions ranged in length from one to three and a half hours. Some were more structured (Scout groups) whereas others used a more informal drop-in format. Some of the groups provided hot meals to the young people. Some provided activities such as arts and crafts or sports, whereas others hosted a space for young people to just 'hang out'. Upon observation it was clear that all of the group leaders had close, supportive relationships with the young people; they talked to them about school or college, their lives at home, friendship and family difficulties and financial worries.

I attended at least one session for each youth group, during which I introduced myself and the study to the young people and gave them opportunities to chat with me, to ask questions and sign up to take part in the study. These sessions usually occurred whilst other activities were being facilitated or delivered in a different part of the building or room by youth group staff.

6.2.4.2 Online recruitment

I created a new study page using my existing Prolific account (used for the pilot study described in Chapter 5), and recruitment was paid for using funds provided by the ESRC SCDTP. The Prolific study page linked potential participants to a Qualtrics project which was created to host the story completion task, in the same way it had been during the pilot study. Participants were recruited, completed the story completion task, and were then paid automatically via the Prolific platform. I closely monitored the data collection process through Prolific to ensure all

links were functioning correctly and that payments were being made for participants who had successfully completed the study.

6.2.5 Participants

I recruited a total of 77 young people to take part in the study. Ultimately, recruitment via youth groups was a successful approach and 45 young people were recruited through youth groups in Hampshire between 14th August 2023 and 21st November 2023.

The sample recruited through youth groups was diverse in many ways, reflecting the success of the recruitment approach. Each of the youth groups involved in the study provided support and social opportunities to a diverse range of young people from different backgrounds and different types of communities. Four of the seven youth groups were located in areas classified as being amongst the 50% most deprived postcodes in the country (Index of Multiple Deprivation (IMD) scores of 5 or less). I also observed that, even when attending youth groups in slightly more affluent areas, the majority of young people accessing those groups were informally described by youth group staff as struggling with turbulent home circumstances, inconsistent school attendance, and/or inconsistent access to food. Most of the groups had been set up specifically to serve young people from more deprived backgrounds, those accessing free school meal programmes and those with specific support needs. For example, one of the youth groups was made up of young people transitioning from the care system, who had specific challenges requiring a high level of support and empathy from youth group staff. The young people recruited from these groups ranged in age from 13 to 21 years old. I then recruited 32 young people aged between 18 and 25 years via Prolific on the 9th and 10th April 2024 using the same recruitment strategy as described in the pilot study (Chapter 5).

I collected basic demographic information from all participants (age, gender, current or highest level of education), which are presented in Table 7. In total, 38 girls/young women, 33 boys/young men and 6 non-binary people took part. Amongst the whole sample, the youngest participants were 13 years old and the eldest were 25 years old. When asked about their current or highest level of education, 34 participants answered 'secondary school', 18 said 'sixth form', 5 said 'apprenticeship', 14 said 'undergraduate degree' and 6 said 'postgraduate degree'. Postcode data were not collected for individual participants. Ethics approval for the study did not allow me to collect individual postcodes from young people taking part through youth groups, and postcode data were not collected from individuals taking part via Prolific due to limitations of the platform (Prolific does not permit the exchange of personal data, including postcodes, between participants and researchers). Because of the online nature of the

recruitment process, it is likely that participants recruited via prolific represented a range of different geographic locations and socioeconomic backgrounds across the UK.

Table 7. Story completion main study demographic data

Characteristic	Value		
	Youth group participants	Prolific participants	Total sample
Age (years)			
Mean	15.53	22.09	18.26
Range	13 – 21	18 – 25	13 – 25
Mode	16	22, 25	16
Gender (number of participants)			
Girls	26	12	38
Boys	17	16	33
Non-binary	2	4	6
Current or highest education level (number of participants)			
Secondary school	33	1	34
Sixth form	11	7	18
Apprenticeship	1	4	5
Undergraduate degree	0	14	14
Postgraduate degree	0	6	6

6.2.6 Data collection procedures

6.2.6.1 Youth group participation

For the in-person data collection, I introduced young people to the task in small groups and then provided them with information sheets, assent forms or consent forms (depending on their age) and the demographics form.

Following the consent procedures described above, I gave each participant an iPad (loaned from a research team at the University of Southampton) as well as the story completion instructions and stems. I instructed half of the participants to complete the ‘Ali’ stem first, and half to complete the ‘Robin’ stem first, to minimise order effects. I also asked participants to spend at least 10 minutes writing their stories to maximise the chances of an adequate quantity of data being collected. I saved each of the participants’ stories onto the iPads and downloaded them onto a secure, password-protected laptop once I returned from each data collection session. Once downloaded, I assigned each participant a unique ID number, and anonymised all stories by ensuring each was labelled only using the participant ID number. I created a separate spreadsheet linking participant demographic information and ID number, which was stored securely on the password-protected laptop. Following completion of the task, I offered all participants recruited via youth groups an Amazon voucher, to the value of £10, as a thank you for their participation.

6.2.6.2 Prolific participation

Data collection using Prolific was relatively quick, taking just two hours in total. Participants who signed up to take part in the study via the Prolific platform were provided with task instructions, and a link to a Qualtrics study within which they viewed a participant information sheet and completed a consent form, demographics form and completed the story completion task. The demographics form was optional, but all participants were required to provide informed consent before completing the story completion task. Participants were instructed similarly to the procedure for youth group recruitment; they were asked to write at least 200 words or 1200 characters for each story. I set up the Qualtrics study to be counterbalanced, so half of participants were randomly assigned to complete the 'Ali' stem first, and half were randomly assigned to complete the 'Robin' stem first. Following completion of the task each participant was paid £5 in cash via the Prolific automatic payment system. The rate of pay was decided in line with the requirements of the funder of the PhD (ESRC SCDTP), which dictated that research participants be paid a maximum of £10 per hour. This guideline was published after the youth group recruitment had been completed, hence why youth group participants were paid more than Prolific participants.

Once all Prolific participants had completed the task, I downloaded the stories from Prolific in the form of a Microsoft Excel spreadsheet, and then copy-and-pasted each story into Microsoft Word for ease of reading. The stories had been automatically anonymised and each participant assigned an ID number through the Prolific system.

6.2.7 Analysis methods

I used a protocol for narrative analysis similar to that which I used in the pilot study (Chapter 5). That is, I conducted the whole analysis alone, without discussing my interpretations with any other researchers until I had completed the analysis, which is a common strategy in qualitative analysis methods that are based in reflexive practice (Braun & Clarke, 2022). Following removal of the 'NVivo coding' stage of the analysis (as discussed in section 5.4 of Chapter 5), the analysis procedure I used in the main study was as follows:

Reading 1: At this stage, I printed out all of the stories and made initial handwritten notes about story content and structure.

Reading 2: The second reading involved sorting the stories into different narrative types. I cut up the printed stories so that I could view each one individually and could visually sort through them and generate groups based on the general narrative themes and meanings in each story.

Reading 3: After grouping all the stories into narrative groups, I analysed each group in detail, one at a time, to pull out the nuances and construct a paragraph summarising each narrative.

Reading 4: I then generated one- or two-word descriptive labels for the final set of narrative groups.

6.2.8 Reflexivity

I believe that one of the key values of creative qualitative research is that it gives a voice to people who may not feel they are heard in other contexts. In many areas of their lives, young people are ignored or instructed by the adults around them and are seldom asked about their perspectives or experiences. Story completion gives young people a chance to express themselves freely and creatively. Whilst collecting the data in the face-to-face youth group sessions, I was acutely aware of the power and social dynamics between myself and the participants. I felt it was important to maintain a casual demeanour during these data collection sessions to ensure that the young people felt comfortable and able to ask questions about the task.

6.3 Findings

6.3.1 Stories

I collected a total of 154 stories from the 77 participants. Participants recruited via Prolific (n = 31) each spent between 11 and 57 minutes (an average of 25 minutes each) completing the task. Participants recruited via youth groups (n = 46) spent between 5 and 90 minutes completing the task.

I excluded 16 stories from the analysis: 14 were excluded because they contained less than 50 words, a cut off that was decided in line with published examples of analysis of story completion (Williams et al., 2022), and two stories were excluded due to 'task refusal' because they contained fantasy narratives that were not relevant to the research question. Following these exclusions, a final sample of 138 stories was analysed using narrative analysis. The stories ranged in length from 57 to 772 words. I analysed all of the stories myself, and then discussed my final interpretations with a researcher experienced in the story completion method (Dr. Emma Anderson).

6.3.2 Narrative analysis

Reading 1

In stories from the 'Ali' stem, eating healthily was either associated with feeling better and improved performance in sports or physical activity, or with weight loss and physical appearance. Stories about disordered eating or eating disorders were common when Ali was interpreted as a boy, a girl or as gender neutral. Many stories showed awareness of the importance of a healthy diet and some talked about the importance of moderation. Some stories hinted at the 'big food' agenda and the manipulative marketing techniques used by companies such as McDonalds. Despite this awareness, the McDonalds advert was often described in stories as triggering cravings, a physical bodily response (sometimes an extreme response) or an emotional response (e.g. nostalgia) in Ali. There were 49 mentions of 'tempt', 'tempting' or 'temptation', and 21 mentions of 'crave' or 'craving(s)' amongst the 'Ali' stories. Fast food was often associated with short term happiness but long-term regret and negative consequences, unless the fast food was thought of as part of a 'cheat day' or as a treat within a mostly balanced diet.

In 'Robin' stories, eating healthier was mostly associated with wanting or needing to lose weight, which was associated with either body image concerns or physical health. Many stories described Robin posting on social media as a way of helping others and becoming a positive influence on social media. Stories showed lots of awareness of both the negatives and positives of social media and influencers were seen as inspirational when they were presented as positive role models who provided motivation and health information, and as negative when they portrayed unrealistic beauty standards and caused Robin to feel pressure to look 'perfect'.

A range of story styles and trajectories were identified. Though relatively short and simple, many of the stories loosely followed one of the seven basic narrative structures that are common in literature (Booker, 2004). For example, many of the stories from the Ali stem loosely followed an 'overcoming the monster' narrative type (fast food advertising is the monster, which is ultimately defeated when Ali is able to resist temptation and stick to their health goals). Many stories from the Robin stem loosely followed a 'rebirth' narrative type (Robin feels oppressed by unrealistic influencer lifestyles and peer pressure, but with the help of friends or followers, Robin is able to realise what they truly value and how to harness social media in positive ways).

Reading 2

At this stage, I generated six narratives groups, which are described below:

- A) Social media is good and bad. Characters make a conscious effort to seek out the good and ignore the bad. (similar to 'capability' narrative from pilot study)
- B) Characters use social media to help themselves and others by building a supportive online community. (similar to 'overcoming challenges' narrative from pilot)
- C) Social media makes the characters feel bad. There's too much pressure and misinformation. (similar to 'inadequacy' narrative from pilot)
- D) Social media is seen by the characters as positive, helpful and inspirational. (similar to 'transformation' narrative from pilot)
- E) Characters can overcome the temptation of unhealthy food on social media and can stick to their health goals.
- F) It is almost impossible for characters to stick to their health goals whilst using social media.

Reading 3

Summary paragraphs for each of the identified narrative groups are presented below:

- A) Awareness of both the good and bad sides of social media. The good things can be inspirational e.g. seeking out content about self-improvement or healthy recipe ideas. A fair amount of the self-improvement content relates to moderation/balance and dismissing diet culture and restriction. The bad things e.g. the temptation of seeing fast food adverts or pressure from influencers can make you feel down but can also inspire you to be better and ignore temptations. Some acknowledgement of personal responsibility to curate your own social media feeds, to seek out positive content and ignore unhelpful or harmful content. Effort is needed to distinguish between reliable information and false information. Active use of social media - meaning that characters were conscious of how they were using social media, and actively sought out information about health, rather than scrolling mindlessly and without intention. Thirteen of the stories within this narrative were written by older participants (aged 19-25 years) and 11 were written by younger participants (aged 13-18 years). This narrative contained a mix of 'Robin' and 'Ali' stories.
- B) Using social media as a form of social support to stay motivated to achieve health goals. Stories often end with the character expressing a desire to become an influencer and/or posting their own experiences with their health journey online for others to see and be inspired by. They are often posting content relating to both healthy food and 'fitness'. There is a desire to create a community of likeminded individuals who can support each other online. Some implied responsibility to be a positive role model for their followers.

Generally social media is seen as positive here. Identities relating to self-improvement, being a role model and helping others, and 'wellness' lifestyles. Active use of social media. Morality. Twelve of the stories within this narrative were written by older participants (aged 19-25 years) and nine were written by younger participants (aged 13-18 years). All the stories were from the 'Robin' stem except one from the 'Ali' stem.

- C) Social media is a place where bullying and trolling happens, there are temptations such as unhealthy food adverts and excessive pressure to look 'perfect'. Sites encourage social comparison which can be damaging to mental health. 'Perfect' bodies seen online are described as 'skinny', 'thin', 'flawless'. Seeing these images makes the character feel bad about themselves and often creates a desire to lose weight and/or change their diet, often through extreme measures. Some characters are aware that these images may be fake or edited but this doesn't stop them feeling bad. Idealised identities that characters strive for relating to 'perfection'. Identities of victim, damaged, distress. Seventeen of the stories within this narrative were written by younger participants (aged 13-18 years) and five were written by older participants (aged 19-25 years). This narrative contained stories from both the 'Robin' and 'Ali' stems.
- D) Characters use social media to successfully find healthy recipes and inspiration. It can be used to learn about what a healthy diet looks like and how food affects the body. Health is thought of as a combination of diet and exercise, with balance being important. Seeing people on social media who are fit and healthy motivates the character to work towards their own health goals. They post their own results on social media because they are proud of what they have achieved. Characters realise, through their use of social media, that it is possible to eat healthy food that also tastes nice and is satiating. Health is associated with weight loss but also with healthier skin and hair, improved energy levels and immunity as well as general wellbeing and mental health. More rounded view of health. Eleven of the stories within this narrative were written by older participants (aged 19-25 years) and seven were written by younger participants (aged 13-18 years). All of the stories within this narrative were from the 'Robin' stem except two from the 'Ali' stem.
- E) Seeing fast food adverts on social media is extremely tempting but it is possible to overcome cravings and stick to health goals. Seeing these adverts often provokes a physical or emotional response that is a struggle to see past, but seeking support from friends in real life or positive influencers on social media can help distract from the temptation and help characters stick to their health goals. Characters have some

awareness of the manipulative marketing strategies that are used by companies like McDonalds. They also feel that the food that is being advertised is not usually as nice as it looks in the advert. Identities around strength, willpower, defending yourself and drawing on resources outside of social media. Sixteen of the stories within this narrative were written by older participants (aged 19-25 years) and 14 were written by younger participants (aged 13-18 years). All stories within this narrative were from the 'Ali' stem.

- F) Seeing fast food adverts on social media is too hard to resist. These adverts are responsible for characters feeling they have 'fallen off the wagon' with their health goals despite genuinely wanting to stick to them for various reasons (weight loss, participating in sports etc.) Some characters feel they are unable to maintain control and are easily susceptible to marketing techniques. Eating the food is often followed by feelings of guilt or regret, although sometimes the character acknowledges that balance is important and it is okay to eat unhealthy food every so often. Passive use of social media. Fifteen of the stories within this narrative were written by younger participants (aged 13-18 years) and seven were written by older participants (aged 19-25 years). All the stories within this narrative were from the 'Ali' stem except one from the 'Robin' stem.

Following a discussion amongst the supervisory team, in which the differences and similarities between the narratives groups were considered, I made the decision to combine some of the groups. Groups E and F were combined as they contained very similar stories, but were split into two different types of story endings. Groups B and D were also combined.

Final set of narrative groups:

- A) Characters show awareness of both the good and bad sides of social media. The good things can be inspirational e.g. seeking out content about self-improvement or healthy recipe ideas. A fair amount of the self-improvement content relates to moderation/balance and dismissing 'diet culture' and restriction. The bad things e.g. the temptation of seeing fast food adverts or pressure from influencers can make you feel down but can also inspire you to be better and ignore temptations. Some acknowledgement of personal responsibility to curate your own social media feeds, to seek out positive content and ignore unhelpful or harmful content. Effort is needed to distinguish between reliable information and false information. Active use of social media. Identities around being mature, capable, being able to see past the negatives. Thirteen of the stories within this narrative were written by older participants (aged 19-25 years) and 11 were written by younger participants (aged 13-18 years). This narrative contained a mix of 'Robin' and 'Ali' stories.

- B) (combination of B + D) Characters use social media to successfully find healthy recipes and inspiration. It can be used to learn about what a healthy diet looks like and how food affects the body. Health is thought of as a combination of diet and exercise, with balance being important. Seeing people on social media who are fit and healthy motivates the character to work towards their own health goals. They post their own results on social media because they are proud of what they have achieved. Social media is seen as a form of positive social support. Lots of stories end with the character expressing a desire to become an influencer and/or posting their own experiences with their health journey online for others to see and be inspired by. They are often posting content relating to both healthy food and 'fitness'. There is a desire to create a community of likeminded individuals who can support each other online. Some implied responsibility to be a positive role model for their followers. Generally social media is seen as positive here. Identities relating to self-improvement, being a role model and helping others, and 'wellness' lifestyles. Active use of social media. Morality. Characters realise, through their use of social media, that it is possible to eat healthy food that also tastes nice and is satiating. Health is associated with weight loss but also with healthier skin and hair, improved energy levels and immunity as well as general wellbeing and mental health. More rounded view of health. Identities around being a strong, healthy, desirable, successful person, a role model. Being a 'good' person, someone for others to look up to. Twenty-three of the stories within this narrative were written by older participants (aged 19-25 years) and 16 were written by younger participants (aged 13-18 years). All stories within this narrative were from the 'Robin' stem except three from the 'Ali' stem.
- C) Social media is a place where bullying and trolling happens, there are temptations such as unhealthy food adverts and excessive pressure to look 'perfect'. Sites encourage social comparison which can be damaging to mental health. 'Perfect' bodies seen online are described as 'skinny', 'thin', 'flawless'. Seeing these images makes the character feel bad about themselves and often creates a desire to lose weight and/or change their diet, often through extreme measures. Some characters are aware that these images may be fake or edited but this doesn't stop them feeling bad. Idealised identities that characters strive for relating to 'perfection'. Identities of victim, damaged, distressed. Seventeen stories within this narrative were written by younger participants (aged 13-18 years) and five were written by older participants (aged 19-25 years). This narrative contained a mix of stories from both the 'Robin' and 'Ali' stems.

D) (combination of E + F) Fast food adverts on social media are extremely tempting and hard to resist but it is possible to overcome cravings and stick to health goals if you are able to overcome the power of the marketing techniques. Seeing these adverts often provokes a physical or emotional response that is a struggle to see past. Two different types of endings within this narrative type: stories where the character is able to seek support from friends in real life or positive influencers on social media to help distract from the temptation and help characters stick to their health goals, OR stories where the adverts are responsible for characters feeling they have 'fallen off the wagon' with their health goals despite genuinely wanting to stick to them for various reasons (weight loss, participating in sports etc.) Characters in stories with negative endings feel they are unable to maintain control and are easily susceptible to manipulative marketing techniques (despite being aware of the goal of the corporations using these techniques). Eating the food is often followed by feelings of guilt or regret, although sometimes the character acknowledges that balance is important and it is okay to eat unhealthy food every so often. Passive use of social media. Stories with positive endings reflect identities around strength, willpower, defending yourself and drawing on resources outside of social media. Identities around victim/passivity OR strength, resilience, ability to overcome. Twenty-nine stories within this narrative were written by younger participants (aged 13-18 years) and 23 were written by older participants (aged 19-25 years). All stories were from the 'Ali' stem except one.

Reading 4

I developed a final set of four narratives: A) personal responsibility, B) role models, C) social comparison and D) control, which I will describe and evaluate below, accompanied by illustrative quotes from the submitted stories. The following section is structured as a combined results and discussion section (as in the previous chapter) which will describe the findings of the final 'reading' of the narrative analysis and orient my interpretations in relation to published literature, theory, and existing sociocultural narratives (Smith, 2016; Williams et al., 2022).

6.3.3 Final narratives

(A) Personal responsibility

'Personal responsibility' was characterised by stories that largely followed a negative-to-positive narrative trajectory. Most of these stories contained happy endings and positive messages, even when characters had initially encountered a problem or dealt with an internal

conflict. These stories reflected participants' perceptions of resilience and of narratives around taking a stand against the negative sides of social media. Characters often experienced a significant negative social media experience, which then prompted introspection of their feelings about social media and the food and health related content they were exposed to. Stories also depicted how characters saw their peers and friends using and responding to social media and some stories reflected moral judgements about other people's social media use. Many characters understood that they had a personal responsibility to be discerning about the content they consumed on social media. They were aware of both the positive and negative sides of social media as well as the impacts it could have on mental and physical health. From a theoretical perspective, these stories align closely with SDT (Deci & Ryan, 1985), particularly the concepts of autonomy and competence, as characters were often portrayed as actively reflecting on their social media use and making self-endorsed decisions about health-related behaviour.

“Social media may have a positive and negative effect upon Robin. It may feel supporting and inspiring to Robin but can also be damaging due to unrealistic lifestyles posted on social media.” (Participant 051, 22-year-old woman, Robin stem)

In a number of stories, characters were initially described as using social media in a passive way, scrolling through 'a constant stream of fitness influencers and their admirable, glamorous bodies' (participant 001, 16-year-old boy) but later decided to actively use social media to pursue goals of self-improvement. Characters turned to social media for advice and support when they wanted to change their behaviour, which was motivated either by a desire to achieve health goals they had set themselves or because of perceived pressure from peers or 'influencers'. Characters' intrinsically motivated goals included a range of behaviours relating to sports achievements, feeling energised, avoiding illness or injury and a desire for general wellbeing and happiness, and reflected how characters effectively turned their motivation into behavioural action, in line with Identity Behaviour Theory (IBT) (Simons, 2021). IBT posits that those who experience and express strong health-related identities will be more likely to enact associated healthy behaviours, as described in the following story excerpt:

“Eating healthier is important to Robin because she might not want to get ill when she's older from the bad choices with food. The healthy food choices are also important because a good diet leads to a happier life.” (Participant 019, 14-year-old girl, Robin stem)

Other characters' motivation to change had been prompted by a specific event. In the below story, a health scare caused Robin to make a change, which escalated into a lifestyle change that resulted in significant improvements to Robin's mental and physical health. This process aligns with the Kearney and O'sullivan (2003) model of identity shifts in behaviour change, which

proposed that an accumulation of distressing evidence can lead to a small, yet potentially significant, behaviour change, which can be the starting point to sustained behaviour change.

“After recently getting his blood glucose levels tested and being significantly above reference range, Robin has realised he should really start cutting down on the junk food. Two of his cousins are diabetic, and seeing the difficulties they have to go through daily acts as fuel for him...despite the hurdles, Robin manages to not only get healthier and feel better, but he also gets motivation to start the gym...he also makes posts about how his mental health has improved, how his sleep has gotten better, how he does not feel tired most of the day.”

(Participant 055, 18-year-old man, Robin stem)

In contrast, characters whose externally motivated goals were driven by feelings of jealousy and inadequacy because of content they had been exposed to on social media described attempts at behaviour change that were fuelled by insecurity and a sense of desperation. These goals were almost always related to weight loss and other aspects of physical appearance.

“Their Instagram feed is now full of weight loss accounts and healthy eating ideas... As they scroll through Instagram, Robin sees yet another post by one of these health influencers. The photo is of the woman at the gym showing off her tiny waist.” (Participant 064, 24-year-old non-binary person, Robin stem)

Reviews of the literature suggest that social media can have profound negative impacts on young people's, particularly young women's, self-esteem and body image (Laughter et al., 2023). Repeated exposure to images of desirable bodies on social media drives social comparison, which has been associated with increased body dissatisfaction, disordered eating and eating disorders (Marks et al., 2020). In the above story, however, Robin went on to see a 'body positive' photo posted by one of their friends on social media and realised that striving for the perfection that was portrayed by the weight loss influencers was damaging and unhelpful. This story is one of many within this narrative which evidence the characters' ability to successfully navigate the world of social media and to understand what type of content helpful and what type of content is damaging.

“Robin realises that they find their friend's post way more inspirational than any of the health influencers' posts. They decide to try and learn to love their body more and not be so harsh on themselves.” (Participant 064)

Despite the evidence to support the negative effects of social media on young people's body image, many young people in this study were aware of potential for social media to be used to bolster confidence and self-esteem, share positive viewpoints and inspire motivational social movements. Though it was not always depicted as an easy task, most characters within the

'personal responsibility' narrative either possessed, or developed throughout the story, the skills and motivation to actively avoid harmful or negative content and to seek out positive content that they felt would be helpful for them. Harmful content was often related to unrealistic lifestyle choices portrayed by influencers and perceived pressure to think, look and behave in ways that aligned with those lifestyles.

"However, to find pages that focus solely on healthier food choices rather than unhealthy weight loss, Robin will have to navigate the internet and avoid falling into this toxic side of social media." (Participant 057, 18-year-old non-binary person, Robin stem)

Even when the characters initially struggled to overcome the negative emotions they experienced whilst using social media, they were often described as confident and able to do this by the end of their story. They found other strategies to deal with the overwhelming amount of information they were bombarded with every time they opened a social media application, such as seeking support from friends.

"She'd heard tell of fancy diets, keto, meat-eater diets. Diets to get rid of bacteria, diets to help with hair growth. It was all too much for her really, so she decided to post on her close friend's story on Snapchat, and ask people what they ate in a day." (Participant 067, 20-year-old man, Robin stem)

(B) Role models

In 'role models', characters used social media to successfully achieve their own health goals and were proud of what they had achieved. In many stories, the character wanted to use the sense of achievement they had gained to help others reach their goals by becoming an influencer themselves and posting their 'health journey' on social media.

"Social media has been really helpful for Robin as she can see others going through the same journey of changing their diet. She's been posting regularly since she made the decision to eat healthier. 'First day of my new healthy eating routine! Wish me luck!' Since then, she's gained a small following of friends all trying to eat healthier. They help her stay motivated on the days she feels bad about failed healthy-eating days and cheer her on when she sticks to eating healthy." (Participant 018, 14-year-old girl, Robin stem)

Stories within this narrative often portrayed characters that represented identities relating to success and moral responsibility. Characters gained strength and energy from the sense of achievement they felt from reaching their own goals and felt a desire to pass this positive energy on to others. The reciprocal nature of these online communities was represented by the characters' awareness of the importance of social support and the power of online

communities where they could both help others and gain support from like-minded individuals. In many of these stories, characters received external validation of their own achievements from the online community which strengthened their identity as a healthy role model for others. This reflects concepts from self-affirmation theory (Steele, 1988), which suggests that affirming a valued identity through personal reflection or through validation from others, can strengthen the identity and result in higher levels of motivation for positive behaviour change.

“To track her progress and give inspiration to others, Robin started her own fitness Instagram account and started to grow a community of likeminded people who were on similar journeys to her.” (Participant 008, 18-year-old woman, Robin stem)

These stories often featured words such as ‘journey’, ‘community’, ‘wellness’, ‘lifestyle’, ‘mindful’ and ‘vitality’, which are associated with a holistic approach to health and which represent identification with wellness or fitness communities.

“Social media acted as a beacon, illuminating the path to better eating habits. Influenced by the wealth of information at their fingertips, Robin began to reshape their food choices. They followed wellness influencers, subscribed to nutrition blogs, and engaged with online communities centred on mindful eating. With each interaction, Robin found themselves drawn closer to a lifestyle rooted in wellness.” (Participant 077, 19-year-old man, Robin stem)

Most of these types of stories were positive, which contrasts with established narratives found in both research and popular culture around the ‘wellness industry’. This industry has been accused of problematically commodifying activities such as yoga and meditation, enabling cultural and religious appropriation, classism and ableism, and over-representing stereotypes of white, middle-class, educated, slim women being dominant in spaces that are associated with wellness (Miller, 2016). It may be that the young people who took part in this study were not aware of these stereotypes, or that they felt the benefits of engaging with the wellness community outweighed these negative associations.

Characters within this narrative type who went on to become influencers themselves usually associated that role with pride and altruism. They were keen to portray their new-found identity as a successful, confident, encouraging person for others to look up to but also displayed a genuine desire to help others. Characters in these stories talked about feelings of fulfilment and satisfaction from knowing they were able to help others using social media. This was often described as an awakening and a new-found social responsibility, which likely increased characters sense of competence and relatedness, in turn bolstering their self-esteem.

“Robin has started posting inspirational quotes on their Instagram story about healthy eating and how it fuels your mind and body. This has been really helpful to them because it allows them

to have a routine and it makes them feel better about themselves.” (Participant 032, 15-year-old girl, Robin stem)

In one story, Ali’s desire to share her own success was accompanied by a drive to stop others being ensnared by the fast-food industry as she had been previously, representing identities around morality and social justice. In the story, Ali begins a campaign to petition McDonalds to provide healthier options and shows an awareness of the negative impact that decisions made by fast food corporations have on young people.

“She has come to the conclusion that there are healthier food chains out there offering more nutritional meals and better value for money. She has decided to start a petition online trying to encourage fast food chains such as McDonald’s to produce healthier meals to help encourage the younger generations to learn about good balanced diets and why they are so important. Her goal is to try and become a social media influencer to help people from becoming obsessed by fast food chains like she has been for the past 5 years.” (Participant 047, 25-year-old man, Ali stem)

Many young people who have grown up using the internet and social media have near-constant, instant access to information. This has allowed young people to be more aware than ever before of global social and political issues, leading social justice and social action to become highly valued pursuits for many young people (Guerrero et al., 2021). Having access to such information during their engagement with the identity formation process means that many young people explore identities that are tied to social justice. This is particularly true for young people with marginalised identities such as ethnic minority or LGBTQ+ identities and young people with non-marginalised identities who are aware of the privileges that accompany these identities. For example, white young people and those from socioeconomically privileged backgrounds who recognise the social advantages that are afforded to them because of these characteristics and are motivated to take action to help those who do not have the benefit of those characteristics (Guerrero et al., 2021). During identity formation, young people form personal as well as collective and public identities, which provoke a heightened awareness of how they are perceived by others as well as their own role in tackling wider societal issues such as climate change (Robinson, 2010) or the ‘big food’ agenda (BiteBack, 2024). A survey commissioned by youth activism movement BiteBack2030 found that 73% of 14–21-year-olds agreed that big food companies targeted children and teenagers with junk food advertising and 75% agreed that the Government and big food companies should protect children’s health and show leadership by making and marketing healthy, sustainable and affordable foods (Savanta/BiteBack, 2023). This is just one of the big issues that many young people are

becoming increasingly aware of and motivated to stand up against which is reflected in many of the stories written for this study as a whole.

(C) Social comparison

In 'social comparison', characters often felt a desire to look like the influencers they saw on social media. These influencers were commonly described as representing ideals of thin bodies which were associated with beauty and were idolised by Robin and Ali, demonstrating identities relating to conformity, beauty and perfectionism.

"As the night passed, Robin remained awake as she scrolled on Facebook looking at 'thin' and 'pretty' girls who looked flawlessly beautiful." (Participant 009, 16-year-old girl, Robin stem)

Some stories described the characters feeling pressure to change their physical appearance in response to what they had seen online.

"Robin proceeded to go on Instagram and she sees all of these perfect body models showing their body and how perfect they are but then Robin feels like she has to be like them so she starts to eat healthier. Robin says to herself, "I really want to be like them, everyone loves that body type" (Participant 010, 15-year-old boy, Robin stem)

Characters in these stories were often portrayed as insecure and were sometimes bullied online or in real life. Though in the 'role models' narrative, social media was often depicted as a positive environment for social support, in 'social comparison', it was associated with negative behaviours that often affected characters' mental health.

"Robin has recently decided to start eating healthier and has been using social media to help him so he created a TikTok account to show his results but lots of people wanted to bully him. He felt like dying because he didn't want to show up to school for everyone to make fun of him." (Participant 037, 13-year-old girl, Robin stem)

Engaging in social comparison online has been associated with increased likelihood of experiencing depression and depressive symptoms in young people (Nesi & Prinstein, 2015). In two of the stories within this narrative, the character is described as experiencing depression and takes their own life at the end of story.

"Ali began to seep into a dark depression where his self consciousness of his body became too overwhelming. On the night of August 4th 2023 Ali took his own life after struggling with the loss of his father and the insecurities given to him from social media adverts." (Participant 003, 16-year-old boy, Ali stem)

During adolescence, young people are still developing the cognitive, behavioural and neurobiological mechanisms that allow them to navigate the social world and find their place within it (Orben et al., 2024). Social media has the potential to disrupt the development of these mechanisms in young people who may be more vulnerable to the negative effects of upward social comparison (Orben et al., 2024). Though it is not possible to infer from the submitted stories that any of the young people who took part in this study were themselves dealing with severe mental health issues, their stories show a clear awareness of the profound impacts social media can have on the mental health of young people generally, something that has previously been highlighted in the literature (Popat & Tarrant, 2023). A number of stories referenced eating disorders and other harmful behaviours which were usually brought about following social comparison on social media.

“He is very conscious of his body type so he stops eating and he is now hardly eating and starving himself and his mum and dad are getting very worried because they are trying to get him to eat and he is just hiding away and not eating.” (Participant 020, 15-year-old boy, Robin stem)

Representations of ‘thinness’ as the primary beauty standard have persisted in the media and popular culture for at least the last hundred years (Stearns, 2002). Actors in television and films are generally thinner than the average person, and thinner characters are more likely to be presented more positively and as more desirable than overweight co-stars (Te'eni-Harari & Eyal, 2015). Young people are more likely to engage in upward social comparison when they admire characters who are thinner. Linking this behaviour to social cognitive theory, Te'eni-Harari and Eyal (2015) proposed that this social comparison plays a role in social learning and therefore subsequent behaviour change as a result of vicarious learning. With most adolescents in the western world having social media at their fingertips, exposure to thin body ideals on social media has become a significant contributor to the prevalence of body image concerns and eating disorders amongst young people (Dane & Bhatia, 2023). Stories within the ‘social comparison’ narrative showed awareness of this link and provided anecdotal evidence to suggest that young people may be aware of the distortion effect that social media is having on their generation’s perceptions of beauty and body image.

“Sometimes I wish that there was no social media and then I would worry less about looking good.” (Participant 044, 19-year-old girl, Ali stem)

“Ali starts to think about how social media makes it difficult for people to lead healthy diets. It’s also filled with ‘influencers’ preaching about ‘healthy’ lifestyles which are actually breeding grounds for eating disorders and can make people feel insecure and inadequate about their own health, body and lifestyle. Social media is the biggest contributor to eating disorders and body

dysmorphia since it's filled with famous people who live unrealistic lifestyles and make severely unhealthy choices when it comes to food.” (Participant 032, 15-year-old girl, Ali stem)

The content posted by influencers was not depicted as a positive source of inspiration to the characters in these stories but instead diminished their confidence and motivation to achieve their health or appearance-based goals. These stories presented identities that were characterised by non-membership of a desired social group, which in this case was people with ‘socially acceptable body shapes’. This represents an unlived experience where characters grieved the person they felt they wanted to be but were not, and perceived that they never would be (Scott, 2022). This can be thought of as an act of omission, described by Scott (2018) as a passive failure to act, which in this case is accompanied by feelings of sadness and perhaps regret. This may come from an assumption that the omission of this desired identity is irreversible just because it is negative, when in fact acts of omission can often set the individual on a positive alternative trajectory that they had not considered before (Scott, 2018). It is possible that young people who were engaged in the early stages of the identity formation process or who were experiencing prolonged identity crises may not have considered the potential for a positive shift in their character’s narrative as a result of this act of omission. The lack of confidence portrayed by many of these characters reflects a perceived inability to achieve any of the three basic psychological needs identified in SDT (Deci & Ryan, 1985). These stories also reflect the idea that failure to achieve these needs, or to adequately explore desired identities, can lead to rumination and depression, as in the extended four-dimensional model of identity formation (Luyckx et al., 2008)

“All of the photos he saw were of people who had more socially acceptable body shapes than him. He rolled out of bed and stood in front of his mirror. He had one of the photos open on his phone and he looked at himself for a moment, and then at the photo. He sighed, “this is useless, I’m never going to look like these people”, he said, upset.” (Participant 011, 15-year-old non-binary person, Ali stem)

(D) Control

In ‘control’, characters were tempted by fast food adverts and felt that social media had the power to divert them from their health goals. Seeing a McDonald’s advert often elicited extreme physical or emotional reactions from characters and sometimes led them to enter a state where they felt their behaviour was not entirely under their own control.

“Reluctantly Ali ordered it and once it came she took a slow bite out of it. The amount of fat in the burger caused her body to react vigorously. She was in love. She ordered another. Then another. All that hard work was wasted.” (Participant 001, 16-year-old boy, Ali stem)

“Sweat was dripping down his face and he was licking his lips, when suddenly he was up on his feet and before you know it he was at a McDonald’s drive through trying to order a Big Mac.” (Participant 005, 16-year-old boy, Ali stem)

In one story, Ali voiced his frustration at the lack of control he felt over what he saw on social media, hinting at an awareness of the manipulative agenda of social media advertising.

““Why did I have to see this advert?” he thought, “The algorithm is for sure out to get me.”” (Participant 073, 18-year-old woman, Ali stem)

It is known that corporations like McDonald’s use sophisticated and manipulative techniques to increase sales and draw in potential customers. Much of this advertising has historically been aimed at children and young people and has used methods such as promotions, free toy gifts and cartoon characters to promote unhealthy foods (Bernhardt et al., 2013). With developments in technology in recent years, companies have also been able to target adverts towards specific demographic groups via social media apps and websites that collect personal data from users such as their age, gender and location.

“Because this kind of advert appears on their phone, it’s safe to say that Ali is usually around restaurants and food malls since adverts appear based on location. And seeing advertisements about a new burger or meal deal can have the power to give Ali some temptation to eat unhealthy foods.” (Participant 002, 16-year-old boy, Ali stem)

At some point in each of the stories within the ‘control’ narrative, characters were faced with a choice: to maintain control over their own choices (active social media use), or to concede control and ‘give in’ to the pressures of social media (passive social media use). Characters who were able to retain control over their own social media use and food choices portrayed identities representing strong, capable, sensible young people. Their stories often included descriptions of the dilemma between sticking to health goals and giving in to the temptation of unhealthy fast food, but generally followed negative-to-positive trajectories. These stories exemplify the positive impact that autonomy can have on young people’s wellbeing and the confidence boost that can result from a feeling of mastery over one’s own temptation.

“Upon seeing the McDonald’s advert on Instagram, Ali cannot help but be tempted; being all too familiar with the tasty food provided. The burger is tempting, and for a few seconds he contemplates ordering one for delivery. However, he knows that the burger never looks as good upon arrival, and is normally squashed and cold. This, combined with his desire to set a good example, means he quickly loses all temptation, and scrolls on. He knows the advert is meant to tempt him, and is all too aware that the burger shown in the advert looks so much better than

the one he would ultimately receive, and so is able to swiftly move on.” (Participant 053, 25-year-old man, Ali stem)

Giving in to temptation, and therefore losing autonomy and control over their own behaviour, was a key theme amongst the more negative stories within this narrative. This was often accompanied by feelings of guilt or regret and caused characters significant distress, which highlights the potential negative impacts of an inability to achieve autonomy or competence, and of succumbing to external pressures.

“Trying so hard not to give in Ali puts his phone away to sort his washing out. Throughout the day that is all he could think about, giving in to the thoughts in his head he ordered McDonald’s. Immediately after finishing his food he regretted it. He had come so far trying to overcome his eating disorder and he felt like he had failed yet again.” (Participant 041, 21-year-old woman, Ali stem)

Stories from the ‘Ali’ stem described a range of negative emotions such as hopelessness, anger and frustration as well as positive emotions that were usually associated with a successful attempt to overcome the temptation of the McDonald’s advert.

“After encountering the McDonald’s ad on his Instagram, he felt a feeling of hopelessness. The familiar golden arches that always graced the horizon at the end of every car ride. He suddenly felt hopeless. “Maybe this is something I cannot change”, he thought. But thinking of the lives of his dad and grandad being cut short, he was invigorated. He felt angry towards the advert, as he thought about all the people that McDonalds may have trapped into food addiction from their relentless, callous marketing. He hid the ad from his timeline, and asked Instagram not to recommend posts like that to him.” (Participant 072, 25-year-old man, Ali stem)

The stories with more positive trajectories portrayed characters who embodied identities around strength and resilience, who were able to overcome temptation, achieve autonomy in their behaviour and confidence in their own ability to stick to the goals that mattered to them.

6.4 Discussion

6.4.1 Summary of findings

This story completion study explored young people’s understanding of the role of social media in shaping and expressing identity and dietary choices through asking them to write short, fictional stories about characters and scenarios related to adolescent identity and food choice. The stories revealed that young people understand social media as a tool for shaping identity and food choices, as well as a vehicle for identity expression and a reflection of social norms

and values. Participants recognised the abundance of food- and health-related content on social media and the positive and negative consequences that this content can have. For example, in some stories, social media helped characters make healthier food choices, behaviour that was tied to moral responsibility identities (characters who wanted to help others achieve their health goals). In other stories, unrealistic expectations about dietary choices and body image promoted by social media influencers made characters feel isolated and inadequate. Above all else, this analysis shows that young people are not oblivious to the impact social media can have on their physical and mental health, and their identity development.

6.4.2 Structure and form

The way the participants chose to structure and construct their stories is of note. In narrative analysis, form can reveal insights into the perspectives and identities of the author. Form refers to the type of narrative that has been constructed and can include: linear vs. non-linear narratives, the perspective (first vs. third person), archetypal plot patterns and style (language, tone, imagery) that are used (Frank, 2010). For example, fantasy narratives or supernatural elements, whilst sometimes interpreted as a task refusal, can also be narrative devices used to create distance between the author and the story because the author feels some level of discomfort with the topic they are writing about (Clarke et al., 2017).

Participants' narrative choices may also reflect their efforts to achieve or portray a particular identity. For example, participants whose characters achieved their health goals or social media success may have used their stories to depict an aspirational identity. In contrast, characters who failed to resist the temptation of fast food or who fell victim to the negative sides of social media may have represented participants' own fears, anxieties or lived experience. Narratives can also incorporate representations of moral identities, particularly with regard to narratives of health, wellness or illness (Gray, 2001). These types of stories can reveal how authors conceptualise right and wrong, or frames of judgement for socially acceptable or unacceptable behaviour.

Stories can also be seen as performative and as reflective of the context within which they are written (Stephens, 2011). In the current study, participants were introduced to the task via an information sheet which oriented the researchers as academics from the University of Southampton who were studying young people's perceptions of identity- and food- related social media use. Knowing the type of research they were taking part in may have influenced the types of stories written by participants as they may have consciously presented views or scenarios that they perceived as being more socially desirable or more in line with what they

perceived as the researchers' own views and attitudes. It is likely, however, that utilising a creative method such as story completion allowed the young people to express themselves without feeling pressure to produce a socially desirable response (Clarke et al., 2019).

6.4.3 Differences in stories constructed by older and younger participants

As discussed in the first chapter of this thesis, there have been numerous different definitions of, and terminology used to describe, the sub-stages of adolescence. The 'adolescence' stage, as defined by Curtis (2015) as the ages between 14 and 17 years, aligns with the age of the younger participants who took part in the present story completion study, and is characterised by egocentric thought patterns, individuation and a transition away from parental relationships to peer group relationships. In contrast, the 'young adulthood' stage (defined as aged 18-25 years), represented by the older participants recruited to this study, is defined by greater identity maturity and motivation to pursue socially acceptable life pathways, which commonly include entry to higher education, development of committed romantic relationships and identification of long-term life and career goals.

During the analysis I noted that more older participants (19-25 years old) wrote stories that featured the 'personal responsibility' and 'role models' narratives whereas more younger participants (13-18 years old) wrote stories that featured the 'social comparison' and 'control' narratives (see Table 8). This indicates that younger participants wrote about characters who were more likely to be vulnerable to the negative sides of social media. Research shows that the content that young people are exposed to on social media can have negative impacts on their social, neurobiological and psychological development, as well as their behaviour (Orben et al., 2024). Some of the younger participants' stories represented identities relating to victimhood, where social media use was passive. Characters felt a lack of control and autonomy, and were vulnerable to the negative impacts social media on mental and physical health. Through characters' vulnerability and loss of control, these stories highlighted the difficulties young people can experience when navigating the developmental process of individuation, whereby young people seek psychological separation and autonomy from their parents or caregivers and let go of childhood perceptions of parents as authoritarian and omnipotent figures (Meeus et al., 2005). Some of the younger participants' stories may have reflected anxieties about feeling unable to control the impact of social media on their own wellbeing, whilst attempting to use social media to establish independence from their parents and other authority figures. Because these participants were relatively young, they may have had less experience of using social media, which was reflected by the anxieties and difficulties their characters had with navigating social media. This may also have meant that stories written by younger participants were more likely to have incorporated established socio-cultural narratives around the harmful effects of

social media on young people that they may have been exposed to through mainstream media (Criddle, 2021; Singleton, 2024), rather than reflecting their own – possibly very limited - experiences.

Table 8. Number of stories written by younger vs. older participants, by narrative.

Narrative label	Description of stories within the narrative	# of stories written by younger participants (13-18 years)	# of stories written by older participants (19-25 years)
A) Personal responsibility	Characters understand that they have a personal responsibility to be discerning about the content they consume through social media, to avoid harmful or negative content and seek out positive content. They feel confident and able to do this by the end of their story.	11	13
B) Role models	Characters have used social media to successfully achieve their own health goals and are proud of what they have achieved. They want to use social media to help others achieve their goals, and to portray identities as good, moral, successful people.	16	23
C) Social comparison	Characters feel pressure to look like the influencers they see on social media. They are insecure and often get bullied online or in real life. They feel inadequate and idealise the unachievable bodies and lifestyles they see online.	17	5
D) Control	Characters are tempted by fast food adverts on social media and feel that social media has the power to divert them from their health goals. They are faced with a choice: to maintain control over their own choices (positive endings), or to concede control and 'give in' to the pressures of social media (negative endings).	14* 15**	16* 5**

*Stories with positive endings (originally from group E)

**Stories with negative endings (originally from group F)

The younger participants (aged 13-18 years) would have likely been in the early and middle stages of the identity formation process according to the identity development literature (Meeus et al., 2012; Waterman, 1999). During the identity formation process, young people tend to engage in social comparison as part of exploring and discovering who they want to be and where they fit into the social world (Van der Aar et al., 2018). This social comparison is a necessary part of the process but can also lead young people to lose confidence and self-esteem, sometimes feeling inferior to others who they evaluate as higher status or as representing a valued, desired

identity that they perceive as unattainable (Vogel et al., 2014). Younger participants may have been aware of the negative impacts of social media on young people's mental and physical health but their stories reflected a lack of both knowledge and self-efficacy around how to protect themselves from the harmful content they saw on social media.

In contrast, older participants were more likely to write about characters who were able to make sensible decisions about what to trust and what not to trust on social media. In these stories, the characters were generally less emotionally affected by the content they were exposed to on social media or were better able to deal with the negative emotions that they experienced. These stories portrayed active social media use (Beyens et al., 2024) and identities around morality, confidence and success. Characters often understood how to use social media in a healthy way and though they acknowledged the negative sides social media, ultimately, they were able to avoid being negatively impacted by potentially harmful content. These older participants were likely to have been preoccupied with the concerns of the 'young adulthood' stage of adolescence (Curtis, 2015), and therefore in a more mature phase of their identity and personal development, which may have been reflected in the construction of their stories and characters.

It is possible that the older participants' stories reflected their own more developed understanding of helpful ways of using social media and of strategies to minimise harm from such as managing frequency of social media use. This aligns with the 'goldilocks hypothesis', which posits that older young people (aged 16 and over) have better life satisfaction with moderate social media use, and worse life satisfaction with both low and high social media use (Orben et al., 2022). The hypothesis suggests that older young people may be able to mitigate the negative impacts of social media by using it in ways that are helpful to them and avoiding excessive social media use. It is also possible that the older participants, who were likely in the later stages of the identity formation process (Meeus et al., 2012; Waterman, 1999), may have already explored numerous possible identities and engaged in several years' worth of social comparison. Therefore, they may have developed a more solid grasp of their own identity and of their place in the social world, having used social comparison to solidify their own identities (Noon et al., 2021).

6.4.4 Reflexivity and reflective notes

As a researcher I was happy with the changes that I made to the story completion task, and the narrative analysis procedure, in response to learnings from the pilot story completion study. Conducting such an in-depth narrative analysis of a larger quantity of data in the main study was daunting, but I found the process incredibly interesting and thought-provoking. During the time

in which I conducted the analysis, which took around four months (whilst working on other projects simultaneously), I attended a conference on narrative research hosted by the University of Westminster, which opened my eyes to ways of thinking about research that I had never before been exposed to. The conference was attended largely by a group of sociologists, and some psychologists, all of whom talked about research based on narrative inquiry, storytelling and creative research methods. Having come from working in a team and within a department which focused almost entirely on applied health research, this conference inspired me to rethink my approach to qualitative health research. When I returned to resume work on my story completion analysis, I spent more time thinking about theories of storytelling, the purpose of narratives within both written stories and in wider society, and the effects of form and structure in written stories. I wholeheartedly believe that this new approach strengthened my analysis and interpretation of the stories I collected, as well as contributing positively to my development as a qualitative researcher.

6.4.5 Strengths and limitations

A strength of this study is the use of creative methods to engage young people in meaningful and enjoyable qualitative research. The response from young people who were recruited through youth groups in-person was incredibly positive. Some young people initially found the task daunting and expressed concerns that they were not able to write to the high academic standard that was usually expected by them at school. I made sure, however, to reassure all the young people that their level of written English was not a concern for this study and that creativity was the primary objective. Two of the young people who took part in the study were not able to write their own stories. One young person who was autistic and another who was not able to read or write took part and both spoke their stories to a youth worker who sat and discussed the task with them and typed their stories out for them. This reflects the inclusivity and flexibility of the story completion method, which is established in the literature (Braun et al., 2019; Clarke et al., 2017) and is something that can be implemented in future studies. With the increasing capabilities of digital technology, there may also be opportunities to use dictation functions on smartphones or tablets to type out stories automatically without the need for a human typist. Another strength was the effort that was put into developing close, trusting relationships with local youth groups in order to recruit young people to the study. I formed strong working relationships with several groups, many of which were administered by one central organisation. A senior member of staff from that organisation became a key supporter of the study by facilitating contact between myself and individually led youth groups across Hampshire who took part in the study. Without such support from these organisations, recruitment for this study would have been much more demanding. Another strength is the

combination of in-person and online recruitment and data collection methods. This approach allowed recruitment of a sizeable sample of young people in a relatively short space of time. In-person data collection was completed within three months and online data collection via the Prolific web platform was completed within two hours.

In terms of limitations, it is important to note that the majority of the participants recruited face-to-face were of white British or white European ethnicity, as am I and all members of my PhD supervisory team. This limited my ability to explore the impact of culture and ethnicity on the different uses of social media and experiences of identity development and food choices in participants' stories. In addition, the use of Prolific for online recruitment and data collection meant that I could not be certain that participants had submitted stories that they had written themselves. It is possible that stories could have been generated by artificial intelligence (AI), but ultimately there are no reliable tools for detection of AI-generated text. As with any unsupervised data collection methods, I trusted participants to maintain integrity and provide stories they had written themselves. I also used common strategies to minimise the risk of AI chatbots submitting stories, such as imposition of minimum word count lengths.

Because of my role in interpreting the stories, the narratives can be seen as co-constructed between myself, as the researcher, and the participants. I did not ask participants to discuss or explain their stories to me, or why they had made the narrative choices that they had, so my interpretation brings an additional element to the construction of the narratives (Stephens, 2011). However, due to the fictional nature of the stories, and the social constructionist lens through which the analysis was conducted, I did not aim to infer that the characters and narratives depicted in the stories were representative of the participants' own views or experiences (Kitzinger & Powell, 1995). Instead, I interpreted the stories as being representative of broader socio-cultural narratives, beliefs, stereotypes and archetypes that young people may have been exposed to through social media, television, films, books, news outlets or through their education. This therefore limited the extent to which I could make inferences about the participants' own lives, views and experiences.

6.4.6 Implications and future directions

This study provides strong evidence to support the use of story completion and narrative analysis as methods for exploring young people's understanding of the role of social media in the development of identity and food choices in adolescence. The combination of story completion, which encouraged young people to express their viewpoints creatively, and narrative analysis, which helped situate young people's stories within the context of existing

sociocultural narratives and norms, allowed me to gain a well-rounded understanding of how young people think about identity, food choice and the role of social media.

Future intervention development

This study presents evidence to support the future development of intervention strategies to equip young people to use social media to develop positive, healthy identities. Strategies should aim to support young people to navigate both the helpful and harmful elements of social media, including how to interpret health- and food- related information, and how to engage in mindful social comparison that supports identity consolidation and minimises distress. Interventions to support young people to use social media to work towards health goals may be particularly helpful when targeted at younger adolescents (aged 13-18 years old) who are likely to still be in the early stages of the identity formation process. The findings suggest that younger participants may have felt more anxiety about the potential negative impacts of social media, given that they were more likely to write stories that were grouped with the 'social comparison' and negative side of the 'control' narratives.

In accordance with the findings of the systematic review described in Chapter 4, such interventions may be most effective when incorporating evidence based BCTs such as implementations intentions and goal setting alongside identity theory-based elements such as self-affirmation manipulations. The findings of the present story completion study add to those of the systematic review, suggesting that incorporation of social media-literacy into health interventions may be valuable in supporting young people, particularly younger adolescents, to learn how to use social media for positive identity development and to critically evaluate food related content that they view on social media.

Public health policy

There is also a place for policy within this approach. The Online Safety Act (Department for Science Innovation & Technology, 2023) marks an important step in ensuring the safety of young people who use social media. The act places responsibility for reducing exposure of young people to harmful or explicit content related to grooming, terrorism, self-harm, eating disorders and suicide with the social media platforms that host the content. As evidenced by the current study, there is, however, a more subtle form of psychological harm that is present on social media. This is the promotion of unrealistic beauty standards and body shapes by celebrities and influencers, pressure that is perceived by young people for them to adhere to extreme lifestyle choices such as weight loss diets, obsessive healthy eating and exercise routines, and the manipulative marketing techniques used by large corporations to promote fast food to young people via social media advertising. There is a need for future policies to encompass more

careful and nuanced consideration of how this type of content could harm younger adolescents and what could be done to support them to navigate the vast and complex world of social media.

6.5 Conclusion

The findings of this study provide further support for the feasibility and acceptability of story completion with young people and the use of narrative analysis to analyse such data. The study identified common tropes within a set of stories which represented the collective knowledge of the participants relating to adolescent perceptions and experiences of the role of social media in the formation and expression of both identity and food choices. Social media was seen as both good and bad; helpful and harmful. There were contradictions in that some stories depicted characters who felt that social media was pressuring them to eat less, lose weight and adhere to extreme beauty standards and lifestyles, whereas in other stories characters felt that social media was influencing them to eat more unhealthy food and that they were being targeted by manipulative marketing techniques used by large corporations. Both extremes were portrayed as unhealthy, and characters often expressed a desire to escape the damaging nature of social media.

Though it is not possible to infer that the stories reflected participants own lived experience or opinions, the ways in which they constructed their stories and the characters within them may have reflected concerns amongst the young people who took part in the study, particularly the younger participants, that they do not feel that social media is 'on their side'. The implication being that the adults who develop the social media sites and who post the majority of content on them have created an environment that young people perceive as damaging to their mental, physical and social wellbeing. There is, therefore, a question about where responsibility lies to support young people to use social media as a positive, helpful resource for identity development and making healthier food choices. Ultimately, it would not be possible to police social media to the extent that young people are never exposed to anything potentially negative, though steps are being taken to minimise this through policy such as the Online Safety Act. Developing interventions and policies to support young people to use social media in healthy, balanced ways may be the key to supporting them to develop stable, healthy identities and food choices.

Chapter 7 Using large language models for artificial intelligence (AI)-assisted narrative analysis

Chapter summary: *This chapter will answer Research Questions, 4b and 4c and will address Objective 4 of the PhD. It describes and evaluates a novel method of using large language models to validate and enhance the narrative analysis of story data described in chapter 6. The study compares human narrative analysis with artificial intelligence (AI) conducted narrative analysis from three large language models (Claude, GPT and Gemini). This chapter has been published as its own article in the journal 'Methods in Psychology' (full reference available on page 12 of this thesis).*

Statement of contribution: *The work presented in this chapter was led and conducted by the author with support from the supervisory team. The LLM-assisted analysis was led by the author and conducted in collaboration with Dimitris Raidos and Stella Fleetwood from Ipsos UK. Their contributions were limited to providing access to the LLM software (Ipsos Facto) and technical AI expertise to assist with the LLM analysis.*

7.1 Introduction

Recent advances in generative artificial intelligence (AI) have produced excitement and concern in equal measure across the scientific community (The Lancet, 2024). Since the release of ChatGPT (OpenAI, 2025) in November 2022, a rapidly growing body of research has discussed the potential benefits and pitfalls of using AI in research. The focus of many of these early studies has been exploring the use of publicly accessible large language models (LLMs), including ChatGPT, for tasks such as textual data analysis. ChatGPT is a web interface that allows users to communicate with a type of LLM called a *generative pre-trained transformer*, or 'GPT'. *Generative* refers to the model's text generating abilities, *pre-trained* means that the model has been subjected to both supervised and unsupervised training by developers using vast online data resources, and *transformer* refers to the model's ability to examine specific details within the structure and content of text in order to analyse input and produce output (Radford et al., 2018). Other GPT-style LLMs that are free to use (without paying for access to a more advanced version of the software) include Claude (Anthropic, 2025), Gemini (Google, 2025), and Llama (Meta, 2025). The development of these highly competent and intuitive LLMs means that AI is now accessible to anyone with an internet connection, not just those with knowledge and experience of software programming.

LLMs are trained based on principles of natural language processing (NLP), a field which aims to improve the efficiency of human-computer interaction (Jain et al., 2018). LLMs can identify

patterns within text and mimic human language, so appear well-placed to assist researchers in conducting qualitative analysis. There are, however, important ethical, methodological and philosophical issues that should be considered before using AI for analysis of research data (Sallam, 2023; Schlagwein & Willcocks, 2023), which will be discussed in this paper.

One well-recognised problem with LLMs is their tendency to ‘hallucinate’, a phenomenon in which an LLM produces information that is incorrect or does not exist (Verspoor, 2024). This is a particular problem for academics, who must be able to trust that output produced by LLMs is empirically sound so that they can conduct valid, reliable research. However, the term, ‘hallucination’ itself is also problematic. As Hicks et al. (2024) pointed out, referring to nonsensical responses as ‘hallucinations’ implies that LLMs are aware and capable of concepts like truth or reality, which is incorrect. Behind the sleek user interface, their ‘intelligence’ is a clever combination of programming and probability. While using terms like ‘intelligence’, even when artificial, can lead to associations with capabilities such as sentience or consciousness, there is currently no AI which is considered sentient (Tariq et al., 2022). Consequently, LLMs are thought by some to lack the ability to thoughtfully interpret the latent meaning behind text (Wachinger et al., 2024). However, applying human characteristics to LLMs is unhelpful. It is the interaction between humans and AI that brings value, and analysis generated by LLMs can be thought of as a new form of socially constructed knowledge; their ‘intelligence’ an extension of human cognition (Zhang et al., 2023). LLMs can provide alternative interpretations of the same data when asked multiple times, and can be instructed to apply a particular lens to their analysis, just as human researchers do (Harper, 2011).

There is growing support from the academic community for the use of LLMs in qualitative analysis, however, before embracing this new approach researchers must understand the importance of thoroughly evaluating and validating all AI generated content (Christou, 2023, 2024; dos Anjos et al., 2024; Jalali & Akhavan, 2024; Mesec, 2023; Turobov et al., 2024). ChatGPT itself, when asked whether AI can conduct reliable qualitative analysis in place of human researchers, stated that “while AI can significantly enhance the efficiency and consistency of qualitative analysis, it cannot fully replace the depth, insight, and contextual understanding that human analysts provide. A hybrid approach that combines the strengths of both AI and human analysis is the most effective way forward.” (OpenAI, 2025). LLMs therefore show promise as tools to support rigorous qualitative research, provided that researchers understand how to use them effectively and responsibly.

To date, LLMs have been used in thematic analysis (Christou, 2024; Hitch, 2024), descriptive phenomenological analysis (Hamilton et al., 2023), content analysis (Tabone & De Winter, 2023) and grounded theory analysis (Jiang et al., 2021). Hitch (2024) reported that ChatGPT conducted

a successful thematic analysis, producing codes that were remarkably similar to those generated independently by human researchers. Subtle differences between the LLM and human coding were observed, which the researchers felt were comparative to the differences occurring between different human coders or in the codes generated by one person over time. Hitch (2024) suggested that LLMs could be used as tools to look for differences between researchers to assess reliability, but also as a supplement to human coding as part of reflexive, collaborative approach to analysis.

LLMs can also save researchers time and resources. One study found that ChatGPT could conduct a thematic analysis in two hours, whereas human coders spent 23 hours on the same task (Morgan, 2023). In another, ChatGPT analysed 470 free text survey responses in 10-15 minutes, whereas human researchers who each analysed a quarter of the responses (using a brief, prompt-driven analytic process, rather than a full thematic analysis) were reported as completing their analysis in an average of 27.5 minutes each (ranging from 20-50 minutes) (Fuller et al., 2024). LLMs could therefore enable researchers to concentrate on more complex tasks such as interpretation and considering the implications and applications of their findings. For those concerned that AI may replace human work, reassurance can be found by exploring the merits of collaborative partnerships between humans and LLMs. Though it is possible that LLMs will eventually be capable of replacing humans completely in some tasks, it is humans who decide what AI will and will not be used for. Many feel that AI works best *with*, rather than *instead of*, humans (De Cremer & Kasparov, 2021), but there is currently limited rigorously tested evidence to support the value of human-AI collaboration in qualitative research; something that this paper aims to provide.

7.1.1 Aims and research questions

The current study aimed to test the feasibility and efficacy of LLM-assisted narrative analysis of data collected in the story completion study described in Chapter 6 of this thesis, and to demystify the process of incorporating LLMs into qualitative analysis for researchers who may not have prior knowledge of LLMs. Narrative analysis is a qualitative method in which researchers develop a set of narratives that summarise and represent the stories told within a textual dataset, which usually consists of interview transcripts or written stories (Clarke & Braun, 2013; Josselson & Hammack, 2021). Because the main goal of narrative analysis is to examine and identify patterns within stories, and LLMs are programmed to identify patterns in text, the author hypothesised that LLMs would be well-suited to assist with narrative analysis of story data. This study explored how two different LLMs (Claude 3 Opus and GPT-o1) performed when asked to conduct narrative analysis of story data.

It aimed to answer research questions 4a, 4b and 4c of the PhD:

4a) How does narrative analysis of textual data in the form of short stories conducted by LLMs compare with a human analysis?

4b) How can analysis using LLMs be optimised to mimic the subjectivity and transparency of human analysis?

4c) What are the benefits and drawbacks of using LLMs as tools to assist with textual analysis?

7.2 Methods

7.2.1 Epistemology

This study used a social constructionist epistemology and a relativist ontology. Social constructionism rejects the idea of objective truth and views knowledge as the product of human interactions and sociocultural and historical contexts (Burr, 2015). For narrative analysis, social constructionists view stories and narratives as reflections of shared meaning-making and cultural discourses, rather than of personal beliefs or experiences (Clarke et al., 2017). Viewed through this lens, stories reveal how participants make sense of topics in more creative and indirect ways than traditional methods such as interviews or focus groups (Clarke et al., 2017).

7.2.2 Study context

This LLM-assisted analysis was conducted in collaboration with analysts from Ipsos UK, a multinational market research company operating across the corporate, political, academic and public policy sectors. Ipsos provided access to the LLMs necessary for the analysis as well as expertise in conducting textual analysis using those tools. The data used for the analysis were drawn from the story completion study conducted in Chapter 6. Story completion is a creative research method where participants write stories about a pre-specified topic, which are then analysed using qualitative methods (Clarke et al., 2017). The story completion task used two pre-written story ‘stems’ that introduced a character of unspecified gender and a scenario. Participants were given the stems and asked to complete both stories. The story stems (Table 9) were designed by the research team using elements of identity formation theory and insights from experts in story completion, reviewed and edited by panel of young people.

Table 9. Story stems presented to participants

Stem	Prompts
“Ali has recently started trying to eat healthier. When Ali is scrolling Instagram, an advert for McDonalds comes up...”	Why might eating healthier be important to Ali? What does Ali do next? What does Ali think about the advert? What does Ali look at on social media? How does social media affect Ali’s food choices?
“Robin has recently decided to start eating healthier and has been using social media to help them.”	Why might eating healthier be important to Robin? How does social media affect Robin’s food choices? What does Robin look at on social media? What does Robin post on social media and why?

7.2.3 Participants and sampling

The recruitment and data collection methods are described in detail in Chapter 6 of this thesis, and for ease of reading they are summarised here: 77 young people were recruited to the story completion study using a combination of face-to-face and online recruitment methods. Forty-five young people aged 13-21 years were recruited via youth groups in Hampshire, UK and 32 young people aged 18-25 years were recruited from across the UK via online research recruitment platform Prolific. All participants were paid £10 in the form of cash or an Amazon voucher.

7.2.4 Ethical considerations

Following discussions with the University of Southampton ethics committee, a data sharing agreement was signed by University of Southampton and Ipsos representatives. The agreement included instructions for the secure transfer of data using encrypted file sharing software as well as for storing and deleting the data following completion of the study. It also provided details about the secure nature of Ipsos Facto, the AI system provided by Ipsos for use in this study. Ethical approval was granted by the University of Southampton School of Psychology ethics committee on 03/04/2024 (#78591).

7.2.5 Data collection

For the in-person data collection, young people were introduced to the task in small groups and instructed to spend at least 10 minutes writing their stories. Participants who signed up to take part in the study online via Prolific were provided with task instructions and a link to a Qualtrics page where they completed the story completion task. A total of 154 stories were collected. Fourteen stories were excluded because they contained less than 50 words, a cut-off that was decided in line with previous story completion analyses (Williams et al., 2022). Two further stories were excluded because they contained fantasy narratives that were not relevant to the

research question. A final sample of 138 stories, ranging in length from 57 to 772 words, was therefore analysed.

7.2.6 Data analysis

The stories were analysed using narrative analysis, a method where narratives are identified from data through a multi-stage process of reading and grouping stories based on their common themes and types (Josselson & Hammack, 2021; Williams et al., 2022). The human narrative analysis was carried out first to ensure that findings were independent of those produced by the LLM-assisted analysis which followed. Ipsos provided the research team with access to Ipsos Facto, a secure AI chatbot developed by Ipsos and launched in 2023, which gives users access to all commercially available LLMs including ChatGPT, Claude, Gemini and others, within a closed system. This means that any data entered into Ipsos Facto are stored within Ipsos' internal system and that no one without the required permissions can access the system or the data. This allowed the research team to conduct the analysis whilst adhering to requirements set out by the ethics committee.

7.2.6.1 Human analysis

The four-step analysis process was developed based on published guidance (Josselson & Hammack, 2021; Williams et al., 2022) and discussions with researchers experienced in narrative analysis. The analysis was conducted by the author, with support from members of the PhD supervisory team. The first step involved noting down aspects of story content and structure that were relevant to the topics of identity formation, social media use and food choices, which facilitated data familiarisation. In step two, each story was examined individually as one unit of meaning; rather than dissecting the stories into separate words or phrases, the overarching message or narrative 'type' of each story was considered. The stories were categorised into groups representing different narrative types. The third step involved looking at each of these narrative groups one by one and summarising each narrative in a short paragraph. The last step involved discussions amongst the research team to finalise the narratives and develop one- or two-word labels for each one.

7.2.6.2 LLM-assisted analysis

7.2.6.2.1 Data preparation

To answer the first and third research questions, analyses generated by two different LLMs were compared to each other and to the human analysis. To prepare the data for LLM-assisted analysis, the 138 stories were collated into one PDF document and formatted using markdown

notation, which is commonly used to structure data to be fed into LLMs for analysis (Auer et al., 2024).

The LLM-assisted analysis was conducted across several sessions (June-October 2024) by the author, and Ipsos researchers at the Ipsos offices in London, UK and remotely using Microsoft Teams video call. The first LLM used was Claude 3 Opus (hereafter referred to as 'Claude'), Anthropic's most advanced LLM to date. The research team used prompt engineering (Giray, 2023) to develop clear, detailed instructions for Claude. This involved creating an initial prompt describing the method used by the human researchers to conduct the narrative analysis, then asking Claude, using the simple and concise language that is best suited to 'speaking' to LLMs, to "Act as a prompt engineer. Review the following prompt. Optimise it to make it better. Ask me any questions before proceeding...". Details of the prompt engineering process used with Claude are available in appendix E. The same process of prompt optimisation was then used with OpenAI's GPT-o1 model, the most advanced iteration of 'ChatGPT' at the time of analysis. The optimised prompts instructed each model to conduct the analysis, the findings of which were then compared to the findings of the human narrative analysis. The comparison is presented in section 7.3 of this chapter.

7.2.6.3 Reflexivity

I am an experienced qualitative researcher but was not familiar with narrative analysis prior to carrying out this study. I conducted the analysis whilst reflecting on the biases that might have influenced my interpretation of the data. For example, I do not use social media but I can appreciate the importance of social media to young people and I believe it can be a useful tool to promote health information and facilitate social and identity development. Using LLMs to assist with the analysis allowed me to explore alternative views which may have challenged my own assumptions and biases.

As part of the LLM-assisted analysis, to answer the second research question, Claude and GPT-o1 were each asked to write a short reflexive paragraph to consider and explain how their own biases may have influenced their interpretation of the data. It is important to note that though these paragraphs may seem convincing, the models are not able to 'understand' these biases. Therefore, these paragraphs do not represent true reflexivity. They can, however, produce a coherent appraisal of how their training data may have contributed to their interpretations of the story data.

Claude's paragraph:

"As an AI language model, I must acknowledge the potential biases in my training data that may have influenced my analysis of the stories. Societal biases, stereotypes, and dominant cultural

narratives could have skewed my understanding of healthy eating habits, social media use, and identity formation. My pre-existing knowledge and biases may have subconsciously shaped my interpretations, prioritizing certain narratives over others. Throughout the process, my understanding likely evolved as I encountered diverse experiences. It is crucial to consider the limitations of AI in qualitative research, as we lack the lived experiences and contextual understanding of human researchers. To mitigate biases, AI models should be trained on diverse datasets, incorporate expert feedback, and collaborate with human researchers. By engaging in reflexivity, I aim to transparently acknowledge my biases and limitations as an AI researcher, striving for accurate, meaningful, and ethically sound insights through continuous self-awareness and improvement.”

GPT-o1’s paragraph:

“During the analysis of stories, I recognized that inherent biases in my training data may have influenced my understanding and interpretation. My training data predominantly reflects Western cultural perspectives on social media, identity formation, and dietary choices, leading me to emphasize themes like body image issues, mental health struggles, and negative influences of social media. This affected my grouping by prioritizing familiar patterns, potentially overlooking positive influences, unique cultural experiences, or individual resilience. As the research progressed, I became more aware of the need to consider each story’s context and actively seek diverse experiences. I acknowledge that as an AI language model, my reliance on patterns can perpetuate biases and limit my ability to fully capture complex human experiences, leading to oversimplifications. In the future, I will strive to incorporate broader perspectives, seek more diverse data, and collaborate with human researchers to enhance research validity and inclusivity.”

7.3 Findings

The findings of the human analysis are reported in detail in Chapter 6. The human analysis initially produced six narratives, and after merging several narratives due to their similarity – following discussions amongst the research team – resulted in four final narratives. Following completion of the human analysis, the LLM-assisted analysis was conducted iteratively, as described below.

Both Claude and GPT-o1 analysed the same data following the same steps as the human researchers. In step 1, the LLMs produced notes summarising the key content and structure points from the stories (Table 10). Claude took the same approach as the human researchers, analysing all the data at once, whereas GPT-o1, which has a smaller token limit than Claude

Chapter 7

(equivalent to character limit; 128k for GPT-o1 vs. 200k for Claude Opus), took a different approach. The token limit meant that the story dataset needed to be split up into smaller documents before being fed into the model. Seven different documents were created and GPT-o1 analysed each 'batch' of stories one at a time. For each batch, GPT-o1 analysed each story individually (Table 10 contains an example from participant one's 'Ali' story).

Table 10. Comparison between human, Claude and GPT-o1 interpretations in Step 1 of the narrative analysis process.

Human analysis	Claude analysis	GPT-o1 analysis
<p>For Ali stories:</p> <ul style="list-style-type: none"> - Healthy eating linked to feeling better, sports performance, weight loss, and appearance. - Disordered eating mentioned across all gender versions of Ali. - Health knowledge varied; some valued moderation and a balanced diet. - Some stories noted ‘big food’ marketing tactics like McDonald’s. - McDonald’s ads triggered cravings, physical reactions, and nostalgia. - ‘Temp’t appeared 49 times; ‘crave’ 21 times. - Fast food brought short-term happiness but often regret. - Seen as acceptable if part of a ‘cheat day’ or occasional treat. <p>For Robin stories:</p> <ul style="list-style-type: none"> - Healthy eating linked to weight loss for body image or health. - Robin used social media to help others and be a positive influence. - Stories showed awareness of social media’s good and bad sides. - Influencers were inspiring when promoting health but harmful when pushing unrealistic beauty standards. <p>Structure notes:</p> <ul style="list-style-type: none"> - Stories followed different styles and trajectories. - Many fit within one of the seven basic narrative structures that are common in literature. - Ali stories often followed an ‘overcoming the monster’ theme (resisting fast food ads). - Robin stories often followed a ‘rebirth’ theme (escaping influencer pressure with support). 	<p>Content Notes:</p> <ul style="list-style-type: none"> - Seeing fast food ads while trying to eat healthy is a common temptation - Reasons for eating healthy: improve health, lose weight, feel better, set good example, live longer - Strategies to resist temptation: scroll past quickly, block ads, seek healthy content, remind self of goals - Giving in leads to regret, shame, feeling of failure - Social media has positive and negative influences (provides ideas and support but also unrealistic standards and ads) - Social media can fuel unhealthy comparisons and restrictions if unchecked - Curating feed and connecting with real friends is helpful - Some share their journey to healthy eating to inspire others <p>Structural Notes:</p> <ul style="list-style-type: none"> - Many follow a temptation > decision > outcome arc, either resisting and feeling accomplished or giving in and regretting - Some depict a full transformation from unhealthy habits to positive changes inspired by social media - Others are more cautionary, showing a spiral into unhealthy restrictions fuelled by social media - A few focus on sharing one’s own journey to now help others 	<p>Example: Ali’s Story ([P001 - Ali])</p> <p>Content Notes:</p> <p>Positive Changes and Feelings:</p> <p>“Ali was enjoying her life now that she was eating healthier.”</p> <p>“She felt way more respected and felt more agile than ever.”</p> <p>“She started wearing fewer layers of clothes at school making her feel way more relaxed.”</p> <p>Initial Disinterest in Fast Food:</p> <p>“Fast food was non-existent to her eyes anymore.”</p> <p>Encounter with Social Media Advertisement:</p> <p>“While scrolling through her phone she came across an advert on her Instagram... A McDonald’s advert.”</p> <p>“Her mouth started to water but she was trying her hardest to resist the temptation of looking at it any longer.”</p> <p>Internal Conflict and Temptation:</p> <p>“She had a brief flashback of her previous body and health and used that as fuel to resist the advert.”</p> <p>Succumbing to Temptation:</p> <p>“Reluctantly, Alice ordered it and once it came she took a slow bite out of it.”</p> <p>“She was in love. She ordered another. Then another.”</p> <p>Negative Outcome:</p> <p>“All that hard work working out was wasted.”</p> <p>“She became what she most disliked in the past.”</p> <p>Structure Notes:</p> <ul style="list-style-type: none"> - Positive Beginning: Ali is enjoying the benefits of healthy eating. - Conflict/Dilemma: Temptation triggered by a McDonald’s advert on Instagram. - Climax: Internal struggle leading to giving in to temptation. - Negative Ending: Reversion to old habits and loss of progress.”

Chapter 7

In Step 2, the LLMs grouped the stories into narratives based on the key messages, ideas and themes from each story. Claude used the same approach as the human researchers and its narratives were an almost exact replication of the initial narratives developed by the human researchers. GPT-o1 created narratives for each story individually, resulting in 32 different narratives across all 138 stories, many of which were similar but labelled differently. The researchers then asked GPT-o1 to merge all similar narratives, leading to an initial batch of ten narratives which mapped onto the human- and Claude-generated narratives (Table 11). It is of note that the analysis using GPT-o1 was significantly quicker, however this was because the researchers had already fine-tuned the method using Claude.

Table 11. Comparison between human, Claude and GPT-o1 interpretations in Step 2 of the narrative analysis process.

Human analysis	Claude analysis	GPT-o1 analysis
Narrative A) Social media is good and bad. Characters make a conscious effort to seek out the good and ignore the bad.	Narrative A) - Finding healthy meal ideas and recipes - Feeling inspired by fitness influencers and transformations - Connecting with others on a health journey for support - Documenting own progress and meals to stay accountable	Narrative A) Positive transformation and empowerment facilitated by social media Narrative B) Balanced approach to health and wellness Narrative C) Navigating misinformation and conflicting information on social media Narrative D) Self-Acceptance, Resilience, and Critical Awareness Against Negative Influences
Narrative B) Characters use social media to help themselves and others by building a supportive online community. Narrative D) Social media is seen by the characters as positive, helpful and inspirational.	Narrative B) - Realizing social media "health" content was unhealthy, disordered - Deciding to be a voice of moderation and listening to body's needs - Sharing balanced approach to inspire healthy changes in others"	Narrative E) Empowerment through social support and community Narrative F) From personal struggle to advocacy and influencing others
Narrative C) Social media makes the characters feel bad. There's too much pressure and misinformation.	Narrative C) - Creating unrealistic standards of "healthy" that are unattainable - Fueling comparisons and feelings of inadequacy - Promoting unsustainable restrictions and "clean eating" - Focusing more on appearance than true health and enjoyment	Narrative G) Negative impact of social media on body image and mental health
Narrative E) Characters can overcome the temptation of unhealthy food on social media and can stick to their health goals.	Narrative E) - Scrolling past fast food ads, blocking/unfollowing - Seeking out healthy recipes and fitness inspiration instead - Reminding self of goals and why health is important	Narrative H) Overcoming Temptation and Internal Conflict to Maintain Healthy Choices
Narrative F) It is almost impossible for characters to stick to their health goals whilst using social media.	Narrative F: - Seeing ad and feeling unable to resist - Ordering fast food, often in secret and larger amounts than intended - Immediate regret, shame, feeling of ruining progress	Narrative I) Negative influence of social media leading to temptation and relapse
No corresponding narratives	No corresponding narratives	Narrative J) Unique Narratives

Because the human researchers had combined narratives E and F in their analysis, they asked Claude to: "Explain your reasoning for keeping groups E and F separate rather than combining

them. Explain how you would combine groups E and F.” Claude grouped the two narratives together in the same way that the human researchers had (grouping narratives B) and D) together which, when combined, reflected Claude’s narrative B). Table 12 shows how each of the combined LLM-generated narratives mirrored the combined human-generated narratives.

GPT-o1 generated one narrative (J), which did not reflect any of the human- or Claude-generated narratives. This narrative remained part of the analysis to allow the researchers to explore differences in how GPT-o1 approached the narrative analysis compared with the human researchers and with Claude.

Table 12. Human, Claude and GPT-o1 groups, merged and compared.

Human analysis	Claude analysis	GPT-o1 analysis
New narrative A) (A from Table 11) Characters show awareness of both the good and bad sides of social media. The good things can be inspirational e.g. seeking out content about self-improvement or healthy recipe ideas. A fair amount of the self-improvement content relates to moderation/balance and dismissing ‘diet culture’ and restriction.	New narrative A) (A from Table 11) finding healthy meal ideas and recipes, feeling inspired by fitness influencers and transformations, connecting with others on a health journey for support, documenting own progress and meals to stay accountable.	Narrative A) Positive transformation and empowerment facilitated by social media Narrative B) Balanced approach to health and wellness Narrative C) Navigating misinformation and conflicting information on social media Narrative D) Self-Acceptance, Resilience, and Critical Awareness Against Negative Influences
New narrative B) (B + D from Table 11 combined) Characters use social media to successfully find healthy recipes and inspiration... Social media is seen as a form of positive social support.	New narrative B) (B from Table 11) realizing social media "health" content was unhealthy, disordered, deciding to be a voice of moderation and listening to body's needs, sharing balanced approach to inspire healthy changes in others.	Narrative E) Empowerment through social support and community Narrative F) From personal struggle to advocacy and influencing others
New narrative C) (C from Table 11) Social media is a place where bullying and trolling happens, there are temptations such as unhealthy food adverts and excessive pressure to look ‘perfect’.	New narrative C) (C from Table 11) creating unrealistic standards of "healthy" that are unattainable, fueling comparisons and feelings of inadequacy, promoting unsustainable restrictions and "clean eating", focusing more on appearance than true health and enjoyment.	Narrative G) Negative impact of social media on body image and mental health

Human analysis	Claude analysis	GPT-o1 analysis
New narrative D) (E + F from Table 11 combined) Fast food adverts on social media are extremely tempting and hard to resist but it is possible to overcome cravings and stick to health goals if you are able to overcome the power of the marketing techniques.	New narrative D) (E + F from Table 11 combined) This combined group would first describe the common experience of encountering fast food ads while trying to eat healthier, then delve into the internal struggle that ensues. It could then branch out into the two different paths characters take - resisting or succumbing - and explore the emotions, consequences, and lessons learned from each path. Combining the groups would shift the focus to the overarching experience of facing temptation and the various ways individuals respond to it, rather than emphasizing the specific outcomes. It could provide a more comprehensive look at the role of temptation in shaping the characters' journeys towards healthier lifestyles.	Narrative H) Overcoming Temptation and Internal Conflict to Maintain Healthy Choices Narrative I) Negative influence of social media leading to temptation and relapse
No corresponding narratives	No corresponding narratives	Narrative J) Unique Narratives

In Step 3, both LLMs summarised each of their narratives in a short descriptive paragraph (Table 13). GPT-o1 also merged similar narratives from the previous step to create a set of four new narratives, three of which (B, C, D) map on to the human- and Claude-generated narratives.

Table 13. Comparison between human, Claude and GPT-o1 interpretations in Step 3 of the narrative analysis process.

Human analysis	Claude analysis	GPT-o1 analysis
<p>Narrative A: characters understand that they have a personal responsibility to be discerning about the content they consume through social media, to avoid harmful or negative content and seek out positive content. They feel confident and able to do this by the end of their story.</p>	<p>Narrative A: stories where characters leverage social media platforms to support their journeys towards healthier lifestyles. In these narratives, individuals find inspiration, motivation, and valuable resources through engaging with health-focused content, connecting with like-minded communities, and sharing their own experiences. Social media serves as a positive tool, providing access to nutritious recipes, fitness tips, and encouragement from others on similar paths. These stories highlight the potential of social media to facilitate positive change and empower individuals in their pursuit of wellness.</p>	<p>No corresponding narrative</p>
<p>Narrative B: characters have used social media to successfully achieve their own health goals and are proud of what they have achieved. They want to use social media to help others achieve their goals, and to portray identities as good, moral, successful people.</p>	<p>Narrative B: stories where characters undergo transformative journeys, often learning from their own experiences or the experiences of others. These narratives showcase individuals who have overcome challenges related to unhealthy eating habits or negative body image and have emerged as role models or sources of inspiration for others. Through their stories, these characters share valuable lessons, provide guidance, and encourage others to prioritize their well-being. This group highlights the power of personal growth, self-discovery, and the potential to positively influence others through shared experiences and wisdom.</p>	<p>Narrative B (A, E, F from Table 12 combined): This group focuses on the positive role of social media and community support in facilitating personal growth and healthy lifestyle changes. Individuals leverage these platforms to find inspiration, following health influencers, accessing resources, and discovering new healthy recipes. Characters engage with like-minded individuals who provide encouragement, accountability, and shared experiences. Some individuals use their experiences to educate and inspire others, becoming advocates for healthy living. The stories emphasize the empowerment that comes from external support systems and the potential of social media to positively influence identity formation and dietary choices.</p>

Human analysis	Claude analysis	GPT-o1 analysis
<p>Narrative C: characters feel pressure to look like the influencers they see on social media. They are insecure and often get bullied online or in real life. They feel inadequate and idealise the unachievable bodies and lifestyles they see online.</p>	<p>Narrative C: stories that illustrate the negative impact of social media on characters' self-perception, body image, and eating habits. In these narratives, individuals are exposed to unrealistic standards, harmful comparisons, and the pressure to conform to certain body types or diets. Social media becomes a source of anxiety, self-doubt, and unhealthy obsessions, leading characters down paths of restrictive eating, overexercising, or disordered thinking. These stories underscore the potential pitfalls of social media and its capacity to exacerbate existing insecurities or create new ones.</p>	<p>Narrative C (G, D, C from Table 12 combined): this group delves into the negative effects of social media on mental health, body image, and self-perception. Individuals face challenges such as exposure to unrealistic standards including idealized images and content leading to distorted self-perception and unhealthy behaviours. Characters must navigate conflicting dietary information, leading to confusion and potential harm. Characters experience low self-esteem, anxiety, and mental health struggles. Importantly, the narratives also highlight the journey toward resilience and self-acceptance, including recognizing negative influences and developing strategies to mitigate their impact, prioritizing personal values and well-being over external judgments and educating and supporting others.</p>
<p>Narrative D: characters are tempted by fast food adverts on social media and feel that social media has the power to divert them from their health goals. They are faced with a choice: to maintain control over their own choices (positive endings), or to concede control and 'give in' to the pressures of social media (negative endings).</p>	<p>Narrative D: stories where characters encounter triggers or temptations, particularly in the form of fast food advertisements on social media, while trying to maintain a healthy eating lifestyle. This group highlights the internal struggle between desire and willpower that individuals face when attempting to make positive changes in their lives. Whether the characters resist or succumb to the temptation, these stories demonstrate the challenges and setbacks people experience when adopting healthier habits in a world filled with enticing triggers.</p>	<p>Narrative D (I, H, B from Table 12 combined): This group encapsulates the journey of individuals as they navigate the temptations posed by negative social media influences, particularly advertisements for unhealthy food options. It highlights the internal struggles faced when trying to maintain or adopt healthier eating habits. Some individuals give in to cravings induced by social media, leading to relapse into unhealthy eating habits, accompanied by feelings of guilt and disappointment. Others manage to resist temptations, demonstrating resilience and self-discipline. They often adopt strategies such as mindful eating, seeking support, and redefining their relationship</p>

Human analysis	Claude analysis	GPT-o1 analysis
		with food. A portion of individuals find a middle ground by integrating healthy habits with occasional indulgences, emphasizing moderation and a sustainable approach to wellness.
No corresponding narrative	No corresponding narrative	Narrative E (J from Table 12): This group comprises stories that offer unique perspectives or encompass elements not prevalent in other groups. These narratives may include supernatural or metaphysical elements, stories that use unconventional themes to convey messages about intuition, societal critique, or personal transformation. Stories make general observations on the influence of social media without focusing on specific personal experiences. Innovative storytelling methods or unique angles on the interplay between social media, identity formation, and dietary choices.

The final stage of the analysis involved asking the LLMs to generate descriptive labels for each of the narratives, which mirrored the narratives produced in the human analysis (Table 14).

Table 14. Comparison between human, Claude and GPT-o1 interpretations in Step 4 of the narrative analysis process.

Human analysis	Claude analysis	GPT-o1 analysis
Narrative A: Personal responsibility	Narrative A: Social Media for Good	No corresponding narrative
Narrative B: Role models	Narrative B: Learning and Inspiring	Narrative B: Empowerment and Positive Transformation through Social Media and Community
Narrative C: Social comparison	Narrative C: Social Media for Bad	Narrative C: Overcoming Negative Impacts of Social Media on Mental Health and Body Image
Narrative D: Control	Narrative D: Facing temptation	Narrative D: Navigating Temptation and Adopting Healthy Choices
No corresponding narrative	No corresponding narrative	Narrative E: Unique Narratives and Reflective Commentaries

Having observed Claude produce the initial analysis presented in Tables 10-14 in approximately 60 seconds, the researchers began to consider the more advanced analytic tasks they could ask of the model. They asked Claude to provide a list of stories corresponding to each narrative, including participant ID number and illustrative excerpts from each story. Claude quickly returned a response that initially seemed accurate, but which on further inspection contained hallucinations. Claude did not consistently assign the correct participant ID number to each story excerpt. When asked why it was not able to correctly assign text excerpts to participant IDs, Claude explained the mistake it had made and gave the researchers some suggestions to improve communication with the model, which included refinements to how the stories were formatted before being entered into the model.

Following these hallucinations, the researchers used the suggestions provided by Claude, which included re-formatting the data document using JavaScript Object Notation (JSON). JSON is a data interchange format; a simple way of formatting information so that it can easily be read by computers and humans (Bassett, 2015). It is an independent universal language, meaning that it can be used to communicate information to any software, regardless of the programming language it uses. JSON proved to be a better format to use to communicate with Claude, but the model still struggled to assign all 138 stories to one of the four narratives. A new approach, which involved feeding each story, in JSON format, into the model one by one, was the most effective way of ensuring Claude assigned every single story to a narrative. The same process was used with GPT-o1, following which the human researchers reviewed all the analytic 'decisions' made by the two LLMs. The researchers used Excel spreadsheets to compare the analyses conducted by Claude and GPT-o1 to the human analysis. This exercise revealed that both LLMs were able to group all 138 stories into four narratives in a fraction of the time taken for the human analysis. The total time taken to conduct the analysis using Claude was estimated at approximately 35 hours. This included preparing and cleaning the raw story data before starting the analysis, conducting the analysis with Claude, and then reviewing Claude's findings and interpretations. For GPT-o1 the process was quicker because the researchers had already prepared the data and refined the method with Claude. It is estimated that the GPT-o1 analysis took approximately 12 hours. It took the human researchers approximately 64 hours (spread across 16 weeks) to conduct the full narrative analysis of all 138 stories whilst documenting findings throughout the process.

7.4 Discussion

7.4.1 Summary of findings

A narrative analysis of 138 short stories conducted by human qualitative researchers was compared to narrative analysis conducted by two commercially available chatbot-style LLMs: Anthropic's *Claude 3 Opus* and OpenAI's *GPT-o1*. This novel LLM-assisted analysis method was developed iteratively as a collaboration between the author and the two Ipsos analysts with expertise in AI. The comparison between the human analysis and the LLM analyses aimed to assess whether each model could conduct a thorough, sound analysis using the same steps as the human researchers. The researchers acknowledged that different humans are likely to have grouped the stories slightly differently, or that the same researcher could feasibly make different decisions upon revisiting the data at a later date. Therefore, it was not realistic or appropriate to define the LLMs 'success' based on them producing an exact replica of the human analysis. Accordingly, the researchers evaluated each of Claude's and GPT-o1's analytic decisions manually to decide whether the models' justifications were coherent and rational. As a result of this validation process, it was decided that both models had been able to conduct a systematic, credible narrative analysis of the story data.

Claude generated four narratives which mirrored the four narratives developed in the human analysis. GPT-o1 also generated four narratives, three of which reflected narratives from the human analysis, the fourth of which was unique. The researchers felt that this fourth narrative did not adequately describe any of the stories included in the analysis. In comparison to Claude and the human researchers, GPT-o1 conducted a simpler analysis which the researchers felt lacked nuance. It is therefore possible that Claude is more suited to interpretive methods such as narrative analysis and that GPT-o1 may be more suited to other types of textual analysis, something that could be explored by further research to compare the differences between models and identify the analytic strengths and weaknesses of different models.

This work provided helpful methodological insights into how narrative analysis might be enhanced by LLMs. The LLM analysis built on the findings of the human narrative analysis and helped the researchers develop more well-rounded conclusions. Having to explain the analysis steps to the LLMs and review every stage of their analytic process meant that the researchers became closer to the data and to the analysis than they had been previously. Additionally, thinking about the LLMs' capabilities for reflection and reflexivity also prompted the researchers to consider their own biases in greater detail and think about how these may have contributed to their interpretations and shaped their approach to the analysis. Thus, using the LLMs to conduct

the analysis alongside the human researchers enhanced the human researchers' ability to generate meaningful and deep interpretation.

This study presents a rigorously tested method for using LLMs as tools to accelerate and enhance qualitative analysis methods such as narrative analysis. The method is accessible to researchers with qualitative expertise who may have limited knowledge or experience of using AI. In particular, the study provides evidence to support the use of Claude to analyse textual data in the form of written stories. GPT-o1 conducted the analysis with similar rigour as Claude, but did not generate findings that were as closely aligned with those of the human researchers. It is important that researchers who wish to utilise LLMs for analysis of textual data understand the importance of selecting the most appropriate LLM for their analysis, and of validating all AI-generated content.

7.4.1.1 Proposed guidelines for LLM-assisted analysis

During the iterative development of the method used in the current study, the researchers developed a set of general guidelines for successful and efficient LLM-assisted analysis of qualitative data (Table 15).

Table 15. Four steps for successful LLM-assisted qualitative analysis.

Steps	Tasks
Step 1: Develop a structured analysis plan	Ensure there is clear understanding amongst the human researchers of the method(s) to be used and of the role that LLMs will play in the analysis.
Step 2: Select the best model for the task	Identify the LLM(s) that are the best fit for the purpose of each analysis that is conducted, taking into account the type of data, chosen analysis method, and desired outputs.
Step 3: Format data appropriately	Structure data in the most clear and simple format that LLMs are able to understand and work with.
Step 4: Use prompt engineering and optimisation	Provide LLMs with a clear and simple outline of the aims, methods and expectations of the analysis. Create clear, simple instructions that are then reviewed and edited by the model to maximise comprehension and ensure efficient communication between humans and LLMs.

As part of step 4 in the above guidelines, researchers should also consider how their own personal and philosophical views will impact the ways in which they choose to incorporate

LLMs into analyses. For some, the growing presence of LLMs in research has sparked anxieties about a loss of meaningful work for researchers (Bankins & Formosa, 2023) and the demise of individuality in academic writing (Nakadai et al., 2023). For example, anecdotal evidence suggests that occurrences of certain words and phrases in academic publications have increased exponentially since the release of LLMs such as ChatGPT. A PubMed search revealed that the occurrence of the word ‘delve’ in citations and abstracts increased by 654% from 2020 to 2024 and similar trends have emerged in other databases (Stokel-Walker, 2024). Because of the way LLMs are trained, any text that is published online will inevitably make its way back into the model, which may lead to a gradual but noticeable reduction in diversity within scientific writing and LLM-generated ideas. This has potential implications for how LLMs analyse data and express their interpretations of qualitative data. Individual researchers will, therefore, hold their own beliefs about the extent to which LLMs should be used in qualitative analysis, and these roles and expectations should be discussed prior to beginning any analysis.

7.4.2 Reflexivity

As a researcher who is experienced in traditional qualitative analysis methods, embarking on this study involved me stepping out of my comfort zone significantly. Having completed the study, I can now reflect on the extent to which this research has positively influenced my development as a researcher. Through collaborating with Ipsos UK, I experienced for the first time how exciting, helpful and challenging external collaborations can be. My work on this project with Ipsos has taught me invaluable skills in study development, approaching potential collaborators and laying out terms for the collaboration, working remotely, and navigating the financial and institutional regulations around collaborative relationships and data sharing between organisations.

This study has also taught me to open my mind to new methods and technologies even when they may not have been widely accepted by my peers and colleagues. I was sceptical, when I first starting working with LLMs in a research context, about their value, their capabilities, and about whether they could have a place in qualitative research. In my story completion analysis, as described in Chapter 6, I favoured pen-and-paper methods, printing out the story data, cutting up bits of paper and laying them out physically on the ground in front of me. Going from that, to using an exclusively digital method of analysis that involved learning how to use new technology that was, at the time I started this study still in the early stages of its development, was quite the learning curve. I can honestly say that now, as I near the end of my PhD, I am entirely converted to the use of AI within research and – provided all researchers thoroughly consider the ethical and methodological issues associated with AI – am a vocal supporter of the use of LLMs in qualitative research amongst my colleagues and peers. I truly believe that this

study has widened my skillset and opened my mind to the use of new and innovative methods within qualitative research.

7.4.3 Strengths and limitations

Strengths

The standout strength of the current study is the rigorous comparison between human and LLM-assisted narrative analysis. The human analysis was conducted prior to the LLM analysis to ensure that findings from the LLM analysis did not influence the author's own interpretations of the data. Much of the published research on the use of LLMs for qualitative analysis has, so far, taken relatively 'quantitative' approaches to evaluating the capabilities of AI (Bano et al., 2023; Tai et al., 2024; Törnberg, 2024; Zhao et al., 2023). Studies often discuss researcher subjectivity, bias, positionality and backgrounds as limitations that prevent rigorous research from being conducted (Tai et al., 2024; Törnberg, 2024); something that many qualitative researchers will disagree with. The current study approached the task of validating LLM-assisted analysis by working with the subjectivity and individuality of human researchers to acknowledge and celebrate the nuances of human-AI collaboration and consider the extent to which LLMs embody both objectivity and subjectivity. The subjective nature of human qualitative analysis is considered to be one of its strengths, providing that researchers engage in reflexivity to examine the impact of their own characteristics on the research process (Braun et al., 2023; Mauthner & Doucet, 2003). Just as human researchers can never truly operate outside of the influence of their own experiences and biases (Hamilton et al., 2023), neither can AI.

Some see LLMs in their current form as objective but ponder whether more advanced models could be programmed with capabilities like imagination and reflexivity, allowing them to diverge from their programming and become responsive and adaptive to different contexts (D'Amato, 2024). Other researchers, however, already see LLMs as subjective tools. The data LLMs are trained on impact their responses, just as the experiences and ideas that humans are exposed to influence their interpretations of data. So, the question should not be 'How can we ensure that LLMs are not biased?' but rather 'How can we ensure that LLMs are reflexive and transparent analysts?'. The findings of the current study confirm what others have written about LLMs' current capabilities for reflexivity. Hamilton et al. (2023) explored whether ChatGPT could engage in 'bracketing' - a type of reflexivity where qualitative researchers identify and then set aside their own biases - and found that ChatGPT could describe the biases that may have been present in the information it was trained on but was not able to evaluate how these biases may have affected its analysis of the data. Similarly, Balmer (2023) found that ChatGPT could suggest how it might itself engage in reflexivity and why examining its own biases and

assumptions might be important, but was not able to produce substantive, insightful or unique examinations of its own impact on the research process. Though LLMs seem not to have the ability to be sufficiently reflexive yet, they can support human creativity and meaning-making, blurring the lines between objectivity and subjectivity (Yan, 2024). The fact that Claude and GPT-o1 were both able to produce coherent ‘reflexive’ paragraphs as part of the current analysis does not yet demonstrate that LLMs can act as reflexive researchers, but it does provide additional evidence to support the models’ capabilities for providing accurate research-relevant output and mimicking human cognition.

The collaboration between the University of Southampton and Ipsos represented a unique opportunity for researchers to explore the capabilities of two different LLMs for narrative analysis whilst adhering to important ethics regulations around participant confidentiality and data protection. This was made possible by Ipsos’ state-of-the-art Ipsos Facto system, which is powered by industry-leading generative AI technology from Ipsos partners OpenAI, Google and Anthropic. Ipsos Facto contains built-in enterprise-level security features, including Two-Factor Authentication (2FA), to ensure secure access for authorized users (Ipsos staff), which also makes it compliant with General Data Protection Regulation (GDPR) (European Parliament, 2016) and university ethics guidelines. Ipsos and their technology partners do not use this data to train or improve the AI models powering Ipsos Facto.

Limitations

Though LLMs can conduct high-quality narrative analysis, researchers should still be cautious when publishing findings from LLM-assisted analyses. AI technology is far from perfect, and advancements are being made with tremendous speed; models used for analysis may already be out of date once papers are written and published. The current study presents a novel exploration of the capabilities of LLMs for narrative analysis in the context of the models available in 2024 and acknowledges that models such as Claude and GPT-o1 will be superseded by those with far greater capabilities, which may come with additional risks and challenges.

Another limitation is that this study focussed specifically on the application of LLMs to narrative analysis of short stories. It is therefore not possible to make general conclusions about the efficacy of LLMs for other methods of qualitative analysis such as thematic analysis. There is, however, emerging evidence to suggest that LLMs and other forms of AI can conduct thorough, high-quality thematic analysis (Christou, 2024; Hitch, 2024; Towler et al., 2023), so researchers should appraise a range of evidence when deciding how to incorporate AI into their qualitative research. One example is the use of Machine-Assisted Topic Analysis (MATA), an alternative approach to LLMs that utilises AI in the form of Structural Topic Models, which use their

'intelligence' to detect topics within written documents that can then be analysed by human researchers (Towler et al., 2023). MATA represents a structured approach to equitable, collaborative working between AI and humans.

7.4.4 Implications and future research

This study highlights the extensive potential benefits of LLMs to the field of qualitative research. LLMs can save researchers time, provide alternative interpretations, and when viewed through a social constructionist lens, can be thought of as co-constructors of socially and culturally meaningful knowledge (Yan, 2024). There is, therefore, a growing need for higher education institutions to embrace the potential for AI to enhance qualitative analysis and to support their staff and students to embrace new technologies (Neumann et al., 2023). Given that LLMs are trained to identify patterns and meaning within text, they are ideal tools to assist researchers in conducting analyses of textual data using existing frameworks such as thematic analysis or narrative analysis (Christou, 2024). LLMs have already been widely adopted by qualitative analysts in the commercial sector (e.g. Ipsos) and AI is now embedded within many software packages designed to support researchers to conduct qualitative analyses (e.g. MAXQDA; VERBI software (2024), Atlas.TI; Scientific Software Development GmbH (2024)) and systematic reviews (Khalil et al., 2022). Consequently, institutions that do not equip their researchers with the skills to utilise these tools risk being left behind. Investing in secure and trustworthy AI systems like Ipsos Facto will allow qualitative researchers from a range of backgrounds and disciplines to conduct rigorous, responsible and ethical LLM-assisted research.

It is, however, important to acknowledge that access to secure, GDPR-compliant LLMs is an issue that will impact the ability of academics to carry out analysis using AI. Without access to systems such as Ipsos Facto, researchers must use commercially available LLMs developed by companies that may not be transparent in disclosing where data entered into their models are stored or how they are used, making responsible AI use more difficult. For example, data entered into the free version of ChatGPT leaves its country of origin to be stored on servers in the US, which has implications for researchers outside of the US. Many institutional ethics boards, particularly those covered by GDPR, require data to be stored internally and then deleted after a specific amount of time, and further permissions are often required to store data abroad. The current research benefitted from the collaboration with Ipsos, and use of the Ipsos Facto system at no cost, but this is usually something that is only accessible to researchers who are able to purchase licenses from Ipsos.

For qualitative researchers to feel confident incorporating LLMs into their analyses, higher education institutions and funding bodies will need to produce clear, comprehensive guidance

and training to support researchers to learn to use AI in ethical and responsible ways. Preliminary guidelines have emerged (Russell Group, 2023), but whether these will be implemented at institutional level remains to be seen. Implementation of such guidance will reassure ethics committees, researchers and most importantly, participants, that responsibly and ethically conducted LLM-assisted research poses no threat to participants.

Though this chapter highlights the clear benefits of exploring the incorporation of LLMs into qualitative analyses, it is necessary to acknowledge the reticence that some members of the research community have expressed when discussing the place of AI in qualitative research. In late 2025, an open letter was published in the Social Science Research Network (SSRN), supported by over 400 qualitative researchers from 38 countries, publicly rejecting the use of generative AI in reflexive qualitative analyses (Jowsey et al., 2025). The letter discusses concerns about generative AI's lack of ability to understand and construct meaning from words, the authors' belief that qualitative research should remain a human practice, and the significant ethical issues surrounding generative AI technology. As Jowsey et al. (2025) quite rightly point out, some aspects of the development of such technologies has, so far, been morally and ethically questionable. Though the true extent of AI's environmental impact is probably not yet known, research has indicated that the development and maintenance of generative AI has already had significant and diverse negative impacts on the environment. The construction of colossal data centres – which host the AI technology - across the world has led to vast areas of deforestation, significantly increased energy consumption and production of greenhouse gasses (Hosseini et al., 2025). In terms of the impact directly to humans, reports in the media have revealed that some of the top AI companies have outsourced 'content moderation' workers from developing countries in the Global South, paying them as little as \$1.32 an hour to review graphic violent and sexual content that has been described by workers as 'traumatic' and 'torture' (Perrigo, 2023; Robinson, 2023). It is therefore essential that researchers explore these ethical issues before using AI in their own work and carefully consider the potential impact of increased use of such technologies.

In the context of this thesis, this chapter provides important evidence to support the use of novel, innovative methods within creative qualitative research. The increased efficiency with which the story completion data was analysed when LLMs were utilised has implications for future story completion studies. If researchers can conduct higher quality analyses more rapidly when assisted by LLMs, then findings can be disseminated more quickly to the academic community, the participants who took part in the research, and other stakeholders with an interest in supporting young people to live healthier lives, such as policy makers. If qualitative findings can be shared more quickly, health behaviour change interventions may be developed

and delivered sooner, and researchers will succeed in helping more young people, more quickly, to make healthy choices that will benefit them and their future families.

7.5 Conclusion

This study demonstrated that commercially available LLMs can conduct systematic and credible narrative analyses when guided by human qualitative researchers. As a result of the transparent, human-led analytic process, the LLMs closely mirrored the researcher-generated narratives. Beyond efficiency gains, the LLM-assisted approach enhanced the researcher's analytic reflexivity and depth. The findings also highlighted a range of issues that are important for qualitative researchers to understand and consider before using LLMs for qualitative analysis. A basic understanding of the fundamental principles of AI is essential for any qualitative researcher wishing to explore LLM-assisted analysis. This includes being critical of the roles LLMs play in the research process and of any content that is produced by LLMs, which is encompassed by reference to 'responsible AI', part of which is maintaining transparency in how AI is used in research. LLMs are highly capable of assisting researchers in conducting narrative analysis of textual data, from data summarisation to interpretation of narratives and 'thoughtful' analytic commentary and discussion. Applications of LLMs across a range of research fields will vary, but one thing remains certain: AI is here to stay. Many researchers will benefit from exploring how LLMs can improve the quality and efficiency of their research, therefore maximising the positive impact that research can have on people and communities.

Chapter 8 Discussion

8.1 Summary of PhD findings

This PhD explored how identity formation processes shape young people's food choices with particular attention to the role of social media. The thesis builds a foundation of new knowledge to inform the future development of identity theory-based health behaviour change interventions. The PhD progressed in three stages; firstly, by reviewing the current literature pertaining to the application of identity-based concepts in interventions to promote healthier behaviour in young people and evaluating their effectiveness; secondly, by using creative qualitative methods, specifically story completion, to elicit relevant rich data from young people and generate insights into adolescents' ideas about the role of social media in identity-related processes and food choices; and, thirdly, by developing and testing a novel LLM-assisted narrative analysis method to identify more effective and efficient ways of conducting health research with young people.

These three stages were addressed by three core empirical elements: 1) a systematic review of published studies evaluating the use of identity theory in informing health behaviour change interventions with young people (Chapter 4); 2) creative qualitative exploration of identity formation processes and their relationship with food choices and social media using story completion (Chapters 5 and 6); and 3) development and evaluation of a novel method of analysing textual data from creative qualitative research using LLMs (Chapter 7). These elements addressed four research questions and four objectives. The four research questions were:

- 1a) Which concepts from identity-formation theories have been utilised in adolescent health interventions, and how have identity-formation related mechanisms and processes been incorporated into these interventions to improve adolescent health?
- 1b) How successful have interventions using identity-related processes as mechanisms of change been in improving adolescent health behaviours?

- 2a) How acceptable is a story completion task to adolescents?
- 2b) How effective is narrative analysis for analysing story data?

- 3) What is the role of social media in shaping and expressing identity and personal dietary choices in adolescents?

- 4a) How does narrative analysis of textual data in the form of short stories conducted by LLMs compare with a human analysis?
- 4b) How can analysis using LLMs be optimised to mimic the subjectivity and transparency of human analysis?
- 4c) What are the benefits and drawbacks of using LLMs as tools to assist with textual analysis?

The four objectives, which mapped onto the four research questions respectively were:

- 1) To conduct a systematic review of interventions that have used identity-related processes to support adolescent health.
- 2) To pilot novel, creative recruitment, data collection and data analysis methods that could provide insight into processes of identity formation and explore the feasibility of these methods with adolescents.
- 3) To conduct qualitative studies to explore adolescent perceptions of influences on their dietary choices; particularly social media and how this relates to their identity.
- 4) To develop and test a novel method of large language model-assisted narrative analysis of story data collected to explore relationships between identity formation and social media.

8.1.1 Research questions 1a and 1b

The first element of the PhD, described in Chapter 4, was a systematic review of adolescent health behaviour change interventions that incorporated elements of identity theories or models into their design. The review aimed to investigate how theories of identity had informed intervention design, and which interventions had been most successful. Six databases were searched (PsycINFO, MEDLINE, Web of Science, EMBASE, CINAHL, ERIC) and, following exclusions according to predefined inclusion and exclusion criteria, 17 studies were included in the narrative synthesis. Interventions were based on self-affirmation theory, role identity theory, theory of emerging adulthood, or aimed to support identity development without explicitly citing theory.

The review found that self-affirmation theory was the most used identity theory (n = 12) amongst the included intervention studies and was incorporated into interventions in the form of self-affirmation manipulations. Role identity theory and the theory of emerging adulthood were also incorporated into intervention design through activities such as role play and goal setting. All of these identity theory-based behaviour change strategies were used in combination with

standardised BCTs such as use of implementation intentions or health promotion messages, both of which have a relatively strong evidence base as effective BCTs.

The review was unable to find sufficient evidence to support the efficacy of identity theory-based intervention elements, because it was not possible to disentangle whether behaviour change was the result of the identity-based elements, or other elements (BCTs such as implementation intentions) of the multicomponent interventions. It concluded that some of the identity-based intervention elements may have helped participants to engage with other BCTs. For example, completing a self-affirmation manipulation bolstered participants' confidence and motivation to engage with behaviour change elements such as health education or health promotion/risk materials. It is therefore possible that combining identity-based behaviour change strategies with commonly used BCTs in interventions could strengthen adolescent engagement with behaviour change. It was, however, clear that most of the interventions in their current form had been unsuccessful in generating significant positive health behaviour change. Further work is therefore necessary to explore how identity theory-based strategies can be best used in combination with effective BCTs to better motivate young people to make healthier choices.

The variation in the types of identity theories and models used in adolescent health behaviour change interventions suggests that there is likely no consistent evidence identifying which identity-theory based strategies are most effective. Therefore, researchers may have chosen which theoretical frameworks to base their interventions on without fully understanding adolescents' real, lived experiences of the identity formation process and how identity impacts food choices and other health behaviours. Following this review, a need was therefore identified to understand how adolescents themselves conceptualised the role of identity in health behaviour change, and how this aligns with current identity theories.

Young people are known to be early adopters and high-frequency users of social media, and research has found that they increasingly use social media to seek out health information (Psihogios et al., 2022). Despite this, use of social media in adolescent health interventions has, so far, been limited (Hsu et al., 2018). The evidence that exists suggests that incorporating social media into health behaviour change interventions aimed at adolescent populations shows promise as an effective way of promoting healthy choices and empowering young people to prioritise their own health (Chau et al., 2018).

Given adolescents' extensive use of social media and the potential for digital interventions incorporating elements of social media to be successful, this PhD was conducted with future research in mind to develop and test an identity- and social media- based health behaviour change intervention for young people. The three qualitative studies conducted as part of this

PhD therefore aimed to explore young people's conceptualisations of identity formation, food choices and social media, and how these three elements impact one another.

8.1.2 Research questions 2a and 2b

Building on the systematic review findings, qualitative work was undertaken to explore the role of identity in the development of food choices through the eyes of young people using a story completion method. Story completion involves asking participants to write fictional stories based on a pre-written stem introducing a character and a scenario (Clarke et al., 2017). It has historically been used with very young children and adults, and less so with adolescents, but shows promise as a method for increasing young people's engagement in qualitative research as well as for exploring young people's conceptualisations of sensitive topics such as adolescent identity and food choices.

A pilot study (Chapter 5) was therefore conducted to test the method's feasibility with young people. The aim of the story completion work was to understand young people's perspectives of how identity impacts food choices and vice versa. Research and anecdotal evidence suggests that social media plays an important role in the development of identity and food choices in adolescence (Bell, 2019), so the story stems were also designed to incorporate social media into the presented scenarios.

For the pilot study, 20 participants were recruited through the web platform 'Prolific'. Each participant completed three story stems depicting a range of different characters and scenarios, for a total of 60 stories which were analysed using narrative analysis.

The pilot study showed that young people engaged with the story completion task and no significant issues with the use of the method were identified. All 20 participants completed three stories that were of adequate length and quality for analysis. The pilot also provided helpful insight into which stems were most and least conducive to high quality stories, which allowed the researcher to make evidence-based changes to the story stems prior to their use for the main study described in Chapter 6.

As a result of the analysis, four narratives were crafted from the stories: capability, overcoming challenges, inadequacy, and transformation. The stories provided insight into participants' understanding of sociocultural narratives as well as their own experiences around using social media to access food and health related content and to develop and express identity. Twenty stories did not include any mentions of social media (the stem deliberately did not include explicit reference to social media because the researchers wanted to see if the topic would come up in the stories organically). Therefore, this stem was removed prior to the main study,

and edited versions of the other two stems were used in the main study. The fact that social media was not mentioned in any of these stories is an interesting finding in itself, and the author can only speculate as to why this happened. It is possible that the young people did not necessarily associate social media with food choices unless they were prompted to think about the two together.

8.1.3 Research question 3

The main story completion study used similar recruitment, data collection and analysis methods to those used in the pilot study, with the addition of face-to-face recruitment of young people through youth groups. The story stems used in this study were edited following learnings from the pilot study, and the narrative analysis procedure was slightly altered, again as a result of learnings from the pilot study.

In the main story completion study described in Chapter 6, 77 young people (age 13-25 years) were recruited via Prolific (n = 32) and youth groups in Hampshire (n = 45). Each participant was asked to complete two story stems about two different characters. A narrative analysis of 138 stories was conducted and four narratives were identified: personal responsibility, role models, social comparison, and control. These narratives depicted a range of positive and negative experiences and identities. The stories depicted social media as a tool for shaping and expressing identity and food choices, as well as a reflection of social norms and values. Participants' stories portrayed their awareness of the abundance of food and health related content on social media and the positive and negative consequences that this content can have. In some stories, for example, social media helped characters make healthier food choices; behaviour that was sometimes tied to moral identities (characters who wanted to help others achieve their health goals). In other stories, unrealistic expectations around dietary choices and body image promoted by social media influencers made characters feel helpless and inadequate. The findings suggested that young people were aware of the wide range of positive and negative impacts social media can have on young people's physical and mental health, as well as their identity development.

The stories also reflected differences in identity development stages between older and younger participants. Older participants (19-25 years) were more likely to write about stories with positive trajectories about characters who could navigate the highs and lows of social media and ultimately reach positive health goals. In contrast, younger participants (13-18 years) were more likely to write about characters who felt victimised by social media and struggled with feeling out of control of their own choices and behaviours. This suggests that older adolescents may feel more confident navigating social media in healthy, sensible ways because they are at a

later stage in the identity formation process and have more experience learning how to consciously navigate social media.

Research shows that those in the ‘young adulthood’ stage of adolescence (18-25 years), as defined by Curtis (2015), may be more capable of developing and working towards personal goals (such as making healthier food choices), compared with younger adolescents who are still in the early stages of the identity formation process (Meeus et al., 2012). Younger adolescents, may therefore, need additional support to learn how to effectively and safely use social media to inform their identity development and food choices because they have less experience of using the platforms and their ability to critically appraise information found on social media is still developing (Orben et al., 2022). Younger adolescents could be supported through a combination of behaviour change interventions that harness both the identity formation process and social media, and policy changes to improve the online environment to which young people are constantly being exposed, and their ability to critically engage with online content and make informed decisions to protect their own wellbeing.

8.1.4 Research questions 4a, 4b and 4c

During the time that the author conducted the narrative analysis of the story completion data collected as part of the main study (Chapter 6), OpenAI released the first version of ChatGPT (November 2022), a revolutionary new online tool that made intuitive, user-friendly AI freely available to the public for the first time. LLMs such as ChatGPT are well suited to qualitative analysis because they are programmed to ‘read’ and identify patterns within text (Tai et al., 2024). Following the release of ChatGPT and other LLMs, studies quickly emerged describing the use of these tools by researchers to conduct various types of qualitative analyses including thematic analysis (Hitch, 2024), content analysis (Tabone & De Winter, 2023) and interpretative phenomenological analysis (Hamilton et al., 2023). At the time, there had been no published examples describing the use of LLMs to conduct narrative analysis. This led to the third key element of the PhD; the development of a novel method for LLM-assisted narrative analysis, which was described in Chapter 7.

Following the human narrative analysis, all 138 stories from the main story completion study were analysed by two LLMs: Claude and GPT-o1. The two models were provided with the stories as well as basic instructions for conducting the narrative analysis. Claude presented four narrative groups that mirrored the four narratives developed in the human analysis. GPT-o1 produced similar results, though some of its interpretations were less strongly aligned with those of the human researchers. The researchers reviewed each of Claude and GPT-o1’s ‘decisions’ in the same way they would appraise another human researcher’s interpretations of

the same data. The findings suggested that LLMs are capable of conducting high-quality and detailed narrative analysis of story data in a short space of time, but that further work is needed to evaluate how proficient different models are at conducting different types of qualitative analysis, how different models compare to each other and how they compare to human-only analysis.

The final study of the PhD presented a rigorously tested novel method for AI-assisted qualitative analysis. The method allowed the author to build on the findings from the main story completion study to develop a more detailed and fuller interpretation of the stories. Having to explain the analysis steps to the LLMs and review every stage of their analytic process meant that the author became even closer to the data and the analysis than she had been previously. Thinking about AI's capabilities for reflexivity also prompted the author to consider her own biases in more depth and how these may have shaped her approach to the analysis.

This study confirmed what has now been well documented in the literature: that LLMs can save researchers significant time and resources when analysing and interpreting qualitative datasets (Fuller et al., 2024; Morgan, 2023). When compared with the same analysis conducted solely by the human researchers, the LLM analysis conducted in this study was significantly quicker (64 hours spread across 16 weeks for the humans versus 35 hours for Claude and 12 hours for GPT-o1, which were both completed within several days).

In this study, LLMs were also able to provide alternative interpretations of the data, which prompted the author to think further about the narratives she had identified and consider alternative perspectives. This led to a further benefit of LLMs becoming co-constructors of knowledge, showcasing how humans and artificial intelligence can work together to maximise the insights to be gained from rich qualitative data.

Benefits of using LLMs to researchers also include improving digital literacy, something that will become increasingly more essential as AI becomes embedded in people's daily lives and in their work. Researchers who do not embrace new AI technologies risk being left behind, so the advantages of learning to use these tools as early as possible, and in transparent and responsible ways, are significant.

Though the advantages of harnessing LLMs are clear, this study also identified important drawbacks to the use of LLMs for analysis of textual data which must be considered by researchers who wish to utilise these technologies. First, though LLMs are regularly updated with new knowledge and capabilities (many new LLMs and more powerful versions have been released since the study described in Chapter 7 of this thesis was conducted), they still make mistakes and can produce information that is simply not true (hallucinations). Though LLMs'

power and capabilities have increased, and their tendency to hallucinate has reduced significantly since the first models were released (Wang et al., 2025), all LLM-produced content should still be verified and appraised by those who use the tools, particularly when used in research contexts. There is a risk that researchers who are not aware of these limitations may use the tools without properly evaluating the content produced by the LLMs, which could compromise the validity, rigour and quality of their research.

Ethical issues are a significant point of contention when it comes to use of LLMs in research. Academics must consider ethical issues that are especially relevant to LLM-assisted research, which include: considering the extent to which research participants should be informed about the use of AI in studies they take part in; identifying credible, safe LLMs (including considering where and by whom models have been developed); and clarifying where data entered into LLMs is stored, who has access to it and what it may be used for (Jenner et al., 2025; Resnik & Hosseini, 2025).

8.1.5 Hypothesis

The four data chapters (4-7) also provide evidence to support the hypothesis outlined in Chapter 2 of this thesis: *Representations of food and eating habits on social media are used by adolescents to shape their diets and their identities*. The in-depth exploration of the relationships between the three key concepts investigated by this PhD - identity formation, food choices and social media - provides further support for existing theories and concepts and introduces new ideas for consideration by both researchers and policy makers. Namely, the qualitative work reported in this thesis highlights the significance of the role of social media in the identity formation process but also suggests that the ways in which social media is used by young people differs as they progress through the core stages of the identity formation process. The findings of the systematic review suggest that identity theories have the potential to enhance adolescent health behaviour change interventions, but that further research is needed to identify the best ways of incorporating such theories into behaviour change interventions. Though Chapter 7 moves away from investigating the above hypothesis, it provides an important contribution to the growing body of evidence concerning the use of AI in qualitative analyses. Chapter 7 is an example of how the PhD project evolved over time, adapting to the emergence of new technology and taking advantage, in real time, of innovative new approaches, exploring their potential and evaluating their robustness.

8.1.6 Contributions to the literature

This thesis contributes to the existing literature in three key ways. First, the findings of the systematic review advance conceptual understanding of identity theory-based health behaviour change by highlighting the limitations of existing identity-informed interventions. They also demonstrate the importance of building interventions around a range of theoretical and conceptual constructs, including identity theories (described in Chapter 2), behaviour change techniques (Michie et al., 2013), Self-Determination Theory (Deci & Ryan, 1985), and adolescent values (Bryan et al., 2019; Bryan et al., 2016; Strömmer et al., 2021). Second, it provides rich insight, through the use of qualitative methods as described in Chapters 5 and 6, into how young people perceive and narrate the role of social media in shaping food choices and identity, revealing clear alignments with the theories and constructs highlighted in Chapters 1, 2 and 4 of this thesis. Third, the thesis makes important methodological contributions to the literature, highlighting the significant benefits of using story completion with young people, which include the adaptability of the method, as well as its capacity to encourage young people to express themselves freely and creatively within a research environment. Another key methodological contribution is demonstrated by the findings of the LLM-assisted analysis study reported in Chapter 7, which provide a substantial and innovative contribution to the growing body of literature exploring the integration of AI into qualitative analysis. This study presented a rigorously tested approach to LLM-assisted narrative analysis as well as providing an accessible framework to guide qualitative researchers who seek evidence-based recommendations for how to incorporate LLMs into their own work.

Whilst this thesis focuses on identity formation as a key influence on young people's food choices and social media as a key context within which this can occur, it is also important to acknowledge the impact of wider environmental contexts related to identity formation and food choices in young people. Social and food environments are significant drivers of young people's food choices, particularly as they begin to have more autonomy over their own choices as the influence of their parents becomes less significant (Shaw et al., 2023). For young people, these environments often include fast-food and takeaway outlets, which are perceived by many young people as providing a familiar, welcoming social space where they can access tasty food that is good value for money (Shaw et al., 2023). Despite the high value placed on these outlets by many young people, fast-food chains are a key contributor to the food environment in the UK which is increasingly being recognised as obesogenic (Congdon, 2022; McNally, 2023).

Another key social environment that can significantly affect young people's food choices is their socioeconomic environment. There is an extensive body of literature which has highlighted an association between poorer quality diets and young people who experience socioeconomic

disadvantage (Shaw et al., 2025; Shaw et al., 2021; Vogel et al., 2023). Given that most of the participants who took part in the story completion study described in Chapter 6 of this thesis lived in areas experiencing higher than average levels of socioeconomic disadvantage, their stories can be considered a reflection of their own understanding of how young people make food choices within the context of the socioeconomic constraints they themselves are likely to have experienced. Acknowledging the impact of wider environmental contexts highlights the complex web of intertwined factors that contribute to young people's food choices alongside their explorations in identity formation, and their use of social media.

8.2 Strengths and limitations of the PhD

8.2.1 Strengths

This PhD presents important new knowledge, from both systematic review and qualitative research findings, to contribute to the field of adolescent health research. As discussed in the above section 8.1.6, this PhD makes important contributions to the existing literature through rigorous, high-quality research.

A key strength of this PhD relate to its novel use of innovative, creative data collection and analysis methods with young people. Chapters 5 and 6 of this thesis describe a novel use of story completion to engage young people in creative qualitative research, which proved to be a highly effective method for analysing the form, structure and content of short written stories. Story completion gives young people the agency to decide how they would like to communicate their opinions and emotions about a particular topic, particularly a topic that could be considered sensitive, such as food and eating habits (Clarke et al., 2017). The method also allows young people with a diverse range of abilities and needs to take part in research. For example, a young person with autism and a young person who was unable to read or write both took part in the research conducted as part of this PhD. The flexibility and creativity of the method allowed the author to adapt the task on the spot during youth group sessions with very little effort and no disruption to the data collection activities.

The rich qualitative data collected and analysed in the studies described in Chapters 5, 6 and 7 of this thesis also provided additional insight into the issues raised by the systematic review presented in Chapter 4. The review identified potential opportunities to improve future development of interventions aimed at supporting adolescent health behaviour change, by combining identity theory-based intervention elements with BCTs that have been shown to be effective with adolescents. The review did, however, conclude that further research was necessary before any concrete conclusions could be made about the precise ways in which

identity-theory based intervention strategies can best be incorporated into health behaviour change interventions with adolescents. This gap in the literature justified the subsequent qualitative work that was conducted to understand how young people themselves understood the link between identity and food choice, and the role of social media in that relationship.

Chapter 7 of this thesis describes a novel use of LLMs as tools to assist with narrative analysis of story data. At the time of writing, there have been no published examples of the use of LLMs for narrative analysis of written stories and the method described in Chapter 7 was shown to be highly efficient and effective.

Another strength of this PhD is the successful recruitment of a relatively large sample of young people to the story completion studies described in Chapters 5 and 6 of this thesis. Previous research has shown that recruitment and retention of adolescents to health research can be challenging (Jong et al., 2023; Parrish et al., 2017). Many studies recruit young people through schools, an approach that has its own benefits and limitations (Bartlett et al., 2017). In the story completion studies described in this thesis, the combination of online (Prolific) and face-to-face (youth groups) recruitment proved to be a highly efficient and effective strategy for recruiting a diverse range of young people to the study.

8.2.2 Limitations

One key limitation of this PhD relates to its lack of co-creation, co-production and co-design with young people. These three ‘co’ terms are often used interchangeably, and all refer in some way to collaborative approaches to designing and conducting research. Co-creation may refer to the creation of new knowledge through research; co-design is often used in intervention development to refer to approaches where key stakeholders contribute to the design of an intervention (Grindell et al., 2022). In the UK, the National Institute for Health and Care Research (NIHR) provides published guidance to researchers on co-production, which they define as; “an approach where researchers, practitioners and the public work together, sharing power and responsibility from the start to the end of a project, including the generation of knowledge.” (NIHR, 2024).

Whilst the use of creative methods such as story completion provided the flexibility and creativity to engage diverse groups of young people in the research, none of the work conducted in this PhD (except the contribution from a Young People’s Advisory Group (YPAG) to the development of the story stems for the studies conducted in Chapters 5 and 6) was designed in collaboration with young people. It is essential that young people are not only consulted, but are actively involved in the production of research of which they are the target population (Erwin et al., 2024). This can be achieved through meaningful Participant and Public Involvement and

Engagement (PPI/E) (Wyatt et al., 2024), involvement of YPAGS (Chan et al., 2020), and the use of participatory research approaches such as community-based participatory research (Jull et al., 2017), or youth-led participatory action research (Ozer, 2017). Future research in this area should be co-produced with young people from the outset, including any funding application processes and the development of study protocols.

A second limitation of the work described in this thesis is the extent to which the methods used were successful in supporting young people to openly and honestly articulate the issues that were truly important to them. Story completion was chosen as a method to encourage young people to communicate freely without feeling pressured or self-conscious, through writing via a third-person fictional character. Despite the creativity and flexibility associated with this method, the young people who took part in the studies described in Chapters 5 and 6 of this thesis were limited in how they could express themselves and their own personal views because they wrote through the vehicle of third-person, fictional stories. Therefore, the conclusions drawn from the story completion data were also limited by the extent to which the story content could be considered a reflection of young people's own thoughts and opinions on the topic. To improve on the methods chosen for this PhD, the addition of analysis of qualitative data revealing young people's own personal views and experiences, such as analysis of publicly available social media data, would strengthen future work. Social media provides a real-time outlet for young people to express their identities and their views however and whenever they wish to do so. Therefore, collecting and analysing such data will provide opportunities for researchers to gain insight into young people's true thoughts and feelings. This will be discussed further in the below section 8.3.

8.3 Implications for future research

The three core elements of this PhD provide a broader and deeper understanding of how the relationship between identity, food choices and social media functions and is understood by young people. The findings of the systematic review start to build the foundation of a clear theoretical justification for the use of strategies that leverage identity-related processes to increase young people's engagement with existing, evidence-based health behaviour change interventions. The implications of the qualitative work relate to the fact that older adolescents, in part due to their more advanced progression through the identity formation process, may be more capable of critically appraising information that they find on social media and of understanding how to navigate social media in ways that minimise harm and distress. Therefore, younger adolescents may be particularly in need of additional support to develop both their health- and social media-literacy, as well as support in using social media as part of

their identity exploration and expression. All of these points can be addressed through the development and testing of health behaviour change interventions. The key implication from the LLM-assisted analysis study is that it provides support for the effective, responsible use of AI within qualitative research. Chapter 7 contributes important evidence evaluating the use of LLMs in this type of research, as well as highlighting the key methodological challenges and ethical risks associated with use of AI.

When brought together, the three elements of the PhD highlight the importance of identity in influencing behaviour and therefore its potential as a lever for behaviour change within the context of intervention development. The findings provide the foundation for future work to develop evidence-based, co-produced intervention strategies that support young people's work in identity development and meet their basic psychological needs to support them to make healthier food choices. Future interventions should also work to support young people's desire to express their own identities and increase their sense of autonomy and competence through their food choices and their social media use.

Outlined below is the design of a potential future programme of research, which builds on the findings of this PhD to develop and test identity-theory based intervention strategies with young people (Figure 7). The end goal of this research would be to develop an evidence-based intervention that aligns with young people's values and is effective in supporting young people to make healthier choices by encouraging them to explore health-focused identities and teaching them strategies so that they can learn to use social media to positively explore and express these identities and their food choices.

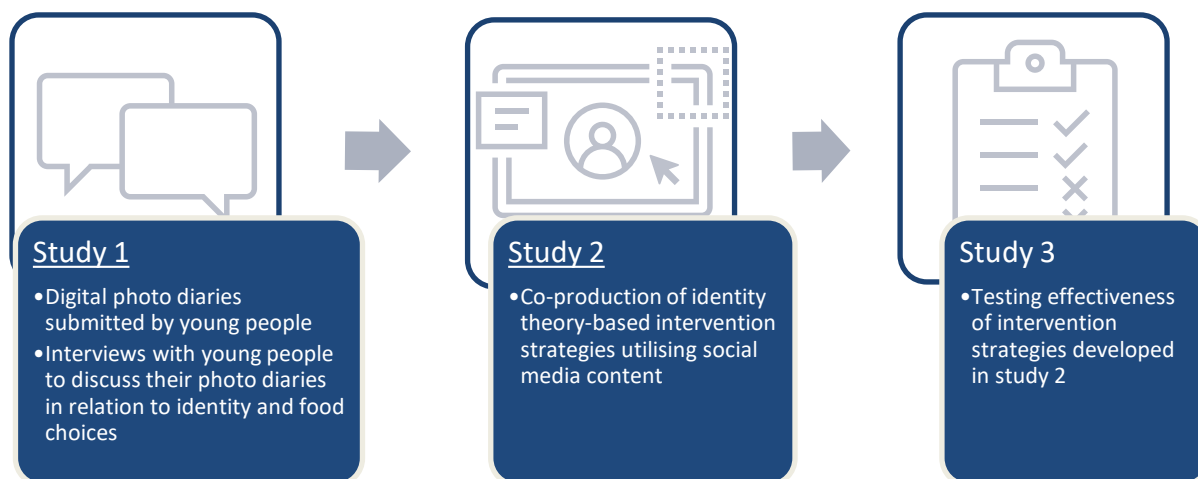


Figure 7. Outline of future work to develop and test identity theory-based health behaviour change intervention strategies with young people

Study 1:

The first study will involve two qualitative phases: digital photo diaries and interviews with young people to explore how they explore and express their identities through their social media use and food choices. In phase 1, young people will be recruited and asked to complete digital photo diaries representing their daily food choices alongside text captions to explain their choices. Photo diaries are a type of creative qualitative method that allow participants to express themselves creatively and provide researchers with insight into their real lives and worlds (Kara, 2020). Photographs can help participants to visually represent aspects of their lives which can be incredibly personal, such as their food choices, and can also offer researchers opportunities to discuss abstract concepts such as identity using the photos as visual aids to guide discussions (Allen, 2011). It is anticipated that using photo diaries will help participants create a visual record of their daily food choices as well as any changes they make in response to prompts that will guide them in taking and captioning photos. Example prompts could include:

“Take a photo of some food you ate today that said something about who you are. What was the food, and what did it say about you?”

“Screenshot a social media post that made you decide to eat or not eat a certain food or meal. How did the post affect your own food choice?”

“Share some food that you ate today. Did this feel like your choice? Who or what influenced your choice?”

Participants will also be provided with prompts designed to explore how young people respond to invitations to change their food choices through subtle tweaks and suggestions informed by identity theory. Theories such as Self-affirmation Theory (Steele, 1988), Identity Behaviour Theory (Simons, 2021), the Identity-Based Motivation model (Oyserman & Destin, 2010), the Maintain-IT model (Caldwell et al., 2018) and the Kearney and O’sullivan (2003) model of identity shifts in behaviour change will inform the development of prompts. Two example theory-based prompts are outlined below.

Example prompt 1: “This morning, write down five things that make you a healthy person. Then try to eat something today that makes you feel like a healthy person. Take a photo and share why it made you feel that way.”

The above prompt is based on self-affirmation theory and uses a simple self-affirmation task (writing down five things that make you a healthy person) to attempt to encourage the young people to choose healthier foods.

Another potential theory-based prompt could be:

Example prompt 2: “Did what you ate today make you feel good? What small change can you make to what you eat tomorrow that will feel more like you?”

The above prompt is based on Kearney and O’Sullivan’s (2003) model of identity shifts in behaviour change. As outlined in the model, prompting participants to make a small change to align their behaviour more with their valued or desired identity may help them to feel confident making further, more substantial changes to their behaviour in the future.

In phase 2, participants will be invited to take part in semi-structured interviews discuss their photo diaries with the researcher. They will be asked to elaborate on the text they provided alongside their photos, and interview questions will focus on exploring the link between participants food choices and identities in more depth. Discussions will be audio recorded and transcripts will be analysed using AI-assisted methods, incorporating human and LLM analysis to develop a full picture of the participants’ daily lives and food choices. The aim of the analysis will be to establish which identity-theory based strategies were most acceptable to young people, how social media was used when responding to the photo prompts, and which of the prompts designed to induce behaviour change were successful in doing so.

Study 2:

The second study will involve the development and testing of identity theory-based intervention strategies informed by the qualitative work conducted in Study 1. In line with the findings of the systematic review, the intervention will aim to incorporate elements of self-affirmation theory, as well as established behaviour change techniques that also take into account young people's values and their desire to achieve the three basic psychological needs set out in SDT (Deci & Ryan, 1985). Whilst the findings of this PhD suggest that these key elements may be able to produce significant behaviour change in young people, ultimately, the intervention strategies in this study will be co-produced with young people during group sessions. It is therefore difficult to anticipate what the exact content of the intervention will be, or how the intervention will be structured, as this will depend on the contributions of the young people themselves. This knowledge will be constructed through group activity sessions with young people, to develop identity theory-based social media content that will form part of the intervention. The group sessions will begin with the researcher giving a summary of the findings of Study 1 and then asking young people to design their own social media content based on the findings, with support from the researcher. Sessions will focus on supporting the young people to create content such as social media posts, images, captions, challenges or campaigns that encourage other young people to explore different health-focussed identities. Activities could include brainstorming ideas, creating storyboards for short-form video content, drafting image and caption posts and hashtags. The young people taking part in the group sessions will also be asked to discuss the benefits and drawbacks of different modes of delivering the social media content, including which social media sites or apps would be most suitable, which types of content (e.g. short-form videos, longer videos, images etc.) and which types of delivery (e.g. when and how content would be posted) would be most appealing to young people.

Study 3:

In Study 3, the intervention strategies developed in Study 2 will be tested, and the most effective intervention elements will be identified. Traditionally, health behaviour change interventions have been tested using randomised controlled trials (RCTs), however, there is mounting recognition of the limitations of RCTs for testing interventions, particularly those designed to support the health of young people. Though RCTs are, particularly in the fields of medicine and public health, considered a 'gold standard' in the hierarchy of evidence, researchers are beginning to question whether RCTs are the most appropriate way to identify whether interventions can produce authentic, meaningful and long term behaviour change (Saldanha et al., 2022). The rising popularity of 'big data' within health research has led researchers to consider alternative opportunities to gather and analyse data on intervention effectiveness,

including accessing pre-existing and routinely collected data such as patient health records, electronic and biometric data, patient reported data, data from existing trials, and data collected by organisations such as schools (Lee & Yoon, 2017).

There is scope for future health behaviour change interventions with young people to be tested using routinely collected data such as food purchasing data collected by school canteens. Many UK secondary schools now use electronic cashless payment systems in their canteens, which store data (that are largely unused for research purposes) that could be used to comprehensively map student dietary choices (Gilmour & Fairchild, 2024). School food purchasing data has been compared to data collected by retail loyalty card schemes, which collect vast amounts of data on consumer purchasing habits, with almost 90% of retail customers in the UK belonging to at least one loyalty card scheme (Nevalainen et al., 2018). Many of these loyalty schemes are linked to food retailers such as large supermarket chains, and the value of these data have been recognised by researchers conducting longitudinal and population-level studies looking at food purchasing and dietary choices (Nevalainen et al., 2018). There is, therefore, an opportunity to apply the same principles to research looking to develop and test effective health behaviour change intervention strategies to improve the health of young people.

However, a discussion of the limitations of this approach is necessary. Review evidence has suggested that routinely collected food purchasing data from various sources can be of inconsistent quality, the cost of accessing such databases can be very expensive, and commercial data providers retain control over datasets, dictating which data are collected, how they are collected, and the transparency with which these processes are reported (Bandy et al., 2019).

Future work following on from this PhD would therefore aim to make use of ‘big data’, and an alternative approach that is becoming increasingly more popular is analysis of social media data. The intervention proposed in the ‘study 2’ section of this chapter will explore the use of ‘big data’ from social media (Lee & Yoon, 2017). Social media is known to be an integral part of young people’s daily lives, so it follows that harvesting and analysing publicly available social media data may be a prime opportunity to conduct population level testing of large-scale interventions. Of course, this approach does not come without its own limitations. Social media data are raw and imperfect, can be biased due to the amount of marketing and advertising content available online that is paid for by commercial companies, and can be difficult to identify and extract, with significant data cleaning necessary prior to analysis (Mondal & Rehena, 2022).

However, a key strength of the analysis of big data from social media is that these datasets lend themselves to methods which incorporate AI because of the sheer size of datasets than can be collected from social media sites. Recent advances in the field of AI-assisted analysis have seen the development of techniques such as machine-assisted topic analysis (MATA), an approach that combines natural language processing with human qualitative analysis, allowing researchers to analyse vast quantities of textual data relatively quickly (Towler et al., 2023). Methods such as MATA show promise, and similar techniques will likely emerge that are specifically designed for the collection and analysis of social media data in the form of text or images. Future research related to this PhD would explore the best ways of incorporating AI into analysis of 'big data' from social media sites to find the most effective and efficient ways of testing the impact of health behaviour change interventions with adolescents, without relying on RCTs as the only method of testing the impact of interventions on health outcomes.

8.4 Implications for policy

The findings of this PhD have important implications for both educational and public health policy in the UK. The research conducted and described in this thesis highlights two key points for consideration by both researchers and policymakers:

1. Adolescence is a pivotal developmental period during which the identity formation process influences food choices, and vice versa.
2. Supporting young people to positive engage with and use social media will empower them to use it for positive identity development and explore healthy food choices.

Findings from the story completion studies conducted as part of this PhD suggest that younger young people (ages 13-18 years) may be more likely to experience the damaging and potentially harmful effects of social media use. In contrast, older young people (ages 19-25 years) seemed to be more likely to portray social media as a tool that can be useful, as long as young people can recognise the potential harms and develop strategies to navigate social media with confidence. These findings indicate a potential developmental gap in young people's capacity to engage with social media critically, highlighting the particular vulnerability of younger users compared to those who are older and more experienced.

Policy at school, local and national levels must, therefore, not only recognise the central role of social media in how young people shape their own identities and their food choices, but also the implications of social media use, particularly in younger young people, who may be more vulnerable to the negative impacts of social media to their mental and physical wellbeing.

At the school level, current policies relating to social media are largely framed around restriction of mobile phone use during the school day and warnings about online safety, rather than focusing on supporting positive engagement with social media and empowering young people to learn how to use social media effectively and responsibly (Wood et al., 2023). There are significant challenges associated with the popularity of social media amongst young people, such as the negative effects of excessive screen time, exposure to harmful or distressing online content, exposure to cyberbullying, exploitation and more (Royal College of Psychiatrists, 2020). Research has, however, shown that moderate social media use can be beneficial to mental health and general wellbeing, and that use of digital technology to access social media can improve young people's sense of connection with others (Dienlin & Johannes, 2020; Przybylski & Weinstein, 2017). The findings of the two qualitative studies described in Chapters 5 and 6 of this thesis suggest that, particularly with younger adolescents who are in the earlier stages of the identity formation process, supporting young people to engage with social media in healthy ways may be able to increase their self-efficacy around learning to become active, responsible and capable social media users. In the story completion narratives, younger participants were more likely to portray social media as overwhelming, and as reducing, rather than strengthening, young people's capacity to achieve autonomy, relatedness and competence. In contrast, older participants described characters with greater agency and confidence, suggesting that active, empowered social media use is something that develops with age and experience. If policies could support younger young people to develop these skills earlier on in their adolescence, more young people would feel confident in using social media in healthy, safe ways to explore different identities and food choices.

School level policies could, therefore, be strengthened by the addition of structured opportunities for students, particularly those in secondary school (ages 11-16 years), to discuss their current social media use, how social media impacts them and their choices, and how they would like to be supported to use social media in ways that make them feel good. These opportunities could include integrating social media literacy into the curriculum, perhaps through activities within PSHE (Personal, Social and Health Education) lessons, which currently cover a range of topics including healthy lifestyles, sex and relationships, mental health and wellbeing, and alcohol and drugs (Davies & Matley, 2020). Such activities would enable young people to develop reflective skills and agency around how they choose to use social media, the types of content they seek out and interact with, and how to critically appraise content that they see on social media.

In order to facilitate these activities, training and professional development would be required to support educators, both teachers and senior leadership team members in schools, to best support their students. Teacher training would need to equip educators with the knowledge and

skills to be able to confidently deliver sessions and facilitate open, honest discussions with young people about their social media use. This could also include practical guidance on identifying and supporting young adolescents who may be particularly vulnerable to the negative impacts of social comparison and food-related content on social media.

At a national level, the findings of this PhD align well with several existing UK Government priorities, particularly the qualitative evidence provide by Chapters 5 and 6, which demonstrate how young people experience social media as a key context for the exploration and development of identity and food choices. For example, the Department for Science, Innovation and Technology's 'Online Safety Act' was introduced to improve the ways that social media companies take responsibility for their users' safety. The act focuses on the protection of children online, and requires social media companies to take steps to prevent children from accessing harmful or inappropriate online content (Department for Science Innovation & Technology, 2023). Findings from the story completion studies in this thesis suggest that younger young people may perceive social media as being a lawless environment, filled with negativity and disempowering content published by influencers and celebrities. These findings support the emphasis of the Online Safety Act on protecting young people from harmful content online, but highlight nuances that may not currently be adequately addressed by the Act, in terms of which types of content are perceived by young people as harmful. The Act focuses largely on reducing children and young people's exposure to explicitly violent or sexual material, but does less to address what the young people who took part in the studies reported in Chapters 5 and 6 expressed through their stories – much of which related to unrealistic beauty and lifestyle standards promoted by influencers, as well as perceived pressure to adhere to certain dietary choices.

The Department for Education also published guidance entitled 'Teaching online safety in schools' in 2023, in which they outline how schools can support their students to learn to stay safe online through existing curricula across relationships and sex education, health education, citizenship and computing (Department for Education, 2023). The guidance is intended to complement existing curriculum requirements and does not require additional teaching; however, the guidance is non-statutory and therefore the extent to which it is applied in schools is dependent on individual schools' and teachers' awareness of and capacity to integrate the guidance to their existing teaching. The qualitative evidence provided by this thesis suggests that this variability in implementation may also disproportionately affect younger students, who are likely to need more support than their older peers.

The Department for Education has also recently published its current areas of interest for research, which include the 'mental and physical health and wellbeing of children', and

'keeping children safe' (Department for Education, 2025), both of which align well with the issues addressed throughout this thesis. There is, however, limited acknowledgement or explanation of how the domains of online safety and health and wellbeing intersect, and how the relationship between these two areas has been recognised by the government. This thesis provides evidence to suggest that bridging these two areas through policy could help address the issues identified at the beginning of this thesis around the recognition of social media as a key context for both the formation and expression of identity and food choices in young people.

At a national level, therefore, future policies could provide guidance for how schools and teachers could frame social media literacy and health as two interconnected areas for educational support. This thesis revealed insights into the prevalence of health- and food-related content on social media, and findings from the study described in Chapter 6 highlight, in particular, the entangled nature of social media and food, suggesting that social media literacy and health literacy must go hand in hand in order for young people to be supported to use social media as a tool to inform healthy and responsible choices. The first two chapters of the thesis also highlight the significance of adolescence as a period for the development of identity, meaning that effective policies must acknowledge identity formation when introducing guidance on the integrating of social media- and health-literacy into the national curriculum. This could include recognition by the government that students of different ages and stages of identity development will require different types of support from their schools, at varying levels of intensity.

In the broadest sense, the findings of this PhD highlight important opportunities to improve the way adolescent health is conceptualised within the UK education system by foregrounding both identity formation and social media as central contexts for the development of food choices. The evidence provided by the work conducted in this thesis illustrates that fact that food choices, mental and physical health, and engagement with social media are deeply intertwined parts of many young people's everyday lives in the UK. The UK secondary education system continues to prioritise academic attainment, and despite strategic priorities around improving the health, wellbeing and safety of young people, there remain missed opportunities to incorporate evidence-based guidance into the curriculum across a range of subject areas, including science, food technology, computing, and PSHE. Ultimately, supporting young people to develop healthy identities and make healthier food choices through informed, responsible, empowered social media use is a key way that UK policymakers can support the work of researchers and educators who are passionate about finding the best ways to improve adolescent health now and in the future. Failure to adequately address these issues will result in the perpetuation of intergenerational cycles of poor diet and ill-health, making life more difficult for future generations of young people.

8.5 Conclusion to the thesis

The task of improving adolescent health in the UK is one that is both significant and time sensitive. Adolescents have the least healthy diets of any age group and this problem is being exacerbated by the UK's increasingly obesogenic environment. Improving the health of adolescents now will not only benefit them throughout their lives, but will serve their children, grandchildren, and further generations.

This PhD was designed with the intention of conducting high quality research to contribute to the growing field of adolescent health research, which aims to support young people to make better food choices, ultimately helping them to live longer, healthier, happier lives. By utilising various methods to investigate the connection between identity formation and young people's food choices, as well as the role of social media in this process, this PhD aimed to test the following hypothesis: "Representations of food and eating habits on social media are used by adolescents to shape their diets and their identities."

Findings from the literature review (Chapter 2), systematic review (Chapter 4), and three qualitative studies (Chapters 5, 6 and 7) show that both the formation of identity and the development of food choices, are complex, dynamic processes that are influenced to some extent by adolescents' use of social media. The development and expression of food choices through social media is influenced by the identity formation process, meaning that adolescents who are in different stages of forming their identity are likely to use and experience social media in different ways. The literature review summarised the importance of identity formation as both a task that is essential to normal psychosocial development, as well as a precursor to behaviour, and consequently, behaviour change. The systematic review revealed deeper insights into how identity formation can be harnessed to facilitate health behaviour change in adolescents, and concluded that further research is needed to properly identify the specific mechanisms through which identity-theory based behaviour change strategies can affect significant and sustained change. The two story completion studies helped conceptualise how young people view their peers' social media use around food and identity, and their understandings and expressions of existing sociocultural narratives around the issues with social media as a platform for identity formation and expression. The final study, the LLM-assisted narrative analysis, produced helpful methodological insights into the most efficient and effective ways of analysing large amounts of story completion data provided by young people. Developing and utilising this novel analysis method allowed for richer, more specific conclusions to be drawn from the story completion data, contributing important additional insights to those drawn out in the analysis described in Chapter 6.

The key learnings from this PhD provide important implications for both future research and policy relating to adolescent health. This thesis underlines the urgency of addressing adolescent health as a national priority, which is encompassed by the need for the development of a) effective, theory-based health behaviour change intervention strategies to support young people to make healthier food choices, and b) school- and national-level policies to support the education system to teach and empower young people to critically and confidently engage with health- and food-related social media content as part of their identity exploration and expression. Ultimately, the ways in which researchers achieve these goals will be driven by the methods they choose to use and how they engage young people in health research that is meaningful and important to them. This PhD provides novel insights into the potential for AI to be used as a tool to improve the quality and efficiency of health research conducted with young people, and highlights the importance of co-production in designing interventions that are developed with adolescent psychology, biology and identity development in mind.

Ultimately, this thesis argues that improving adolescent health requires recognition, by researchers and policymakers, that the most effective ways in which young people can be supported to live longer, healthier lives, must be grounded in a thorough understanding of the importance of three key points. First, the fact that adolescence is a life stage during which it is highly beneficial to intervene before lifelong health behaviours are cemented. Second, that young people must be able to engage in research in ways that are easy and meaningful to them, such as using creative research methods, and that involving young people as co-creators and co-producers of research from the outset of a project is essential to producing sustained results. Lastly, that integrating novel, innovative research methods into adolescent health research, such as the incorporation of AI into the qualitative analysis process, will ensure that research is being conducted using the most effective, up-to-date methods to produce the best results possible for the people that research aims to help.

Appendix A PRISMA checklist for the systematic review described in Chapter 4.

Section and Topic	Item #	Checklist item	Location where item is reported
TITLE			
Title	1	Identify the report as a systematic review.	Page 58
ABSTRACT			
Abstract	2	See the PRISMA 2020 for Abstracts checklist.	N/A
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of existing knowledge.	Section 4.1
Objectives	4	Provide an explicit statement of the objective(s) or question(s) the review addresses.	Section 4.1
METHODS			
Eligibility criteria	5	Specify the inclusion and exclusion criteria for the review and how studies were grouped for the syntheses.	Section 4.2
Information sources	6	Specify all databases, registers, websites, organisations, reference lists and other sources searched or consulted to identify studies. Specify the date when each source was last searched or consulted.	Section 4.2
Search strategy	7	Present the full search strategies for all databases, registers and websites, including any filters and limits used.	Section 4.2
Selection process	8	Specify the methods used to decide whether a study met the inclusion criteria of the review, including how many reviewers screened each record and each report retrieved, whether they worked independently, and if applicable, details of automation tools used in the process.	Section 4.2
Data collection process	9	Specify the methods used to collect data from reports, including how many reviewers collected data from each report, whether they worked independently, any processes for obtaining or confirming data from study investigators, and if applicable, details of automation tools used in the process.	Section 4.2

Appendix A

Section and Topic	Item #	Checklist item	Location where item is reported
Data items	10a	List and define all outcomes for which data were sought. Specify whether all results that were compatible with each outcome domain in each study were sought (e.g. for all measures, time points, analyses), and if not, the methods used to decide which results to collect.	Section 4.2
	10b	List and define all other variables for which data were sought (e.g. participant and intervention characteristics, funding sources). Describe any assumptions made about any missing or unclear information.	Section 4.2
Study risk of bias assessment	11	Specify the methods used to assess risk of bias in the included studies, including details of the tool(s) used, how many reviewers assessed each study and whether they worked independently, and if applicable, details of automation tools used in the process.	Section 4.2
Effect measures	12	Specify for each outcome the effect measure(s) (e.g. risk ratio, mean difference) used in the synthesis or presentation of results.	Section 4.2
Synthesis methods	13a	Describe the processes used to decide which studies were eligible for each synthesis (e.g. tabulating the study intervention characteristics and comparing against the planned groups for each synthesis (item #5)).	Section 4.2
	13b	Describe any methods required to prepare the data for presentation or synthesis, such as handling of missing summary statistics, or data conversions.	Section 4.2
	13c	Describe any methods used to tabulate or visually display results of individual studies and syntheses.	Section 4.2
	13d	Describe any methods used to synthesize results and provide a rationale for the choice(s). If meta-analysis was performed, describe the model(s), method(s) to identify the presence and extent of statistical heterogeneity, and software package(s) used.	Section 4.2
	13e	Describe any methods used to explore possible causes of heterogeneity among study results (e.g. subgroup analysis, meta-regression).	Section 4.2
	13f	Describe any sensitivity analyses conducted to assess robustness of the synthesized results.	Section 4.2
Reporting bias assessment	14	Describe any methods used to assess risk of bias due to missing results in a synthesis (arising from reporting biases).	N/A
Certainty assessment	15	Describe any methods used to assess certainty (or confidence) in the body of evidence for an outcome.	N/A
RESULTS			

Appendix A

Section and Topic	Item #	Checklist item	Location where item is reported
Study selection	16a	Describe the results of the search and selection process, from the number of records identified in the search to the number of studies included in the review, ideally using a flow diagram.	Section 4.3
	16b	Cite studies that might appear to meet the inclusion criteria, but which were excluded, and explain why they were excluded.	N/A
Study characteristics	17	Cite each included study and present its characteristics.	Section 4.3
Risk of bias in studies	18	Present assessments of risk of bias for each included study.	Section 4.3
Results of individual studies	19	For all outcomes, present, for each study: (a) summary statistics for each group (where appropriate) and (b) an effect estimate and its precision (e.g. confidence/credible interval), ideally using structured tables or plots.	Section 4.3
Results of syntheses	20a	For each synthesis, briefly summarise the characteristics and risk of bias among contributing studies.	Section 4.3
	20b	Present results of all statistical syntheses conducted. If meta-analysis was done, present for each the summary estimate and its precision (e.g. confidence/credible interval) and measures of statistical heterogeneity. If comparing groups, describe the direction of the effect.	Section 4.3
	20c	Present results of all investigations of possible causes of heterogeneity among study results.	N/A
	20d	Present results of all sensitivity analyses conducted to assess the robustness of the synthesized results.	N/A
Reporting biases	21	Present assessments of risk of bias due to missing results (arising from reporting biases) for each synthesis assessed.	N/A
Certainty of evidence	22	Present assessments of certainty (or confidence) in the body of evidence for each outcome assessed.	N/A
DISCUSSION			
Discussion	23a	Provide a general interpretation of the results in the context of other evidence.	Section 4.4
	23b	Discuss any limitations of the evidence included in the review.	Section 4.4
	23c	Discuss any limitations of the review processes used.	Section 4.4

Appendix A

Section and Topic	Item #	Checklist item	Location where item is reported
	23d	Discuss implications of the results for practice, policy, and future research.	Section 4.4
OTHER INFORMATION			
Registration and protocol	24a	Provide registration information for the review, including register name and registration number, or state that the review was not registered.	Section 4.2
	24b	Indicate where the review protocol can be accessed, or state that a protocol was not prepared.	Section 4.2
	24c	Describe and explain any amendments to information provided at registration or in the protocol.	Section 4.2
Support	25	Describe sources of financial or non-financial support for the review, and the role of the funders or sponsors in the review.	N/A
Competing interests	26	Declare any competing interests of review authors.	N/A
Availability of data, code and other materials	27	Report which of the following are publicly available and where they can be found: template data collection forms; data extracted from included studies; data used for all analyses; analytic code; any other materials used in the review.	N/A

Appendix B Search strategies used in the systematic review described in Chapter 4.

Database version + interface	Search parameters	Search terms	Date of search	Total results	Double search (colleague) – 18.03.22	Double search (the author) 25.03.22	New inclusions	Updated search date	Total results	New inclusions	Updated search date	Total results	New inclusions
MEDLINE (EBSCO)	All fields, limiters - Scholarly (Peer Reviewed) Journals; English Language; Human	Search 1	01.02.22	1410	1414	1423	0	20.02.23 (feb 2022 onwards)	106	0	14.02.2024 (feb 2023 onwards)	74	0
PsycINFO (EBSCO)	All fields, language: English, population: human, publication type: peer reviewed journals		01.02.22	2050	2063	2080	0	20.02.23 (feb 2022 onwards)	57	0	14.02.2024 (feb 2023 onwards)	55	0
CINAHL plus with full text (EBSCO)	All fields, limiters - English Language; Peer Reviewed; Exclude MEDLINE records; Human; research articles		01.02.22	371	380 (28.03.22)	380	0	20.02.23 (feb 2022 onwards)	78	0	14.02.2024 (feb 2023 onwards)	71	0

Appendix B

Database version + interface	Search parameters	Search terms	Date of search	Total results	Double search (colleague) – 18.03.22	Double search (the author) 25.03.22	New inclusions	Updated search date	Total results	New inclusions	Updated search date	Total results	New inclusions
Web of Science Core Collection (Clarivate)	Abstract (due to limitations of the search engine), document types: articles, review articles, language: English	Search 2 (because these databases don't use the same 'subject terms' (DE) as EBSCO)	01.02.22	583	627	614	0	20.02.23 (feb 2022 onwards)	73	0	14.02.2024 (feb 2023 onwards)	79	0
EMBASE (OVID)	All fields, limiters: Human, English language, EMBASE only		01.02.22	607	636	637	0	20.02.23 (feb 2022 onwards)	77	0	14.02.2024 (feb 2023 onwards)	139	0
ERIC (Proquest)	All fields, limiters: peer reviewed, language: English, ERIC journals only		01.02.22	176	176	180	0	20.02.23 (feb 2022 onwards)	1	0	14.02.2024 (feb 2023 onwards)	0	0

Appendix B

Database version + interface	Search parameters	Search terms	Date of search	Total results	Double search (colleague) – 18.03.22	Double search (the author) 25.03.22	New inclusions	Updated search date	Total results	New inclusions	Updated search date	Total results	New inclusions
				TOTAL= 5197					TOTAL = 392	1 new inclusion which was recommended by the 1 st author of an already-included study from the first round of searches		TOTAL = 418	No new inclusions

Search 1 (Including 'DE' (subject headings) from EBSCO databases)

	Topic	Terms
S1	Adolescents	[adolescen* OR teenager* OR teen* OR youth* OR DE "Adolescent Health" OR DE "Adolescent Behavior" OR “adolescent behaviour” OR "young people" OR “young person*”]
AND		AND
S2	Identity	[identity OR “identity development" OR DE "Identity Formation" OR DE "Social Identity" OR “identity theory” OR “identity model” OR “identity formation theory” OR “identity formation model”]
=S3		AND all of the following separated by OR

Appendix B

	Topic	Terms
S4	Interventions	[“health intervention” OR DE "Group Intervention" OR DE "School Based Intervention" OR DE "Behavior Change" OR “behaviour change” OR DE "Digital Interventions” OR “behaviour change intervention” OR “behavior change intervention” OR DE “Health Risk Behavior” OR “health risk behaviour”]
		OR
S5	Smoking	[DE “Smoking Cessation” OR DE “Tobacco Smoking” OR “smoking cessation intervention*” OR “smoking behaviour*” OR “smoking behavior*” OR “smoking reduction*”]
		OR
S6	Healthy eating	[“diet*” OR “diet* intervention*” OR “healthy eating” OR “eating behaviour*” OR DE “Eating Behavior” OR “diet* improvement*” OR “diet* change*” OR “food habit*” OR DE “Food Intake” OR “diet* intake” OR “food choice*” OR DE “Food Preferences”]
		OR
S7	Exercise	[“exercise intervention" OR "physical activity intervention" OR “exercise improvement*” OR “physical activity improvement*” OR “sport* intervention*” OR “activity intervention” OR DE “Physical Fitness” OR DE “Activity Level”]
		OR
S8	Medication Adherence	[“medication adherence” OR DE “Treatment Compliance”]
		OR

Appendix B

	Topic	Terms
S9	Sleep	["sleep intervention" OR "sleep quality intervention" OR "sleep improvement*" OR DE "Sleep Quality"]
		OR
S10	Drug use	["drug use" OR "illicit drug use" OR "illegal drug use" OR DE "Drug Abstinence" OR DE "Substance Use Prevention" OR DE "Prescription Drug Misuse" OR "drug use intervention" OR "illegal drug intervention"]
		OR
S11	Alcohol	[DE "Underage Drinking" OR "alcohol use" OR "alcohol consumption" OR DE "Binge Drinking" OR "alcohol intervention" OR "alcohol reduction"]
		OR
S12	Safe Sex	["risky sex behaviour*" OR "risky sexual behaviour*" OR "risky sex behavior*" OR "risky sexual behavior*" OR "sexual health" OR "safe sex intervention" OR DE "Safe Sex" OR DE "Sexual Risk Taking" OR DE "Sexual Health"]
		S4 OR S5 OR S6 OR S7 OR S8 OR S9 OR S10 OR S11 OR S12
		= S13
		FINAL SEARCH = S3 AND S13

Appendix B

Search 2 (for other databases not using 'DE' subject headings)

	Topic	Terms
S1	Adolescents	[adolescenc* OR teenager* OR teen* OR youth* OR "adolescent health" OR "adolescent behavior" OR "adolescent behaviour" OR "young people" OR "young person*"]
AND		AND
S2	Identity	[identity OR "identity formation" OR "identity development" OR "social identity" OR "identity theory" OR "identity model" OR "identity formation theory" OR "identity formation model"]
=S3		AND all of the following separated by OR
S4	Interventions	["health intervention" OR "group intervention" OR "school based intervention" OR "behavior change" OR "behaviour change" OR "digital intervention" OR "behaviour change intervention" OR "behavior change intervention" OR "health risk behavior" OR "health risk behaviour"]
		OR
S5	Smoking	["smoking cessation" OR "tobacco smoking" OR "smoking cessation intervention" OR "smoking behaviour*" OR "smoking behavior*" OR "smoking reduction*"]
		OR
S6	Healthy eating	["diet*" OR "diet* intervention" OR "healthy eating" OR "eating behaviour*" OR "eating behavior" OR "diet* improvement*" OR "diet* change*" OR "food habit*" OR "food intake" OR "diet* intake" OR "food choice*" OR "food preference*"]

Appendix B

	Topic	Terms
		OR
S8	Exercise	["exercise intervention" OR "physical activity intervention" OR "exercise improvement*" OR "physical activity improvement*" OR "sport* intervention" OR "activity intervention" OR "physical fitness" OR "activity level"]
		OR
S9	Medication Adherence	["medication adherence" OR "treatment compliance"]
		OR
S10	Sleep	["sleep intervention" OR "sleep quality intervention" OR "sleep improvement*" OR "sleep quality"]
		OR
S11	Drug use	["drug use" OR "illicit drug use" OR "illegal drug use" OR "drug abstinence" OR "substance use prevention" OR "prescription drug misuse" OR "drug use intervention" OR "illegal drug intervention"]
		OR
S12	Alcohol	["underage drinking" OR "alcohol use" OR "alcohol consumption" OR "binge drinking" OR "alcohol intervention" OR "alcohol reduction"]
		OR

Appendix B

	Topic	Terms
S13	Safe Sex	["risky sex behaviour*" OR "risky sexual behaviour*" OR "risky sex behavior*" OR "risky sexual behavior*" OR "sexual health" OR "safe sex intervention" OR "safe sex" OR "sexual risk taking" OR "sexual health"]
		S4 OR S5 OR S6 OR S7 OR S8 OR S9 OR S10 OR S11 OR S12 OR S13 = S14 FINAL SEARCH = S3 AND S14

Appendix C Inclusion and exclusion criteria used in the systematic review described in Chapter 4.

Inclusion criteria

Element	Description
Population/participants	Human adolescents (aged 10-24 years) drawn from the general population. Those at the younger end of the age range must be in secondary school (or equivalent education/training within their country). Any geographic location, any SES, or ethnicity.
Intervention	Any intervention that uses behaviour change techniques (BCTs) based on theories or models of identity change/identity formation to improve health in adolescents. Experimental studies that test intervention/health promotion/behaviour change techniques, strategies or manipulations. Examples of identity theories/models/concepts: <ul style="list-style-type: none"> • Self-affirmation theory/self-affirmation tasks • Values affirmation • Prototype-willingness model • Identity-based motivation • Identity formation • Identity change • Self/social-identity Any delivery mode (e.g. face to face, group, online, etc.). Intervention must target and directly involve young people (e.g., does not solely work with parents/school staff).
Comparisons	Must include a comparison; either within cohort pre-post intervention assessments, or between groups (i.e. intervention versus control/comparison). Control interventions must not involve identity constructs and processes known to be important for identity formation.

Appendix C

Element	Description
Outcomes of interest	<p>Change/improvement in target health behaviour (any physical health behaviour) post intervention.</p> <p>Health behaviour = “actions taken by individuals to improve their health” E.g. smoking cessation, eating healthily, doing more exercise, practicing safe sex, medication adherence, sun protection etc.</p> <p>Can be either self-, or other-reported, observational, blinded or un-blinded.</p>
Setting	Any youth related setting (e.g. schools, colleges, universities, youth clubs, community etc.)
Study designs	RCTs, any other pre-post measure intervention study.

Other inclusion criteria

Studies published in English, studies published in peer reviewed journals, studies published in any year.

EXCLUSION criteria

Element	Description
Population/participants	<p>Any studies using child (under 10 years) or adult (over 24 years) participants, including studies with an age range that includes but is not exclusively adolescents e.g. 6-12 years or 18-65 years.</p> <p>Any studies evaluating interventions in clinical populations (e.g. those with diagnosed physical and mental health conditions such as eating disorders, neurodevelopmental conditions, anxiety, chronic pain, etc.) or otherwise selective samples which are not representative of the general population (individuals diagnosed with ADHD, Autism Spectrum Disorder, other specific learning differences).</p> <p>Any other highly specific populations e.g. Amish people, LGBTQ specific populations, native populations, specific religious or cultural groups.</p> <p>Non-human studies e.g. animal studies, machine/AI studies.</p>
Intervention	<p>Any studies that do not test or evaluate an intervention or intervention strategies.</p> <p>Any studies which do not reference identity, identity formation or identity change/theories or models of identity as the basis for the intervention or intervention/behaviour change strategies.</p>
Outcomes of interest	<p>Any outcome not related to health behaviours e.g. violent behaviour, academic achievement.</p> <p>Mental health/psychological related outcomes e.g. mental wellbeing, psychological distress, depression, anxiety etc.</p>
Study designs	<p>Case studies, qualitative studies, grey literature (unpublished or not published in peer reviewed journals), studies not written in English, systematic or literature reviews, meta-analyses, narrative reviews.</p> <p>Studies that simply describe an intervention without evaluating outcomes/measures.</p>

Appendix D Adapted risk of bias assessment form used in the systematic review described in Chapter 4.

#	Item	Risk of bias		
		Low (+1)	Medium (0)	High (-1)
1	Study design	Randomised controlled trial, Quasi-experimental studies that include a control group	Evaluation of Randomised controlled trial such as process review	Experimental studies that do not use a control group.
2	Randomisation	Participants or communities are randomised in large clusters.		Not randomised, or inadequate randomisation methods such as birth date used. OR randomisation methods not described
3	Blinding	Analysts were blinded to treatment condition.	Participants or communities were not sufficiently blinded, but analysis of results was blinded.	No blinding, or insufficient blinding methods.
4	Were groups similar at baseline?	Appropriate statistical tests (chi-square and/or t-tests) used to analyse differences between groups at baseline, and found that there were no significant differences.	Groups are similar, but there are some differences that are judged to be acceptable.	Analyst did not test for differences at baseline, or there were significant differences between groups.
5	Selection	Participants were randomly selected.	Community based interventions that require health professionals.	Volunteers are recruited.
6	Loss to follow-up	Loss to follow up of less than 10% AND similar loss in all groups.	More drop outs than expected (10%-30%). Similar loss between groups.	High dropout rate (>30%) and/or significant difference in follow up between groups.
7	Health behaviour assessment	Very reliable methodology that does not rely on self-report	Measures are reliable, but self-reported	Unreliable methods including questionnaires that have not been piloted or validated, and methods that increase the likelihood of socially acceptable responses
8	Behaviour change intervention component	Interventions clearly outlined a behaviour change or psychological theory within the intervention design	Interventions from the behaviour change wheel can be associated to the intervention.	There was no or limited mention of behaviour change intervention functions

Appendix D

#	Item	Risk of bias		
		Low (+1)	Medium (0)	High (-1)
9	Performance bias	The intervention was delivered in a way that was not variable eg. Computer-generated.	The intervention was probably delivered consistently. Eg. The same person delivering a lesson to multiple groups.	The intervention was likely have been delivered differently across the trial. Eg. Different health workers promoting nutrition education
10	Intention to treat	Intention to treat analysis was clearly used		Intention to treat was not used, or not stated
11	Analytic methods	Statistical tests used are rigorous and appropriate for the data set. (Regression modelling, ANOVA, etc) OR Rigorous qualitative analysis (thematic analysis)	Statistical methods are effective, but not as rigorous as they could be.	Statistical methods are limited, and only report descriptive stats OR tests used are not appropriate for the dataset.
12	Did the analysis adjust for confounding? <ul style="list-style-type: none"> • Educational attainment or SES • BMI/weight • Gender • Age • Baseline behaviour 	The statistical model used adjusts for all relevant confounding factors.	The model adjusts for 3 or 4 confounders.	The analysis adjusts for fewer than 3 confounders

Appendix E Prompt engineering process with Claude AI used in the analysis described in Chapter 7.

Speaker	Message
"Human"	<p>"Act as a prompt engineer. Review the following prompt. Optimise it to make it better. Ask me any questions before proceeding.</p> <p># PROMPT</p> <p>I am a researcher in the psychology departments working on my PhD. Below you will find my researcher question and the method I followed.</p> <p>Research question: How do young people understand the role of social media in shaping and expressing identity and dietary choices?</p> <p>Method: 77 young people aged 13-25 years were recruited to take part in the study. They wrote two stories each. They were given the stems of two stories and were asked to write the rest of the story for each one. One of the story stems was:</p> <p>"Ali has recently started trying to eat healthier. When Ali is scrolling Instagram, an advert for McDonalds comes up..."</p> <p>The other one was:</p> <p>"Robin has recently decided to start eating healthier and has been using social media to help them."</p>

Appendix E

Speaker	Message
	<p>A total of 154 stories were collected but 14 stories were excluded from the analysis for various reasons. A final sample of 138 stories were analysed using narrative analysis. The analysis involved four stages:</p> <ol style="list-style-type: none"> 1) making notes onto each story reflecting aspects of both story content and structure 2) reading each story as a whole and grouping them based on the key messages and narrative types within the stories 3) summarising the narratives of each group of stories in short paragraphs (one paragraph per group) 4) labelling each group with a 1 or 2 word label that described the narrative type and reflected the content from each paragraph written in stage 3. "
<p>"LLM (Claude)"</p>	<p>"Before I optimize the prompt, I'd like to ask a few clarifying questions to better understand your research:</p> <ol style="list-style-type: none"> 1. What is the main goal of your research? Is it to understand how social media influences dietary choices, identity formation, or both? 2. Why did you choose the age group of 13-25 years for your study? Is there a specific reason for focusing on this age range? 3. Can you provide more details about the exclusion criteria for the 14 stories that were not included in the final analysis? 4. What specific aspects of story content and structure were you looking for in stage 1 of the analysis? 5. How did you ensure consistency in the grouping and labeling process across the stories, especially if multiple researchers were involved? Please provide more information on these points, and I'll be happy to help you optimize the prompt based on your research goals and methodology."

Appendix E

Speaker	Message
"Human"	<p>"Please find the answers to your questions below:</p> <ol style="list-style-type: none"> 1. The goal of the research is to understand how social media influences identity formation and dietary choices, as well as to understand how identity formation and dietary choices influence each other. 2. The age range was chosen to reflect the primary age range during which identity formation occurs. Identity formation begins in early adolescence and progresses with age. From ages 18-25 young people are in the peak of their identify formation process where they start to develop stable, concrete identities. 3. 12 stories were excluded because they were less than 50 words long. Excluding stories less than 50 words long is an approach that has been used in previous story completion studies. An additional 2 stories were excluded because they contained fantasy narratives that were not relevant to the research question at all. These 2 were considered a refusal of the task. 4. In stage 1 for story structure I was looking at whether the stories had positive or negative beginnings and endings, noted down where conflicts or dilemmas occurred and when these conflicts were resolved. For story content I was looking at what the main characters (Robin and Ali) were doing, how they were feeling, what they were saying and how they were interacting with other characters. In particular I was noting down anything that was relevant to social media use, identity and food choices. 5. All of the analysis was conducted by the same researcher so was consistent."

Speaker	Message
"LLM (Claude)"	<p>"Thank you for providing the additional information. Based on your answers, here's an optimized prompt for your research:</p> <p># OPTIMIZED PROMPT</p> <p>I am a researcher in the psychology department working on my PhD. My research aims to understand how social media influences identity formation and dietary choices among young people aged 13-25 years, as well as how identity formation and dietary choices influence each other.</p> <p>Method: 77 young people aged 13-25 years were recruited to participate in the study. This age range was chosen to reflect the primary period during which identity formation occurs, with the process beginning in early adolescence and progressing with age.</p> <p>Participants were asked to write two stories each, based on the following story stems:</p> <ol style="list-style-type: none"> <li>1. "Ali has recently started trying to eat healthier. When Ali is scrolling Instagram, an advert for McDonalds comes up..." <li>2. "Robin has recently decided to start eating healthier and has been using social media to help them." <p>A total of 154 stories were collected. However, 12 stories were excluded because they were less than 50 words long, following the approach used in previous story completion studies. An additional 2 stories were excluded due to containing irrelevant fantasy narratives, which were considered a refusal of the task. The final sample consisted of 138 stories, which were analyzed using narrative analysis.</p>

Appendix E

Speaker	Message
	<p>The analysis involved four stages:</p> <ol style="list-style-type: none"> 1. Making notes on each story reflecting aspects of both story content (e.g., characters' actions, feelings, dialogues, and interactions relevant to social media use, identity, and food choices) and structure (e.g., positive or negative beginnings and endings, conflicts or dilemmas, and their resolutions). 2. Reading each story as a whole and grouping them based on the key messages and narrative types within the stories. 3. Summarizing the narratives of each group of stories in short paragraphs (one paragraph per group). 4. Labeling each group with a 1 or 2 word label that described the narrative type and reflected the content from each paragraph written in stage 3. <p>To ensure consistency, all stages of the analysis were conducted by the same researcher."</p>
"Human"	<p>"Please add the following information into the prompt. The order in which each participant wrote the story was alternated. Every other participant completed the Ali stem first and every other participant completed the Robin stem first to minimise the effects of participant fatigue.</p> <p>The following prompts were also given to participants to accompany the Robin story stem:</p> <p>Why might eating healthier be important to Robin?</p> <p>How does social media affect Robin's food choices?</p> <p>What does Robin look at on social media?</p> <p>What does Robin post on social media and why?</p>

Appendix E

Speaker	Message
	<p>The following prompts were given to participants to accompany the Ali story stem:</p> <p>Why might eating healthier be important to Ali?</p> <p>What does Ali do next?</p> <p>What does Ali think about the advert?</p> <p>What does Ali look at on social media?</p> <p>How does social media affect Ali's food choices?"</p>
<p>"LLM (Claude)"</p>	<p>"Here's the updated prompt with the additional information you provided:</p> <p># OPTIMIZED PROMPT</p> <p>I am a researcher in the psychology department working on my PhD. My research aims to understand how social media influences identity formation and dietary choices among young people aged 13-25 years, as well as how identity formation and dietary choices influence each other.</p> <p>Method: 77 young people aged 13-25 years were recruited to participate in the study. This age range was chosen to reflect the primary period during which identity formation occurs, with the process beginning in early adolescence and progressing with age.</p> <p>Participants were asked to write two stories each, based on the following story stems:</p>

Speaker	Message
	<p>1. "Ali has recently started trying to eat healthier. When Ali is scrolling Instagram, an advert for McDonalds comes up..."</p> <p>2. "Robin has recently decided to start eating healthier and has been using social media to help them."</p> <p>The order in which each participant wrote the story was alternated. Every other participant completed the Ali stem first and every other participant completed the Robin stem first to minimize the effects of participant fatigue.</p> <p>The following prompts were given to participants to accompany the Robin story stem:</p> <ul style="list-style-type: none"> - Why might eating healthier be important to Robin? - How does social media affect Robin's food choices? - What does Robin look at on social media? - What does Robin post on social media and why? <p>The following prompts were given to participants to accompany the Ali story stem:</p> <ul style="list-style-type: none"> - Why might eating healthier be important to Ali? - What does Ali do next? - What does Ali think about the advert? - What does Ali look at on social media? - How does social media affect Ali's food choices?

Speaker	Message
	<p>A total of 154 stories were collected. However, 12 stories were excluded because they were less than 50 words long, following the approach used in previous story completion studies. An additional 2 stories were excluded due to containing irrelevant fantasy narratives, which were considered a refusal of the task. The final sample consisted of 138 stories, which were analyzed using narrative analysis.</p> <p>The analysis involved four stages:</p> <ol style="list-style-type: none"> 1. Making notes on each story reflecting aspects of both story content (e.g., characters' actions, feelings, dialogues, and interactions relevant to social media use, identity, and food choices) and structure (e.g., positive or negative beginnings and endings, conflicts or dilemmas, and their resolutions). 2. Reading each story as a whole and grouping them based on the key messages and narrative types within the stories. 3. Summarizing the narratives of each group of stories in short paragraphs (one paragraph per group). 4. Labeling each group with a 1 or 2 word label that described the narrative type and reflected the content from each paragraph written in stage 3. <p>To ensure consistency, all stages of the analysis were conducted by the same researcher."</p>

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