University of Southampton

Faculty of Social and Human Sciences

School of Psychology

BODY IMAGE IN MEN WITH SPINAL CORD INJURY: IMPLICATIONS FOR REHABILITATION AND BEYOND

By

Rachel Hamblin

Thesis for the Degree of Doctorate in Clinical Psychology

May 2013

Abstract

Spinal cord injury (SCI) has a dramatic effect on the function and appearance of the body. The first chapter of this thesis is a literature review which focuses on studies with participants who have incurred an alteration to their appearance due to a health condition. The implications of these studies for the likely impact of Body Image (BI) in men with SCI are considered. Cognitive and disfigurement models of BI are reviewed and research evidence evaluated. Results reveal that whilst the extent of appearance change is an important predictor of BI dissatisfaction, further variation is explained by the strategies individuals use to cope with the alteration in their appearance. BI dissatisfaction appears to impact upon the psychosocial wellbeing of both men and women and can also affect physical health. Further research is therefore needed in order to explore the links between appearance change, methods of coping and BI dissatisfaction, particularly in men with SCI.

The second chapter reports on a cross sectional study of 102 male participants with SCI, which revealed group differences in BI dissatisfaction between inpatients and outpatients, who are established in the community. BI investment was found to moderate the effect of BI evaluation on low mood. The use of maladaptive coping strategies was also found to moderate the relationship between BI dissatisfaction and BI quality of life. Evidence suggests that BI should be assessed and BI dissatisfaction monitored after discharge from rehabilitation hospitals. Clinical intervention could focus upon reducing the use of maladaptive coping strategies, in order to reduce the impact of BI dissatisfaction upon quality of life.

Contents

List of Tables

List of Figures

List of Accompanying Material

Declaration of Authorship

I, Rachel Philippa Hamblin declare that the thesis entitled;

BODY IMAGE IN MEN WITH SPINAL CORD INJURY: IMPLICATIONS FOR REHABILITATION AND BEYOND,

and the work presented in the thesis are both my own, and have been generated by me as the result of my own original research.

I confirm that:

- This work was done wholly or mainly while in candidature for a research degree at this University;
- 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;
- Where I have consulted the published work of others, this is always clearly attributed;
- 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;
- I have acknowledged all main sources of help;
- 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;
- None of this work has been published before submission

Signed: ……………………………………………………………………………..

Date:………………………………………………………………………………

Acknowledgments

My thanks go to my supervisors Nigel North and Catherine Brignell and to those on the clinical and research teams at Southampton University. Special thanks go to Alison Gold for her continuing support and to Nigel North for his assistance in facilitating introductions to the spinal unit, for his support throughout the research process and for his advice and supervision.

My thanks also extend to the following for the contributions they have made:

The consultants and staff at the Duke of Cornwall Spinal Treatment Centre, Salisbury District hospital, for access to their wards and patients,

Chris Beaver, Sue Pountney, Sarah Hammondsmith and Cathy Churchward for their help in identifying participants, file searches and brilliant administrative support,

All of the participants who took part in the study, without whom this thesis would not have been possible,

Philippa Beckwith, who provided invaluable support throughout and made the lengthy data collection process a time I will remember fondly,

And finally special thanks go to:

Matthew Butcher, my amazing husband who not only endured hours of research discussion and formatting dramas, but also cooked, cleaned, encouraged and wiped away tears,

My wonderful parents who have supported me from preschool to postgraduate and continue to provide so much love and encouragement,

And finally to all of my fantastic friends both near and far, for the laughter, affection, instant messaging and their unfaltering belief in me, without which I could not have got through the last three years. With the abiding sentiment that, “It’ll all be alright in the end; and if it’s not alright, it’s not the end”.

Literature Review

11,376

EXPLORING BODY IMAGE IN MEN WITH SPINAL CORD INJURY: THE IMPACT OF ALTERED APPEARANCE AND COPING OVER TIME

An Introduction to Spinal Cord Injury

Spinal Cord Injury is said to be one of the most devastating injuries that can afflict the human body (Fehlings, 2013). Injury prevalence is highest in young adult males and many are left disabled during the most productive period of their lives (Jackson, Dijkers, DeVivo, & Poczatek, 2004).

Spinal cord injury (SCI) describes damage to the spinal cord by trauma or disease; most frequently due to the spinal cord becoming bruised, swollen or torn. An injury can occur at different levels of the spinal cord and can be classed as complete (where nerve signals do not pass through the cord) or incomplete (where some nerve function remains). After SCI the nerves above the level of injury function normally. However, at and below the injury level, nerve function is interrupted resulting in paralysis. The most widely considered consequence of SCI is paralysis of the limbs and its impact upon mobility. However, it is important to remember that paralysis affects all muscles, including those used for breathing, supporting the trunk and for bowel and bladder control. The muscles of the torso no longer support the organs in their correct location, meaning that they bulge outwards creating the impression of a large protruding abdomen.

Individuals with SCI also frequently face numerous secondary conditions or complications that can be severe and acute (Grossman et al., 2012). These include respiratory problems, pressure sores and sudden unexpected increases in blood pressure which can sometimes be fatal

(French & Phillips, 1991). Given the dramatic changes to the function and appearance of the body it is reasonable to expect marked changes in body image, hence research interest began (Conomy, 1973; Stensman, 1989).

Body Image

Whilst the investigation of body image (BI) and the subsequent theories have grown from a broad and varied range of perspectives (See Cash & Pruzinsky, 2002, for a review) most contemporary research on BI derives from cognitive behavioural paradigms. The term “body image” has been conceptualised as the internalised view of the body. Body image has been argued to consist of two components: attitudinal and perceptual (Slade, 1994). Attitudinal BI refers to the thoughts and feelings about the body, whilst perceptual refers to an estimation of body size. Whilst there is general consensus within research that an attitudinal component exists, the way it is conceptualised varies between theorists. The most widely accepted theory is that of Cash (1994) who proposes that the attitudinal component is multifactorial and consists of two dimensions: evaluation and investment. Evaluation refers to the subjective satisfaction of the body, whilst investment describes the level of attention and importance placed upon the body. It is suggested that in order to comprehensively assess body image, both of these dimensions should be explored (Muth & Cash, 1997).

Body Image in SCI

It is generally accepted that BI dissatisfaction is relevant when considering the psychological needs of individuals with SCI. However, little is known about the course of BI distress or dissatisfaction following SCI or other disfiguring injuries or illnesses. Empirical evidence suggests that there are links between BI dissatisfaction and general psychological functioning (Gilbert & Miles, 2002; Newell, 2000; Newell & Marks, 2000) and also with physical health outcomes (Harding-Okimoto, 1997). This evidence suggests that BI dissatisfaction could have a major impact upon the mental and physical well-being of this already vulnerable population.

The cognitive behavioural model of BI (Cash,1994) includes both proximal and historical elements which could be used to explain a disruption in BI following a change in the appearance and function of the body. The primary theorists on the process of adjusting to acquired disfigurement also propose models which describe stage processes of adapting to unexpected changes in appearance (Horgan & MacLachlan, 2004; Partridge, 2005), which may add to the theoretical understanding of BI adjustment following SCI.

Theoretical Perspectives

Cognitive Behavioural Model of Body Image

Prevailing cognitive behavioural models of BI depict it as a multidimensional construct organised by two overarching components, perception and attitude. *Perception* refers to the ability to judge ones physical appearance accurately. BI *attitudes* reflect the cognitions, emotions and behaviours towards BI (Cash, 1994) and includes both evaluation and investment. *Evaluation* refers to the level of body satisfaction, evaluative thoughts and beliefs, which in turn depend on the congruence between the view of one's own body and one's own personal body ideals. *Investment* refers to the extent to which ones attention and thoughts focus upon the body, including how much one defines oneself by physical appearance and engages in appearance management behaviours.

The complex interactions which have been hypothesised between the various historical and developmental factors and the concurrent or proximal factors of BI, can be seen in Figure 1, which summarises a cognitive behavioural model of BI first presented by Cash and Pruzinsky (2002) and later adapted by Cash and Smolak (2011).

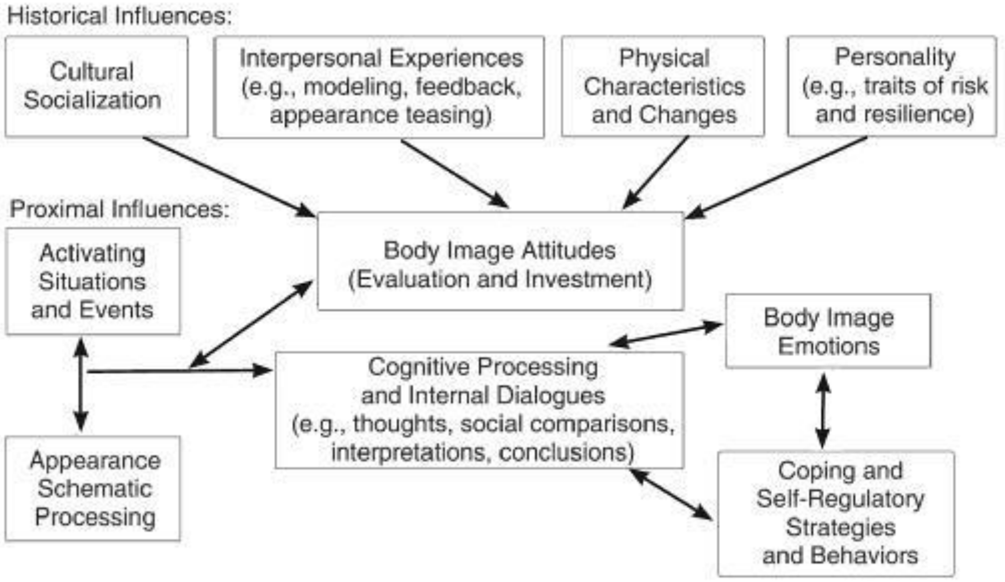


Figure 1. Cognitive Behavioural Model of Body Image (Cash & Smolak, 2011).

The proximal influences of activating situations and events are of particular interest when considering the impact of a change in physical appearance. A spinal cord injury can be considered an activating event. Such an injury may result in a radical change in appearance and the subsequent activation of emotion laden automatic thoughts, interpretations and conclusions about the new appearance. In order to manage or cope with distressing BI thoughts and emotions, a range of actions and reactions may occur; including coping and self-regulatory strategies and behaviours. These strategies aim to maintain BI attitudes by enabling the individual to temporarily escape from, reduce or regulate BI discomfort. Such strategies include avoidance and appearance fixing.

Coping and self-regulatory strategies and behaviours. *Avoidance* may come in the form of cognitive strategies to block out thoughts and emotions or in behavioural avoidance such as not using mirrors. Whilst initially helpful, research suggests that avoidance is maladaptive in the long term (Cash, Santos, & Williams, 2005). *Appearance fixing* is also associated with negative outcomes. The aim of appearance fixing is to conceal or correct physical characteristics that are judged to be undesirable and where avoidance of self-conscious thoughts and emotions is the objective. This differs from appearance self-management whereby pleasure and pride is taken in physical appearance. It has been argued that appearance self-management has positive consequences for affect, cognition and behaviour and may include behaviours such as grooming, choosing attractive clothing and use of cosmetics (Cash & Smolak, 2011).

A third strategy, *positive rational acceptance*, has been found to be adaptive and focuses upon positive self-care, rational self-talk and acceptance. These coping strategies have been tested and found to be both internally consistent and predictive of BI evaluation and level of negative affect in both men and women (Cash et al., 2005).

This model of BI provides a number of areas for consideration when exploring BI in men with SCI. In particular, it is important to consider how BI evaluation and investment might alter after a physical change in appearance. According to this model, the coping strategies that are used to manage BI dissatisfaction may also play an important role in whether individuals develop BI problems and further psychosocial issues (Cash et al., 2005).

This general model of BI provides a useful starting point; however, it does not explain in detail how individuals may shift between the different elements of the model, nor does it give a good understanding of progression over time. When considering a sudden change to the function and appearance of the body as seen in SCI, this model does not make clear predictions. Models with greater specificity have been suggested to explain BI adaptation following acquired disfigurement.

Stage Models of Adjustment to Physical Change

Whilst the cognitive behavioural model of BI describes the components, influences and factors affecting BI, it does not provide a detailed explanation of how an individual experiencing a change in appearance might navigate this change.

In their review of the psychosocial adjustment to lower limb amputation, Horgan and MacLachlan (2004) suggest a model of adaptation to a new BI. They suggest that individuals who have experienced the loss of a limb must go through a process of adaptation to the new appearance of their bodies and that this may occur in four phases. In the *pre-operative* phase, the authors suggest that two different reactions can occur. When made aware that an amputation is necessary, individuals who have been involved in traumatic incidents show little reaction. This may be due to the absence of cognitive processing that can occur in such a traumatic situation. Those with disease precursors to limb amputation may show relief or anticipatory grief reactions.

The second phase *immediate post-operative,* encompasses two possible reactions. Some individuals appear to demonstrate distress, devastation or emotional numbness, whilst those who had survived life threatening situations may show high levels of optimism; feeling lucky to be alive and having few concerns about the future.

The *intermediate rehabilitation* phase is described by Horgan and MacLachlan (2004) as the point where the reality of the situation dawns, and individuals realise that their previous thoughts were perhaps over-optimistic. New doubts and worries form, specifically concerns about adjusting to amputation and other people's reactions to their changed bodies.

The final stage is described as the *long term adaptation* phase, where the reality of living with a disability is realised by the individual and is characterised by decreased professional support. Horgan and MacLachlan's (2004) own critique of this model highlights that there is only limited evidence for each stage and only a single study that describes the final stage.

Support of a staged model comes from other authors who have also proposed similar models of adjustment to changes in physical appearance. Partridge (2005) proposed a model that complements the cognitive behavioural model and describes how one might navigate through the various elements of the proximal influences. He suggests that this process occurs in three stages; survival, socialisation and advocacy. Partridge (2005) outlined the staged framework with a focus upon burn survivors. However, in order to acknowledge the possibility that this framework could be relevant amongst other individuals who have experienced unexpected changes in appearance, generic terms will be used here.

It is suggested that following an image altering incident, the first stage of recovery is characterised by survival with a focus upon physical recovery and rehabilitation. It is likely that individuals are surrounded by supportive health professionals, family, or friends, and often maintain a pre-incident sense of BI and self-concept. Key psychological issues at this stage include pain, grief, posttraumatic stress and early appearance anxiety.

As recovery progresses and the level of professional and social support decreases, this model posits that the next stage, ‘socialisation’, becomes the central challenge to the individual. During this phase, individuals may oscillate between a pre-incident or a suspended vision of the self and a new identity as a person with a permanent disfigurement. Partridge (2005) suggested that, in addition to the aforementioned grief and fear, central issues shift towards anger, shame about BI and low mood.

In order to successfully return to psychological wellbeing, individuals must then adapt to their new BI by transforming their BI attitudes. This process characterises Partridge’s third stage, which he names ‘advocacy’. This final stage describes a process of acceptance of the new appearance and is characterised by a change in the cognitive and behavioural strategies used (Partridge, 2005). Individuals in this stage may perhaps show a greater acceptance for their own bodies, a reduced investment in appearance and Partridge suggested that they may begin to advocate for others with the same condition (Partridge, 2005).

These staged models add additional depth to the consideration of how the cognitive behavioural model of BI might conceptualise adjustment processes over time (Cash & Pruzinsky, 2002; Cash & Smolak, 2011). Whilst these models appear complementary, research evidence can be evaluated against the models separately or concurrently in order to gain increased understanding of the BI concerns experienced after a change in physical appearance.

The models of BI described above provide a framework for understanding and exploring BI in this population. However, in order to explore and understand the complexities of this subject, a review of the research literature is needed. As so little research exists in the area of BI and SCI it was necessary to broaden the search criteria from SCI in order to consider what can be learned from individuals with other appearance and functional changes to the body.

Therefore this review establishes what the evidence base suggests happens to BI after the experience of an unexpected change to physical appearance and whether the evidence supports the predictions made by the available models.

Review of the Research Literature

Aim

The aim of this review was to investigate which factors impact upon BI after a change in physical appearance, and to clarify what the evidence suggests regarding the psychosocial well-being of individuals who experience a change in their appearance. Factors which influence BI dissatisfaction such as the extent of physical change, coping strategies and demographic influences such as age and gender were also explored. Specifically, it aimed to establish what the literature posits about the BI concerns of men with SCI and how they might adjust to the change in their appearance over time. Due to the lack of BI research using participants with SCI, research from several other health domains were considered, evaluated and the applicability to SCI reflected upon. Gender issues were considered throughout; however, the lack of research in men with appearance altering health conditions resulted in some mixed or female studies being appraised.

Design

A systematic search of the literature was carried out in order to comprehensively collate and synthesise the information provided by existing research. A meta-analysis was not possible due to a dearth of studies available testing the same hypothesis; therefore, a narrative literature review has been used to draw links between the many varied studies in this area in order to answer the research question. A narrative literature review provides a valuable theory building technique and also serves a hypothesis-generating function; an appropriate method for reviewing the literature in this case.

Search Methods

The Web of Knowledge (WOK) and Psychological Abstracts (PsycINFO) databases were searched using the keywords ‘longitudinal’, ‘coping’ and ‘spinal cord injury’. These and the synonyms of these terms were linked with the term ‘body image’. Manual searches of the relevant nursing, medical and psychological literature, together with reference lists of identified and related papers followed. The search was limited to English language research studies published between 1985 and 2013.

Search Outcome

Using these search criteria 267 papers were retrieved from database searches. These were reduced in number using various exclusion criteria[1] to leave a final sample of 15 papers. 148 papers were rejected at title, 73 at abstract and 31 at full text. Five papers were identified via the review of references of relevant papers. A flowchart detailing the full search process can be seen in Figure 2.

Quality Appraisal

In order to critically examine and evaluate the evidence presented, each paper was appraised using either an evaluative tool for quantitative research studies (Health Care Practise & Development Unit, 2005) or for qualitative research studies (Health Care Practise & Development Unit, 2005).

Data Abstraction and Synthesis

A review of the studies was conducted during 2012 and 2013. Based on the evaluative tools for either quantitative (Long, Godfrey, Randall, Brettle,

---

[1] Exclusion criteria can be found in Figure 2

& Grant, 2002) or qualitative research (Long & Godfrey, 2004), the studies were further synthesised under the following sections: author and date of publication, study design, aim/objectives of the study, sample size and study population, data collection instrument or method and significance of the findings. The final sample included 20 research studies that are included in Table 1, which contains more specific information about the research studies that would be inappropriate or cumbersome to include within the review.

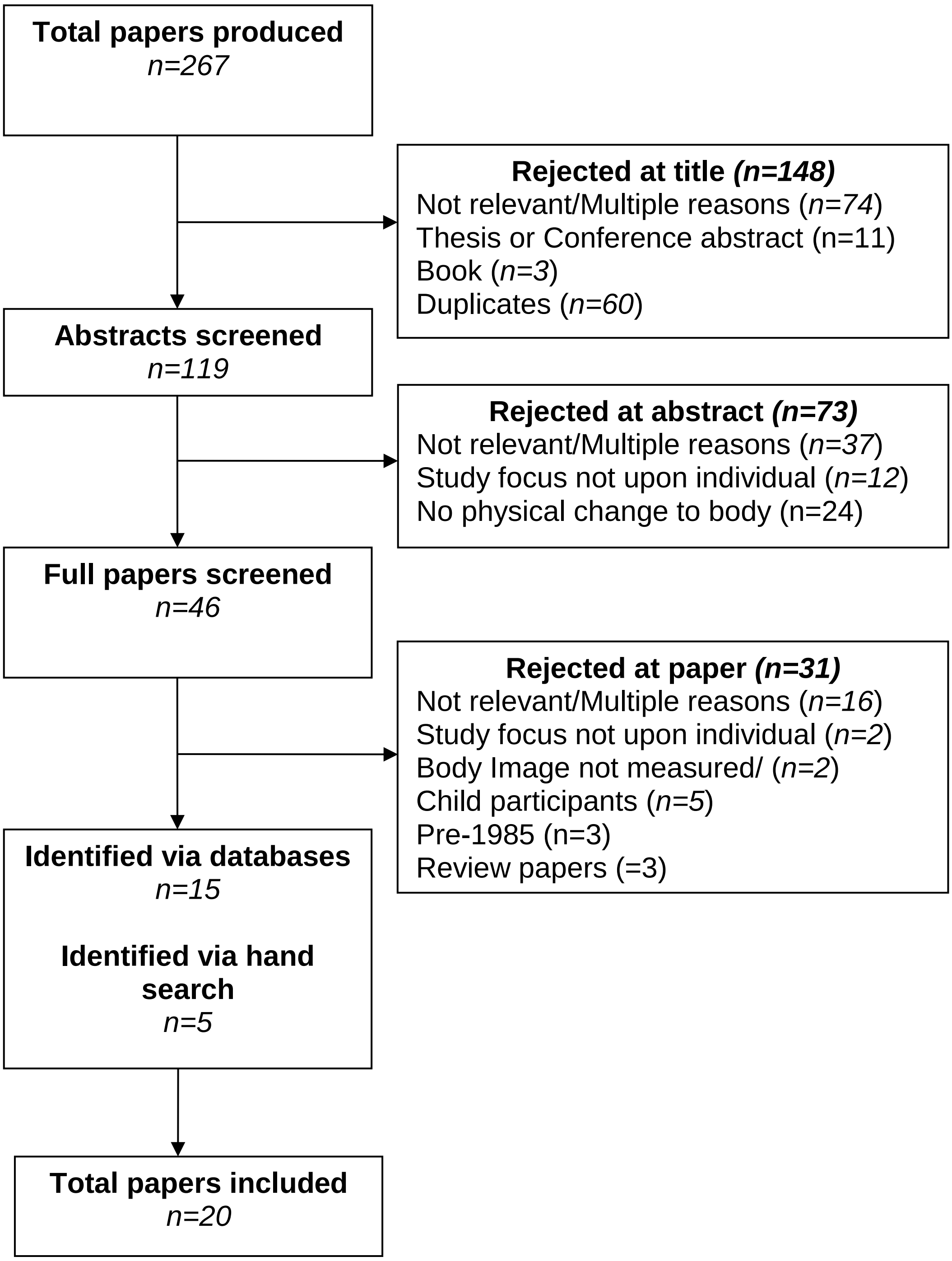


Figure 2. Flowchart of Literature Search Detailing the Number of Items Rejected at each Stage and for what Reason.

Table 1

Study characteristics, findings and limitations

Study	Design	N	Sample	Aim	Measure of BI	Major findings	Limitations
Atisha et al. (2008)	Quantitative Longitudinal prospective	173	Female breast cancer patients in treatment	Evaluate the psychosocial outcomes and BI of patients 2 years post mastectomy reconstruction	9 questions to evaluate perceptions of physical appearance (5 point Likert scale).	BI is associated with psychosocial wellbeing. Dissatisfaction greater in those with greater ACs.	Those who dropped out had significantly poorer BI at first assessment.
Bassett and Martin Ginis (2009)	Quantitative Prospective cross sectional	49	Males with SCI	Examine the relationship between leisure time physical activity (LTPA) and BI	Adult Body Satisfaction Questionnaire (Reboussin et al., 2000)	BI satisfaction was not related to LTPA however was related to greater quality of life.	Single item to measure quality of life is perhaps not a robust measurement.
Bassett, Martin Ginis, and Buchholz (2009)	Quantitative Cross sectional pilot study	11	SCI women	Explore correlates of BI in women with SCI using CB framework	Adult Body Satisfaction Questionnaire (Reboussin et al., 2000)	Appearance satisfaction positively correlated with years post injury	Large range of years post injury ,trajectory of early years less clearly explained
Cecil, McCaughan, and Parahoo (2010)	Qualitative Content analysis	8	Males with a history of cancer	Explore the impact of cancer on masculinity	Semi structured interview using ethnographic approach	Men reported BI concerns and positive CSs which helped them overcome these.	Small qualitative pilot study
Chau et al. (2008)	Qualitative Modified Grounded theory	15	Females SCI	Explore how women learned to live with a changed body and CSs	Secondary analysis from semi-structured interviews	Staged framework of adjustment revealed with different cognitive behavioral CSs used at different stages.	Retrospective recall used, also restricted by previous questions asked for different research aim.
Collins et al. (2011)	Quantitative Prospective longitudinal	549	Women (age> 40) with breast cancer	To explore type of surgery and surgical side effects on BI over time	Adapted 8 item BI measure from the CARES (Schag et al., 1993)	Those with most dramatic AC had less BI problems; however these patients also reported less investment in their BI.	BI questionnaire not validated. BI not measured pre surgery ∴ difficult to confirm reported trends.

For a glossary of terms see the note at the end of the table found on page 24.

Couture, Desrosiers, and Caron (2011)	Mixed model Prospective longitudinal and semi structured interviews	16	56% male patients with lower limb amputation	To compare the adjustment of individuals who have a positive and negative appraisals of their amputation	The Body Image Questionnaire (Bruchon-Schweitzer, 1987)	Pts with positive appraisal of amputation showed greater BI satisfaction (T3) than those with negative appraisal.	24% Pts not reevaluated at T3 ∴ reducing sample size. Cannot establish if greater effect on BI from appraisal or AC.
Fauerbach et al. (2002)	Quantitative Prospective longitudinal	78	77% male patients with burn injury requiring hospitalisation	Examine the influence of coping on distress following disfiguring injury	Satisfaction With Appearance Scale (SWAP, Lawrence et al., 1998)	Use at baseline of two maladaptive CSs associated at 2-month post discharge with more BI dissatisfaction and greater negative social impact of disfigurement.	It is unclear how Pts were using the CSs (alternating/ concurrently) ∴ cannot draw conclusions regarding coping trajectory
Ganz et al. (1996)	Quantitative Cross sectional	139	Female breast cancer survivors	Explore psychosocial concerns and quality of life of breast cancer survivors 2 and 3 years after primary treatment.	CARES (Schag et al., 1993)	BI concerns reported by 50% of Pts and rated as severe in intensity at 3 year follow-up.	Study does not reveal who had reconstructive surgery or not, ∴ cannot explore BI dissatisfaction between different groups of AC.
Haertl et al. (2010)	Quantitative Longitudinal prospective	236	Women with breast cancer.	Investigate changes in Quality of life and anxiety over time	QLQ–BR23 breast cancer specific, BI subscale (Aaronson et al., 1993)	BI differences between groups increased over time. Mastectomy patients had more BI problems than breast conservation. Older Pts less BI dissatisfaction.	A limited measure of BI evaluation used. Age a significant factor in BI dissatisfaction not fully explored and could explain the results.
Manderson (1999)	Qualitative Thematic analysis	40	33% male patients (range of serious conditions) with ACs	Explore effects of sudden ACs to the body and their effect upon BI and social identity	Unstructured interviews	CSs differed between men and women. Some CSs were adaptive; others lead to less favorable outcomes and decreased adjustment to BI changes.	Very broad range of Pts making interpretation more difficult, as unable to establish extent of AC. Broad age range, no age differences explored.

Sheldon, Renwick, and Yoshida (2011)	Qualitative Modified grounded theory approach	64	Males with SCI living in the community	Investigate BI and self-concept	Semi structured interview	Themes of maintaining masculinity, behavioural CSs that match CB model, investment theme also emerged.	Unclear when BI concerns emerged or when CSs were most important ∴ difficult to establish trajectories
Stensman (1989)	Qualitative Semi structured interview and questionnaire	65	10 (80% male) SCI,12 (42% male) cerebral palsy, 43 (53% male) CG.	Explore the differences between BI in those with acquired or congenital disabilities	Visual analogue scale to measure BI in different situations	No differences were found in BI evaluation between clinical groups or control group	BI measure not robust. Large range in BI for SCI compared to CG. Ages of the CG did not well match the clinical groups.
Thombs et al. (2007)	Quantitative Prospective cross-sectional	224	64% male burn reconstruction patients	Investigate the prevalence and the clinical correlates of depression among burn reconstruction patients.	SWAP (Lawrence et al., 1998)	Depressive symptoms were largely predicted by BI dissatisfaction 58%	Cross sectional design means that cannot verify the proposed direction of the relationships found.
Thombs et al. (2008)	Quantitative Prospective longitudinal	79	70% male survivors of severe burn injuries	Test proposed SF for the trajectory of BI dissatisfaction among burn survivors. Investigate the role of BI in overall psychosocial functioning over time.	SWAP(Lawrence et al., 1998) and the Multidimensional Body-Self Relations Questionnaire (MBSRQ, Cash & Grasso, 2005)	BI dissatisfaction greater for those with larger burns. BI dissatisfaction most salient predictor of psychosocial function at 12 months and mediated the relationship between pre-burn and 12-month psychosocial function.	Not many had severe changes to physical appearance ∴results may actually underestimate the amount of BI dissatisfaction and the effect of AC upon quality of life.
Thompson, Kent, and Smith (2002)	Qualitative Interpretive phenomenological analysis	7	Women with vitiligo	Explore the impact and CSs of living with vitiligo	Semi structured interview	Behavioral strategies identified which match CB model and show indication of staged process of adjustment	Difficult to decipher trajectory plus retrospective recall

Vos, Garssen, Visser, Duivenvoorden, and de Haes (2004)	Quantitative Prospective cross-sectional	87	Women with early stage breast cancer	Explore the associations between psychosocial adjustment, treatment, coping and social support using Structural Equation Modeling (SEM).	QLQ–BR23 breast cancer specific, BI subscale (Aaronson et al., 1993)	Increased BI concerns for those with greater extent of AC. Coping style found to be associated with BI dissatisfaction and distress, especially at discharge.	Large number of variables and small sample (by comparison) ∴ manifest rather than latent variables used. Cannot separate the influences of individual factors
Weber et al. (2005)	Quantitative Prospective Cross sectional	100	40 Women with early stage breast cancer. CG = 40 Tinnitus sufferers, 20 students	Explore how newly diagnosed patients cope with BI changes	Body Grid (Weber et al., 2001) which reveals constructs Pts chose to characterise their body.	Cancer patients showed restricted BI, defining their bodies by the functional status of body organs as well as emotional aspects rather than appearance.	Concerns about methodologically robustness of Body Grid'. Age differences between groups potential confounding variable.
Wienke (1998)	Qualitative Interview	20	Males recruited via snowballing procedure. No clinical detail given	Explore relationship between BI and masculinity and consider CSs to manage BI dissatisfaction	Interview	Adaptive and maladaptive CSs reported to cope with BI dissatisfaction. Support for CB theories and SF of adjustment over time. Investment in BI also emerged as a key theme.	Pts recruited through snowballing, ∴ unlikely to form independent sample. No clear details about Pts demographics; drawing firm conclusions is limited.
Zidarov, Swaine, and Gauthier-Gagnon (2009)	Quantitative Prospective longitudinal	19	74% male patients with leg amputations	Explore quality of life of persons with lower-limb amputation over time and to explore the relationship between QOL and BI.	Amputee BI Scale (Breakey, 1997) and Subjective Quality of Life Profile (Dazord, Terra, Manificat, & Boissel, 1994)	BI concerns increased over time, with highest dissatisfaction reported by those with greatest extent of AC. Investment in BI also decreased over time.	Difficult to establish how investment (as a CS) is related to BI dissatisfaction as no data presented.

*Note.*BI= body image, AC= appearance change, CS= coping strategy, SCI = spinal cord injury, Pts= participants, ∴= therefore, T = time, CB= cognitive behavioural, SF= staged framework, CARES= Cancer Rehabilitation Evaluation System

Methodological Challenges

A number of general methodological challenges were apparent in the literature reviewed.

One issue was studies that included participants who incurred an alteration in their appearance just weeks before participation alongside those who had had years to adjust. Some subsequently did not present data disaggregated by the length of time since injury. These cross sectional or single interview studies made it difficult to establish causality or the trajectories of BI evaluation or coping. Some studies were also limited by their reliance on retrospective recall of thoughts, emotions and coping strategies. This method can be argued to be somewhat flawed as it depends on accurate memory; an ability which is especially challenging when recalling the dynamic process of complex coping reactions to in an emotive situation.

Many of the research studies would have benefitted from a longitudinal design, however cost and time requirements meant that cross sectional research, with its accompanying limitations was frequently employed. Longitudinal studies avoided these difficulties, but many of those reviewed had the common limitation of participant attrition which may have been asymmetric i.e. people who had no BI concerns felt they had ‘recovered’ may have left the study, or conversely people who were not coping may not have been able to cope with study participation.

Alongside the caveats arising from design issues are concerns arising from difficulties with recruitment: limited participant selection, small samples sizes and ill matched or missing control groups. In some studies statistical analysis was compromised by small sample sizes, in others it was difficult to generalise from the results due to the small numbers of participants or to biased selection methods (e.g. snowball sampling).

Another common issue was the difficulty of selecting appropriate measures for measuring complex or poorly defined concepts. The differing definitions of BI or coping, for example, gave rise to a range of questionnaires which measure these concepts with varying success. Some of the questionnaires were not validated in populations similar to those that were recruited; whilst, other measures did not appear to have acceptable construct validity.

A further general challenge came from attempting to draw conclusions from studies where important details were missing. Limited detail was provided about BI were it was not the primary focus of the research. In more than one study, the sample demographics were not reported, meaning that inferences could not be drawn about the characteristics of individuals most or least affected by BI concern.

Qualitative research attracts the general critique of having limited generalisability due to the lack of statistical analysis that can be applied. Equally, the personal involvement can make it difficult for the researcher to maintain objectivity. A specific concern in the qualitative studies reviewed here was that data which was collected for another purpose was frequently used to draw inferences and answer a different research question. This meant that themes did not reach saturation or key concepts could not be expanded upon.

Alongside general methodological concerns, there may also be limitations to the inferences that can be drawn about individuals with SCI from other populations.

Challenges of Using Studies of Different Health Populations

Due to the lack of BI research in SCI, this literature review explores research findings obtained from BI research in other health populations. Whilst it appears that there are many similarities in psychological responses following a change in appearance across many health conditions, there are of course some important differences. This review includes studies of participants with burn injury, limb amputation, vitiligo, cancer and other serious conditions. When reflecting upon the similarities and differences between these conditions and SCI, a number of considerations merit discussion.

A striking feature of SCI is the immediacy of the change in function and appearance. In the vast majority of cases, the SCI occurs suddenly and without warning. Limb amputation can also occur suddenly following traumatic injury, however, it can also follow long periods of time coping with poorly functioning limbs and adjusting to the idea of amputation. Other health conditions included here could also be characterised as progressive therefore affording more time to adjust. In breast cancer for instance, patients may have time to psychologically prepare for the changes likely to occur in their bodies. Vitiligo is a progressive condition, with those affected made aware that the changes in their skin are likely to worsen over time. Burn injury perhaps follows the most similar trajectory of appearance change; it too involves an immediate change without time for prior adjustment.

Another consideration is the necessity of appearance change and the effect this might have on an individual. In cases such as breast cancer and limb amputation for medical complaints, the surgery which changes the appearance of the individual is necessary to save their life or improve their quality of life. This may have different psychological consequences for the coping methods employed by the individual. Positive rational acceptance (characterised by statements such as ‘I might look different but at least I’m still alive’ and ‘appearance isn’t as important as my health’) may be more easily applied by those who have a just cause behind the change in their appearance. For those who have incurred an injury (SCI or burn) or have a medical condition (vitiligo) which changes their appearance, acceptance may be more challenging when there was no greater good. However, it is important to note that some individuals with SCI are adept at putting aside ‘why me’ statements and may find peace in their survival of often traumatic injuries (Hammell, 2004).

Self-blame has been linked to psychological adjustment in SCI (Richards, Elliot, Shewchuk, & Fine, 1997) and may also be a basis for difference in the responses to altered appearance. Incidents following decisions or actions made by the individual may give rise to different psychological trajectories. SCI is often sustained by young men who engage in high risk activities, which differs somewhat to other health conditions such as vitiligo. Some element of internal cause may exist for some patients with burn injuries, cancer or limb amputation (via risky actions or health behaviour), but the sequelae are often more distant than those in SCI.

The social response to those with SCI may also be different to those who experience appearance change for other reasons. The media focus on cancer for instance, in awareness, research and fundraising, creates a situation where cancer is part of all of our lives, whether or not we are directly affected and the empathy shown towards cancer sufferers may be differentially affected. SCI gets very little media attention and therefore there is less public understanding about the abilities and disabilities of those with SCI. Overcoming ignorance and negative perceptions may place an additional burden on those with SCI in adjusting to the public perception of their newly ‘disabled’ bodies.

These general and specific challenges are important to considerations when assessing the strength of the evidence base. However, the studies presented here both provide a solid basis for further research and build upon the theoretical understanding of BI following alteration in appearance. This evidence and understanding can then be applied to men with SCI.

Results

Relationship between Physical Appearance and Body Image

Current cognitive behavioural theories of BI would suggest that a physical change to outward appearance can have an impact on BI. However, the relationship between a physical change and BI problems is not necessarily straight forward. In the reviewed literature a number of studies looked at long term psychosocial outcomes (including BI) in various populations ranging from breast cancer patients following surgery, patients who have lower limb amputations and those with haematological disorders.

Researchers have explored the relationship between a physical change to one's body and the impact on BI in a number of different physical health settings. Atisha et al. (2008) sought to evaluate the psychosocial outcomes and BI of patients two years post mastectomy or breast reconstruction. Preoperative and postoperative surveys were received from 173 patients from a large prospective study of mastectomy reconstruction patients. Before reconstruction, and one and two years postoperatively, patients completed a series of questionnaires aiming to measure quality of life, satisfaction, health status, general well-being, psychosocial information and BI.

This study demonstrated that those who had immediate breast reconstructive surgery did not experience a negative effect upon their BI at one or two years after surgery; BI scores remaining stable across all three time points. Those who had delayed breast reconstructive surgery had significantly poorer assessments of their BI, however, than those who had immediate reconstruction. This may indicate that these individuals experienced a negative impact on their BI having lived with a changed body after mastectomy but prior to reconstruction. The BI scores returned to a similar level as those with immediate reconstruction after two years. Also of note is that for those individuals with delayed reconstructive surgery, an analysis of the different surgical procedures used for breast reconstruction found that those who had had the method which produces the most satisfactory long term appearance (TRAM or pedicle method[2]) experienced greater BI gains than those who underwent a procedure resulting in a less stable aesthetic appearance (expander or implant method).

This evidence appears to indicate that aside from the health implications of breast cancer upon assessment of BI, the main factor in predicting poor BI is physical appearance. Once appearance had been reconstructed the BI concerns dissipated. However, participant attrition means that those with poor BI adjustment may have been lost (non-responders had significantly lower assessments of their BI at time one). Another concern is the measure used to evaluate the participant’s perceptions of their physical appearance. A breast cancer specific questionnaire containing 9 items was used. Although Cronbach’s alpha confirmed the items represented one construct, the validity and reliability of this measure has not been tested further. Although this study highlights the need to explore BI; it is difficult to draw firm conclusions due to the methodological caveats.

One study that did use validated measures was conducted by Ganz et al. (1996), who completed an analysis of 139 participants at two and three years post breast cancer surgery. The participants were partitioned into two independent samples depending on their recruitment into a separate study. Sixty percent of both samples had undergone a mastectomy, none had immediate reconstruction and only

---

[2] Transverse Rectus Abdominis Myocutaneous (TRAM) or pedicle methods of breast reconstruction describe the process of forming a new breast from existing tissue, such as a portion of the abdomen or tissue.

13% of the 2 year group and 21% of the 3 year group had undergone reconstructive surgery. This study used the Cancer Rehabilitation Evaluation System (CARES, Schag et al., 1993), a detailed, reliable and valid measure of quality of life that includes three questions to measure BI. For each question, participants are required to rate problem statements on a five point scale of problem intensity from 0 (“not at all”) to 4 (“applies very much”). Results indicated that approximately 50% of participants at two and three years following surgery were reporting BI problems; and at three years these were still evaluated, on average, as severe in intensity.

Therefore, it seems that when using reliable and validated questionnaire items, BI problems are found in samples even up to three years after the change to their appearance. It is unfortunate that this study did not separately evaluate the results from those participants who had undergone reconstruction and those who did not. This means that it is not possible to establish whether those who had breast reconstruction had improvements in their BI after reconstruction.

The Ganz et al. (1996) study also contained a qualitative element with 60-90 minute face to face interviews conducted with 59 self-selected women from across the two samples. An interview schedule was used and analysed using the same coding system developed for the original study. Four extra open ended questions were added to examine a variety of existential concerns that previous studies had found pertinent for cancer survivors. Of the interviewed women, almost half reported feeling uncomfortable with the changes in their body. Whilst the qualitative element to the research adds another dimension, they did not specify any demographics of the interviewed sample. Without this information it is not possible to establish whether those with mastectomy alone or those who chose reconstruction revealed fewer or greater BI concerns. As such the relationship between extent of physical change, the time frame and the severity of BI problems remains somewhat unclear.

Another study with breast cancer patients sheds a little more light on the factors associated with BI problems and the trajectory of problems over time. Haertl et al. (2010) analysed questionnaire results at three time points from 236 participants with a diagnosis of breast cancer, recruited from hospitals in Germany prior to surgery. Three subscales of the Quality of Life Questionnaire (QLQ-C30, Aaronson et al., 1993) were used. This included a BI sub-scale with participants assessed pre-surgery, 6 months post-surgery and 12 months post-surgery. Surgery was mastectomy for 21 participants and breast conserving treatment[3] for the remaining 213 participants.

Results indicated that the mean values from the BI scale in the full sample of women did not demonstrate any significant change over time. Separate analysis was not conducted on those who underwent mastectomy or breast conserving treatment, meaning that again it is therefore not possible to examine the trajectory of BI problems in those with the most extensive physical changes to the appearance of their bodies.

Comparisons were also made of participants at pre-surgery and 12 month post-surgery separated on various surgical and demographic variables. Those who underwent a mastectomy reported significantly poorer BI than those who had breast conserving treatment at 12 months post-surgery, with group differences significantly increasing over time. Those with mastectomy reported more problems over time while those with conservative treatment seeing an improvement in BI over time. Those with larger tumour sizes also had more BI problems. It is likely that these women were treated with more radical surgical methods with more extensive

---

[3] Breast conserving treatment involves the removal of the cancerous tumour, whilst conserving the breast tissue.

changes to their physical appearance. Those under 60 years old reported significantly poorer BI shortly after surgery than older patients. Improvements in BI were made by the younger group; however, after 12 months the difference remained close to significance.

This evidence can be used to tentatively suggest that those with more extensive changes to their appearance experience more BI concerns, and that such concerns may increase over time. It also appears that those who are younger may experience greater concern with the appearance of their bodies. Of concern here is the vast difference in group sizes between the different surgical treatments; however, this is a conclusion that appears to be supported by other research data.

One such supporting study looked to explore psychosocial adjustment to early stage breast cancer (Vos et al., 2004). Eighty seven women diagnosed with early stage breast cancer who had undergone surgery no longer than four months previously were recruited from several hospitals in The Netherlands. Each was given a number of questionnaire measures, one of which was the aforementioned QLQ-C30 (Aaronson et al., 1993). Analysis of results revealed that mastectomy was associated with higher levels of distress and BI problems than breast conserving surgery. Structural equation modelling indicated that the type of surgery was directly associated with BI, with women who had breast conserving therapy perceiving their body as less disfigured than those who had mastectomy. Due to the relatively small sample size and large numbers of variables, manifest variables were used within the modelling process rather than latent variables. However, the model was a good fit to the data and the conclusions support other similar research findings in this population. Thus it appears that, for those with breast cancer, BI concerns are more evident in those with a greater change to appearance and that these concerns may persist over time.

Complementary evidence coming from a very different area of physical health is presented by Couture et al. (2011). These researchers compared the functional independence, depressive symptoms and BI of individuals who had undergone lower leg amputation. Sixteen participants from a single Canadian hospital completed the initial stage of the quantitative research at hospitalisation, with that number falling to ten participants at rehabilitation and eight at three months post discharge. Using a single question (“Would you say that the amputation had a positive or negative effect on your life?”) they assigned participants to a positive or negative appraisal group. Couture et al. (2011) report that those who appraised their amputation positively went on to experience higher BI satisfaction and better functional and psychological adjustment.

This evidence might suggest that how individuals appraise the change to their body also has an impact on BI. However, those who appraised their amputation as positive were also more likely to have had a below the knee amputation and therefore a smaller change to their physical body. It is not possible to establish whether those with more or less drastic physical changes reported greater or lesser BI concerns. The very small sample and low internal validity and simplistic method of assessing appraisals, make it challenging to generalise or deduce the extent that physical change or appraisal influenced BI. However, it seems that both of these factors may have a role.

The research presented above has focussed upon the impact upon aspects of BI after a change to outward appearance. It is interesting to also consider a study that has explored BI in participants who have undergone serious medical diagnosis and treatment for a disease that affects non-visible organ systems, such as bone marrow, but *does not* incur a physical change to their appearance. Weber et al. (2005) aimed to explore how participants cope with the diagnosis of cancer with special regard to BI. Forty participants with newly diagnosed haematological malignancies were recruited from a German university hospital and compared to two control groups of 40 tinnitus suffers and 20 medical students. The study used an idiographic approach to assess BI called the 'Body Grid' (Weber et al., 2001). This instrument reveals the main personal constructs used by patients in experiencing and characterising the body. Results indicated that when there is serious illness or functional changes to the body in the absence of physical change to outward appearance, a restricted view of one's BI focussing upon function is expressed. Therefore appearance did not form an important part of the BI construct for participants with a restricted view.

The authors suggested that this may be adaptive in buffering a threat to BI integrity. However, it is worth considering that it may be a result of the pertinence of each aspect of BI. With no visible change to the appearance of the body, appearance may not be the focus of one's BI concerns. These results seem to support a conclusion that extent of physical change is not the only factor involved in BI dissatisfaction. However, it is important to note that there were age differences between the patient samples and the control group of students. Whilst the two patient samples had average ages of approximately 45 years the mean age of the student group was 26 years old. As previously mentioned, age is an important consideration when investigating BI as appearance has been found to be a more important element of BI for younger people. This caveat makes it more difficult to conclude whether these data actually supports the conclusion that the extent of physical change in appearance is not linked proportionately to a change in BI.

Other evidence that there may not be a dose-effect relationship between BI and the extent of appearance change was put forward by Collins et al. (2011), who looked to examine the impact of surgical treatments on the BI of women with early stage breast cancer. Participants were 514 women from the USA all of whom had completed their surgical treatment. Women were interviewed and completed questionnaire measures at four time points, 4-6 weeks, 6 months, 12 months and 24 months after surgical treatment. Eight items modified from the CARES (Schag et al., 1993) were used to assess BI, the Beck Anxiety Inventory (BAI, Beck, Brown, Epstein, & Steer, 1988) assessed anxiety and the Centre for Epidemiological Studies Depression (CES-D, Radloff, 1991) questionnaire was used to assess depression. Surgical side effects were also measured. Results indicated that, although those with greater physical changes experienced greater BI concerns, surgical side effects could explain the relationship between surgery type and BI. Interestingly, those who had mastectomy alone had significantly less BI problems after 6 months than those who had mastectomy followed by reconstruction, regardless of surgical side effects.

It appears that at this point in the recovery journey, those who had the most drastic physical appearance change to their bodies in fact had lower rates of BI concern than those whose bodies had physically changed less. A descriptive trend in the data suggested that those who chose mastectomy alone were more satisfied with their BI both before and after surgery, with these patients reporting that they based their decisions on long term survival rather than appearance. This suggests that perhaps pre injury BI attitudes can affect the influence the impact that a change in appearance has upon body satisfaction.

Similarly to the Weber et al. (2005) study, age also appears to have been an important factor. Those who chose mastectomy alone were also almost 10 years older than those who chose to have reconstruction. This evidence may indicate that it is not just physical appearance that impacts upon BI; BI attitudes may also play an important role. It is well documented that as we age our BI attitudes shift so that appearance becomes less of a focus (Cash & Pruzinsky, 2002). This could explain the age related differences in BI concern seen in the research evaluated here.

In conclusion, the evidence presented here suggests that the extent of physical change to one’s body may play a role in the development of BI concerns. Some research suggests that the greater the change in appearance, the greater the likelihood of BI problems. It is also suggested that BI problems continue for a number of years after a physical change and, if not addressed, BI problems can increase as time goes by rather than resolve. Researchers have investigated other factors which may influence BI concerns. Research in related spheres has concluded that there is no straightforward relationship between severity of disfigurement or disease process on the one hand and the degree of psychosocial difficulties experienced on the other (Baker, 1992; Porter & Beuf, 1991). In line with this and with the cognitive behavioural model, the above studies by Collins et al. (2011), Couture et al. (2011) and Weber et al. (2005) suggest that the cognitive, affective and behavioural components that influence one’s BI attitudes are also involved in the development of BI concerns.

Impact of Coping Strategies upon Body Image

One of the ways researchers have looked to explore BI following a change to physical appearance is to investigate methods of coping. Akin to research in other health domains, research into burn injury has also found that severity of injury and extent of physical change does not fully account for the variability in BI concerns.

Fauerbach et al. (2002) sought to establish whether individual differences in coping style could be factors in predicting BI in survivors of burn injury. A sample of 78 participants, all of whom had been admitted with acute burn injury to a regional centre, took part in a longitudinal study which looked to examine the prospective impact of certain emotion-focused coping methods on BI dissatisfaction. The types of emotion-focussed coping measured were ‘mental disengagement’, which describes a process of suppressing distressing emotions, and ‘venting’, which describes extensive processing of the thoughts related to distressing emotions. Participants were assessed using the Satisfaction with Appearance Scale (SWAP, Lawrence et al., 1998) to measure BI and the COPE (Carver, Scheier, & Weintraub, 1989), which measures various forms of coping at admission, during the acute phase, 1 week post-discharge and 2 months post-discharge (when scars would be in the early stages of maturation).

Results indicated that those who used two types of emotion-focused coping (mental disengaging and venting) were significantly younger and had significantly larger burns at baseline. Frequent use of emotion-focussed coping was not associated with increased BI distress after one week post-discharge. However, at two month post-discharge, those who used both mental disengaging and venting coping methods reported significantly greater BI dissatisfaction and a significantly greater perceived social impact of disfigurement than those who only used one or neither of these coping methods. Using both coping strategies had little impact early on in the process when burn survivors were adjusting to the injury and the change in appearance; however, ambivalent use of these two opposing coping strategies once scars had healed led to high levels of distress related to appearance. Interestingly, levels of body dissatisfaction increased for all participants over time.

These results may indicate that during the initial phase coping strategies are either equally effective or have little impact perhaps due to the lack of framework with which disfigurement can be assimilated. However, once the acute phase has passed distressing thought may return or have a framework in which to be placed. At this stage, oscillating between coping strategies has a negative impact upon adjustment to disfigurement. These findings suggest that oscillating or concurrent emotion-focussed coping strategies in the early stages after a physical change to appearance might be a marker for later development of BI dissatisfaction even though this does not have an effect immediately. Whilst this research provides interesting theoretical considerations and may have clinical implications for predicting BI dissatisfaction it is difficult to establish exactly how participants were using each of the coping strategies. Fauerbach et al. (2002) did not measure whether the coping strategies were being used concurrently or whether different strategies could have been used for different stressors. Although this means that we remain unclear about exactly what is helping or hindering the process of adjustment to a new body it appears that, over time, the inconsistent use of maladaptive strategies are associated with a negative effect on BI and upon mental health.

Further evidence for the influence of coping strategies upon BI comes from the previously presented study exploring adjustment in women with early stage breast cancer (up to four months post-surgery) using structural equation modelling (Vos et al., 2004). Alongside their finding that BI concerns are more evident in those with greater changes to their appearance, Vos et al. (2004) also explored the coping strategies used by these women and found significant relationships between coping styles and BI. They measured various coping strategies and found two which predicted BI evaluation. Those using ‘optimistic attitude’ coping had more positive BI, whereas ‘illness orientated’ coping was associated both with increased distress and more BI dissatisfaction. Again, age was an important factor as older women were found to achieve better psychosocial adjustment. This relationship was mediated by ‘optimistic attitude’ coping, with younger women using less optimistic coping strategies.

Other research has also sought to explore BI dissatisfaction, its trajectory over time and coping strategies employed by those experiencing a change in physical appearance. In a study aiming to explore quality of life in persons with lower limb amputation, Zidarov et al. (2009) gathered a sample of 19 participants who were receiving care in a rehabilitation hospital in Canada. They were tested at three time points, at admission, discharge and at 3 month follow-up. Measures included a questionnaire assessing BI satisfaction specifically designed for this population, the Amputee Body Image Scale (ABIS, Breakey, 1997), and the Subjective Quality of Life Profile (SQLP, Dazord et al., 1994) which measures satisfaction and importance ratings of various quality of life items. The results indicated that at discharge those with a higher level of amputation[4], and therefore a bigger change to their physical appearance, reported significantly more BI dissatisfaction on the ABIS. The differences between BI scores at discharge and at three month follow-up between the higher or lower amputation groups were not significant on the ABIS; however, on

---

[4] A lower limb amputation includes the removal of the foot and part of the leg. The higher the level of amputation the more of the leg is removed.

the SQLP the trend was for BI satisfaction to decrease three months following discharge. Interestingly, when rating each item of the SQLP for importance, BI importance decreased after admission and remained low at three month follow-up.

This may suggest that decreasing the importance one places upon appearance could be a coping strategy that is used in order to manage BI dissatisfaction after appearance change. Whilst this may be the case, the authors of this study conclude that with the passage of time those with a lower limb amputation seem to develop increasing concern for their BI. Unfortunately, it is not possible to deduce whether there is a difference in the coping strategies used by those with higher or lower level injuries, nor whether the decreases in satisfaction are influenced by the coping strategies employed. A further difficulty in interpreting this evidence comes from the range of times since amputation represented in the sample. Some participants amputations had occurred up to a year previously whilst others only seven days previously at the start of the study. This has serious implications for drawing any conclusions about the trajectory of adjustment to BI from this sample.

Research by Thombs et al. (2008) may be able to provide more answers about the trajectory of BI concerns and coping alongside the role of BI in overall psychological functioning. This study also aimed to explicitly test the framework described by Partridge (2005) for understanding the trajectory of BI dissatisfaction in burn survivors. Two hundred and nine participants were recruited to this longitudinal prospective study, with 79 completing all three time points; inpatient, 6 months post discharge and 12 months post discharge. BI satisfaction was measured using the Satisfaction with Appearance Scale (SWAP, Lawrence et al., 1998), the importance participants placed upon appearance was measured with the investment subscale of the Multidimensional Body-Self Relations Questionnaire (MBSRQ, Cash & Grasso, 2005) and psychosocial functioning was measured using the Mental Composite Scale of the SF-36 Health Survey (Ware & Sherbourne, 1992). All of these measures have good internal consistency, with the SF-36 having extensive evidence for its validity and reliability in numerous populations. Approximately 70% of the sample was male and the sample had an average age of 41 years; all were enrolled in the study from a single burn centre in the USA.

The results indicated that BI in those with small burns improved substantially over time, whereas those with large burns were increasingly dissatisfied with their BI. A repeated-measures analysis of covariance model was used and revealed that the importance of appearance, sex, size of burn and pre-burn psychosocial functioning accounted for 40% of the variance in BI dissatisfaction. The results support the staged model showing that BI worsens after discharge and only improves once adaptive coping strategies have been utilised. BI was also found to mediate the relationship between psychosocial functioning before and after burn injury.

The evidence presented by this study supports a staged model of BI dissatisfaction, with an initial decrease in satisfaction during the process of adaptation to changes in physical appearance. It also provides evidence that increased investment in appearance is linked to higher levels BI dissatisfaction following changes to physical appearance. Of particular importance here is the finding that men with large burns were dissatisfied with their BI after discharge from hospital, a finding which was previously only found in female samples. Drawing inferences from these results could be limited by the large dropout rate associated with longitudinal studies; however, the demographics did not differ between the final sample and those lost to follow-up thus reducing the concern regarding bias.

Another important way to gather information about BI concern and its trajectory is through the use of qualitative studies. Qualitative research provides a valuable and detailed description and assimilation of the lived experience of those with a changed physical appearance and adds depth to the conclusions drawn by quantitative literature.

Thompson et al. (2002) conducted a qualitative study looking to explore coping strategies using a sample of seven white women with vitiligo (a disfiguring skin condition whereby skin loses pigment). Using semi-structured interviews the researchers sought to identify the coping strategies employed by these women at different points throughout their experience in living with vitiligo. A central recurring theme that was identified was the perceived differences from their previous appearance and from others. The researchers also identify that participants appeared to shift in their use of coping strategies. They identified that various behavioural and cognitive strategies were used, sometimes successfully. The participants reported that they often used avoidance and concealment as strategies to manage the impression they made on other people. However, they were able to recognise that these coping strategies were not always helpful. One important finding was that participants reported that their choice of coping strategies varied over time, in particular reporting the use of positive rational acceptance on some occasions but not others.

These findings appear to contradict a linear model of coping (Horgan & MacLachlan, 2004; Partridge, 2005), instead suggesting that coping is a dynamic process. However, Thompson et al. (2002) present a table of seemingly linear themes along a trajectory from diagnosis to present day. One difficulty here is that whilst these participants discussed a trajectory of coping strategies, they did so at a single time point and discussed coping retrospectively. Demographics for the sample are also unreported.

Other qualitative research also seems to provide evidence that supports both the cognitive behavioural model of BI (Cash & Pruzinsky, 2002) and the more specific model describing stages of adjustment to disfigurement (Partridge, 2005). Manderson (1999) conducted multiple interviews focussing upon body change with 40 individuals (aged between 21 and 83 years) with a range of serious physical health conditions. These conditions included circulatory problems, kidney malfunction, cancer, Crohn’s disease and ulcerative colitis, all of which lead to major surgery. Thematic analysis was used to consider the coping strategies employed by participants post-surgery in coping with their changed bodies. The author pays particular interest to gender issues and the impact that changed bodies have upon masculinity and femininity. The coping themes presented include examples of positive rational acceptance and avoidance. Following this, themes of returning to ‘normalcy’ are presented with participants voicing that further along the journey of recovery one coping strategy commonly used was to ‘move on’, both behaviourally and cognitively. Within this theme, participants discussed using appearance fixing strategies alongside further positive rational acceptance. Those who felt that they did not cope well appeared to describe defining themselves and their self-worth by their physical appearance and attributing the cause of their decreased mental wellbeing to changes in their body.

Manderson (1999) describes the participants’ attempts to re-establish former relationships with their own bodies and considers the impact of body changes on identity. Male participants described using coping strategies to retain their masculinity such as taking up new vocations, employment, sports or becoming more competitive in order to prove their bodies were still able to function in masculine ways even if they appeared ‘less male’ due to their condition. Manderson (1999) concluded that restoring normal life is one of the key goals of coping with a changed body and that for men, in particular, developing physicality was especially important.

This qualitative research offers themes of coping with a change to physical appearance from a range of participants with various health problems. Whilst it is assumed that all participants experienced some level of physical consequence or scarring as a result of the surgical interventions, it is difficult to draw clear conclusions about this from the data as the range and extent of changes to appearance are not reported. Further, although the age range covers 21-83 years it is not possible to confirm whether there were any age related differences in coping strategies, as seen in the quantitative studies.

From the evidence presented here it is apparent that coping strategies play an important role in developing positive or negative BI evaluations. The research findings from both quantitative and qualitative studies suggest that coping strategies vary across individuals and time points. It seems that there may be a common trajectory of adjustment to BI dissatisfaction across different health domains which bring about changed appearance, and across different ages and genders.

Body Image Concern in Men Following Appearance Change

The overwhelming majority of studies into male BI confirm that men, irrespective of class, race, nationality or age, report the ideal body type to be muscular, strong and broad (Cash & Pruzinsky, 2002; Kimmel, 1987). The media have been blamed for the increase in investment men place upon their appearance and also for the dissatisfaction in BI that is evident in even young boys (Agliata & Tantleff-Dunn, 2004; Leit, Gray, & Pope, 2002; Pope, Phillips, & Olivardia, 2000). The idealised body shape for men clearly differs dramatically from the westernised ideal of female thinness and this difference that can be problematic when reviewing research evidence. Whilst some of the reviewed studies were single sex, many included both men and women and reported differing results. For this reason it is important to review male specific research when considering the particular concerns men report after their bodies unexpectedly change in appearance. As there are so few research studies in the SCI population it is useful to broaden the perspective again to include other disorders in order to consider the gender differences in BI and the coping strategies utilised.

Qualitative research has been used to capture the beliefs, concerns, emotions and behaviours of men after a change in their physical appearance. Whilst BI may be considered an issue that is more intuitively important for women, research evidence suggests otherwise. Cecil et al. (2010) used an ethnographic approach was used to explore men’s concerns after cancer. A broad range of topics were covered in the interviews with eight men aged between 36 and 70 years old. Within the numerous themes that were identified, BI was raised as a concern. In particular, the results revealed that men did experience BI dissatisfaction, predominantly regarding function but also aesthetics. These men discussed their view that other people thought that BI changes were not relevant to men; however, they felt otherwise. Concerns and dissatisfaction with appearance were revealed, particularly by the youngest man. Whilst it is unclear how generalisable these data are to a wider population, the ethnographic approach here does provide results that are participant led rather than constrained by the researcher. BI issues clearly had a place in the concerns of these men after a physical health problem; however, as yet it is unclear how widespread these issues are within other health populations and who is most affected.

Wienke (1998) has looked to explore the significance of BI in men's lives, how men evaluate their own BI in reference to the muscular ideal and how they cope with discrepancies in this. The participants in this study consisted of 20 men aged between 18 to mid-twenties who were either known by the author or through snowballing of these contacts. It is not reported to what extent these men had experienced a marked physical change to their bodies or by what cause. Using a narrative interpretation approach, interviews with the participants were analysed and Wienke (1998) presents three coping strategies used by these men in order to make sense of their bodies in view of the muscular ideal. These coping strategies, which had previously been identified in research with disabled men (Gerschick & Miller, 1994), described various responses to their BI; reliance, reformulation and rejection.

Reliance is described as a strategy whereby the socially held masculinity standards are used as a framework within which one perceives one's own body. Those men upholding these standards either felt that they met them (therefore no conflict existed between the ideal and the self) or they behaved in such a way to strive towards the standards, e.g. by going to the gym to build muscles. *Reformulation* described a strategy of cognitively and behaviourally changing the masculinity standards in order to create a closer fit between them and their own BI. These men appear to negotiate with the standards as their bodies moved further away from the muscular ideal in order to maintain a sense of masculinity. Those who used the *rejection* strategy were seen to be furthest from the muscular ideal and it is theorised that this coping strategy helped them to cope by distancing from the ideal.

This evidence is interesting when contrasted to the coping strategies described by the cognitive behavioural model (Cash & Pruzinsky, 2002). The reliance strategy appears to describe a similar set of behavioural strategies as ‘appearance fixing’, whilst the cognitive reformulation strategy seems to dovetail with ‘positive rational acceptance’. Similarly, the rejection strategy described here shares similarities with ‘avoidance’ in the cognitive behavioural model. Unfortunately the participants were recruited via snowball sampling incurring possible bias. The age of the participants allows the study to provide some insight into the views of younger participants.

Age and gender become pertinent issues when considering the cohort of individuals affected by SCI. In the UK the most frequently affected group are white men, who have acquired complete tetraplegia from motor vehicle collisions or falls. Significant numbers of injuries due to sports, violence or medical causes have been observed (Jackson et al., 2004). Mean age of injury is 37 years, however the largest age group for injury is those between 16 and 30 years (Jackson et al., 2004). Many of the reviewed studies indicate that BI dissatisfaction and the associated impact upon psychosocial functioning are most likely to occur in younger people. It is therefore evident that a large proportion of the SCI population may well be at significant risk.

Body Image in SCI

Whilst research in multiple and varied populations can provide a broad basis for considering the BI issues that may face those with SCI, it is preferable to look at research that specifically focusses upon this condition. As detailed in the introduction, the appearance and BI changes for those with SCI can be dramatic; however, there is an unfortunate lack of research in this area. The four studies which have been conducted are presented below.

One early study combined an interview with a visual analogue scale to measure body satisfaction in those with SCI and compared it to those with the congenital mobility impairment, cerebral palsy (CP) and a non-disabled control group (Stensman, 1989). Twenty five participants who had previously been known to the research team were contacted, 11 with SCI and 14 with CP, with the control group consisting of 43 randomly chosen hospital employees. The SCI group had been injured a mean of 12 years (5-24 years), were an average of 38 years old and 8 were male. Using a visual analogue scale from 0-100 (extremely negative to extremely positive) the participants indicated an average BI satisfaction score of 57.2. No significant differences were found between scores of CP or non-disabled control groups. The range of scores for those with SCI was between 11 and 100; considerably greater than the other groups (32 to 88).

The use of obscure questions to measure BI means that the internal consistency of the measure is poor and it is unclear how some items fit together to form a coherent construct. However, this study was able to demonstrate wide variation in BI dissatisfaction in SCI individuals, even many years after injury. This indicates that akin to research in other health related populations, those with SCI experience BI concerns. Due to the range of satisfaction ratings across individuals, this study also suggests that physical change in appearance alone cannot fully explain BI satisfaction.

A pilot study examining the correlates of BI disturbance in women provides further information about how SCI can affect BI. Bassett et al. (2009) conducted this pilot using 11 female participants gathered from a larger study pool of participants engaged in research regarding health after spinal cord injury (Martin Ginis, Latimer, Hicks, & Craven, 2005). Overall, they found that these women were generally 'a little dissatisfied' with their appearance as measured by the Adult Body Satisfaction Questionnaire (ABSQ, Reboussin et al., 2000), on a 7 point Likert scale ranging from very dissatisfied to very satisfied. They also found that appearance satisfaction was higher amongst those with smaller waists, lower body fat and greater years post-injury. As body image dissatisfaction was higher amongst those who had recently had their injury, the authors suggests that BI disturbance should ideally be addressed in the years most proximal to injury.

Data were also provided regarding level and type of injury; however, no group differences were found. In this sample, mean years post injury was approximately 15 years, although a high standard deviation indicates that the range was quite large. Whilst this tells us little about the trajectory of BI dissatisfaction after SCI, it indicates that these women were dissatisfied with their bodies post SCI and that their dissatisfaction is higher at 1 year post injury than after many years. One caveat to this research is that women are generally found to be more dissatisfied with their bodies than men and without a control group it is hard to tell whether these women are abnormal in their BI dissatisfaction.

A qualitative research study aimed to explore the narratives of women who are living with a SCI, examining how they learn to live with a changed body and the contexts that influence their BI (Chau et al., 2008). This research used data obtained from an unpublished primary study with secondary analysis of 15 transcripts from women with spinal cord injuries 3 years or more post-injury, living in the community in Toronto. The principles of modified grounded theory were used to conceptualise and identify concepts to create a framework within which the data could be understood.

The findings revealed three successive stages of coping that the authors name ‘discomfort’, ‘moving towards comfort’ and ‘comfort’. These stages consistently appeared across the sample including those of differing social status, age and injury level. The early stage was characterised by *discomfort* with the new appearance of the body, with maladaptive coping strategies including avoidance of mirrors and of old clothes. It is possible that this stage coincides with the change in patient status from inpatient to outpatient. As an inpatient, the women reported that life is ‘suspended’ and that they were ‘de-humanised’ by the medical interventions necessary in initial stages of rehabilitation. Once discharged into the community, their bodies became objects to be viewed within a public space and, unlike before their injury, their bodies were now classified by disability.

Women reported that when they first re-entered the community they felt that their pre-injury identity was stripped away leaving a body that was judged not only as having decreased capabilities, skills and intelligence, but also as having decreased sexual appeal and desirability. After this initial phase, some women felt that they became desensitised to the strong negative emotional connotations their body held for them and moved towards a sense of positive representation. Here the focus became on making an effort with their appearance, choosing nice clothes and jewellery and wearing make-up. At this stage, these coping mechanisms can be viewed as positive, helping re-define identity and increasing positive feedback from others. However, some women instead reported managing their BI dissatisfaction through social isolation. Those who viewed their coping as positive then moved to the *comfort* stage where their BI and self-concept moved to a position of self-acceptance. Positive coping included cognitive strategies to remind themselves they are ‘still the same person’ and behavioural strategies such as getting back to previously enjoyed activities and educating others.

Whilst this study provides an interesting insight into the views and perspectives of those within the study, it is limited by its design as the secondary analysis did not reach saturation. A second major caveat is the number of years since discharge from hospital. Although the mean years since discharge is not reported it is clear from the case examples that many of the women had been living in the community for a long time. The study therefore relies on the retrospective memories of the early stages after discharge from some participants who had experienced spinal cord injuries up to 25 years previously. However, this study does provide preliminary evidence for a staged theory of adjustment that is strikingly similar to that proposed by Partridge (2005) and tested in burn injury samples by Thombs et al. (2008).

Although these data provide an initial insight into the problems faced by those with SCI, as these studies used female participants they therefore may not be representative of the experiences of men. Due to the gender differences in BI attitudes (described above), limited conclusions can be drawn from this research evidence in relation to men with SCI. It is therefore advantageous to explore BI concerns in single sex studies which focus exclusively on men’s experiences. The following two studies provide a focus on men with SCI.

Bassett and Martin Ginis (2009) recruited 50 spinal cord injured men with a mean age of 42 years. They found that these men's mean appearance satisfaction score, as measured by the Adult Body Satisfaction Questionnaire (Reboussin et al., 2000), corresponded to the description 'a little satisfied'. The impact of BI upon quality of life was also measured using a single question. Findings reported showed a slight positive impact of appearance BI on quality of life was perceived by this sample. Although on average men in the sample were not dissatisfied with their appearance a caveat to this finding is that they were between 5 and 25 years post injury.

The studies described above found a number of coping strategies were used following a change to physical appearance and the accompanying disruption to BI. Bassett and Martin Ginis (2009) support Cash's model of BI (Cash & Pruzinsky, 2002) suggesting that following SCI, men may lower their appearance standards or change the reference group by which they compare their body, thus utilising a coping strategy of decreased investment in appearance. As their participants were on average 15 years post SCI; it is likely that they were practised in using the proposed coping strategies. Given this it is perhaps unsurprising that these men did not report high levels of BI dissatisfaction. Whilst this research does not tell us about the initial stages of BI adjustment it does give some information about an end point for the trajectory, and provides an indication of a possible hopeful outcome for men with SCI in terms of positive adjustment to BI changes.

A final study that aimed to explore BI and self-concept in men with SCI using qualitative research may provide a richer understanding of the processes involved in adjusting to a changed body. Sheldon et al. (2011) used a grounded theory approach to analyse interview data collected from 64 male participants. These men were between 3 to over 17 years post SCI, with a mean age of 27 years. Several themes emerged. The men described changes to the self and body, particularly finding it difficult to fulfil masculinity stereotypes and to assimilate a new image of an incomplete body to their previous sense of self. Behavioural themes emerged also including negative self-talk, avoidance and appearance fixing. Another theme encompassed the change of importance in appearance, with some finding an increased importance in their appearance in order to compensate for their limitations. A final theme emerged which described a sense of acceptance and moving forward. This included some downward comparison with others less fortunate than themselves but also a sense of personal and social growth following SCI.

Unfortunately, no detail is given regarding at which time points these themes were most relevant. However, despite this limitation, what is clear from the illustrative examples is that some men continued to struggle with acceptance of their bodies and the comparison to masculine ideals long after their injuries.

Therefore, the current state of research suggests that those with SCI appear to exhibit BI concerns in line with other appearance altered health populations. Both quantitative and qualitative research has found evidence of the use of coping strategies, which are outlined in both the cognitive behavioural and staged models of BI. As the focus of this review is upon males with SCI, it is important to reflect on the research into masculine ideals and the role of gender in coping with BI outlined previously. Research also appears to indicate that BI concerns in men with SCI may impact upon their psychological wellbeing and physical functioning.

The Relationship between Body Image and Mental Health

A significant proportion of people living with spinal cord injuries experience depressive symptoms (Elliott & Kennedy, 2004), with prevalence rates ranging from 24% to 45% (Boekamp, Overholser, & Schubert, 1996; Krause, Kemp, & Coker, 2000). Similarly, men and women with spinal cord injuries are more likely to commit suicide than members of the general population (Hartkopp, Bronnum-Hansen, Seidenschnur, & Biering-Sorensen, 1998). Whilst it is clear that the consequences of psychological distress can be severe, what appears to be more complex is establishing the sequelae that lead to these depressive symptoms.

Research evidence is gathering to suggest that a key factor may be the impact that BI dissatisfaction has upon psychosocial functioning. Evidence repeatedly suggests that, in general, men with less athletic physiques report lower levels of life satisfaction than those with muscular bodies and direct correlations have been found between self-esteem and muscularity (Kimmel & Messner, 1995). Indeed, BI dissatisfaction has been found to mediate the relationship between psychosocial functioning pre and post burn injury (Thombs et al., 2008), and to predict depressive symptoms in both males and females in this population (Thombs et al., 2007). In a large sample of 224 burn reconstruction patients, Thombs et al. (2007) investigated the prevalence and clinical correlates of the symptoms of depression.

Using the Beck Depression Inventory (BDI, Beck, Steer, & Garbin, 1988) and the Satisfaction with Appearance Scale (SWAP, Lawrence et al., 1998), both measures with acceptable reliability and validity, this study reported that there were no significant differences in depressive symptoms between men and women. Crucially, they found that the majority of the variance in the symptoms of depression was associated with BI dissatisfaction. This relationship was weaker for men;

however, BI was still shown to affect the psychosocial functioning of the males over and above any other measured variable. Importantly, physical function was also measured (SF-36 Health Survey, Ware & Sherbourne, 1992) but was not found to significantly predict depressive symptoms. Whilst there are clearly differences between the changes in physical functioning in those with burn injury and those with SCI, it is noteworthy that physical capabilities were considered and found to be less significant than BI.

Discussion

The available literature base has been reviewed in order to investigate which factors impact upon BI after a change in physical appearance, clarify what the evidence suggests regarding the relationship between BI and psychosocial wellbeing and to explore how coping, gender and stage of recovery might influence BI concerns. Studies were reviewed with the specific aim of drawing conclusions from the literature about the likely impact of SCI on BI in men.

Four broad conclusions can be drawn from this literature review. Firstly, BI concerns are likely to exist in those with SCI, just as they do in individuals with other appearance altering health conditions. Secondly, BI concerns appear to be linked to the severity of the change in physical appearance, but other factors also have a role in this relationship. Coping strategies in particular appear important in the adjustment to a changed body with the impact of coping showing some consistency across different health conditions. Thirdly, BI concerns and the strategies used to manage them seem to show trends to recovery across trajectories with the period of discharge or transition appearing to be the point when BI concerns come to the forefront. Finally, gender does appear to play a role in BI concerns; however, research suggests that BI is important for men, and that these concerns have an impact upon other areas of their lives.

Clinical Implications

The evidence presented here has broad reaching implications for clinical care for men with SCI. Research suggests that a dramatic change in physical appearance can have a negative impact upon the way men view their bodies (Stensman, 1989). What they do to manage these concerns also affects other aspects of their lives and impacts upon their mental health (Sheldon et al., 2011). These concerns do not seem to simply decline with time; on the contrary, BI concerns remain problematic long after the body changing incident (Ganz et al., 1996).

In other health populations, it has been found that BI concerns in men are associated with negative affect and decreased psychosocial functioning (Thombs et al., 2007; Thombs et al., 2008) and there is no reason to suspect that men with SCI would be affected differently. Psychological factors (such as negative affect) have also been found to influence the physical health of men with SCI, through problems such as pressure sores which can have serious or life threatening consequences (Harding-Okimoto, 1997).

Assessment of BI concerns is not currently part of the guidance for care of those with SCI (NICE, 2008); however, the research presented here indicates that it would be of benefit to include BI concerns as part of a psychological assessment.

Conclusion

To conclude, this review has highlighted the importance of BI concerns in those who have experienced a change to their appearance. Not only do BI concerns carry a psychological cost, there may also be a cost to physical health. For men with SCI the evidence points to BI concerns playing an important role; however, future research could look to investigate this in more detail.

Future research should, in particular, look to investigate BI dissatisfaction in men with SCI as the extent of concern remains unclear. Research is needed that uses well validated and reliable methods to measure different aspects of BI attitudes such as investment and evaluation, in order to provide evidence to support or contradict current models of BI. Equally, coping strategies have been shown to be of importance; however, no clear consensus has yet been found in the literature. Therefore exploring coping and its effect upon wellbeing also appears important. Finally, further investigation into the trajectories of BI concern and the impact upon mental health could provide valuable direction for input in this clinical population.

Empirical Paper

Word count 8622

BODY IMAGE IN MEN WITH SPINAL CORD INJURY: IMPLICATIONS FOR REHABILITATION

Introduction

Spinal Cord Injury

According to a UK spinal cord injury charity (Every Eight Hours, 2013), someone acquires a spinal injury every eight hours, with some 40,000 people living with Spinal Cord Injury (SCI) in England and Ireland alone. Traumatic events often lead to injuries, with young males most frequently affected (Jackson et al., 2004). SCI has permanent and often devastating consequences. The spinal cord carries signals from the body to the brain and, when severed or damaged, sensory information and motor control is lost, causing paralysis.

Paralysis has obvious consequences for limbs and motion; however, just as vital is the information that is passed to regulate temperature, blood pressure, to control breathing, sexual function, bowel and bladder control. The muscles in the abdomen hold neither the torso straight nor the organs in, the consequence being that abdomens can become distorted, with the change in body image being described by some as ‘unbearable’ (French & Phillips, 1991).

SCI patients are frequently in rehabilitation hospitals for up to a year. During this time they are initially bed bound and surrounded by other people with SCI who are also in the rehabilitation phase. During this period able bodied family, friends, doctors and nurses are in the minority. Here the focus is very much upon physical function with teams of doctors, physiotherapists and occupational therapists assessing functional ability. Dramatic changes to the function and appearance of the body indicate that it is reasonable to expect changes in how individuals think, feel and act towards their bodies (Stensman, 1989); however, very little research effort has been focused in this area.

Body Image

Body image (BI) is a term that is used to conceptualise the thoughts, emotions and behaviour directed towards the body. Whilst BI has been researched from many different theoretical standpoints, it is most widely thought of as a multidimensional construct that includes the perception of and the attitudes one holds towards one's body within a cognitive behavioural framework (Cash & Smolak, 2011). Within this framework are BI attitudes; evaluation of appearance and investment (how much one defines oneself by physical appearance). These attitudes are related, with data indicating that greater investment in one's appearance is associated with a poorer BI evaluation (Cash, Melnyk, & Hrabosky, 2004). Importantly, greater investment in physical appearance was also found to be linked to poorer overall body-image quality of life. There are many potential consequences of undiagnosed BI problems. Cash suggests that when individuals face BI threats or challenges they may utilise one or more of three coping strategies; avoidance, appearance fixing, and positive rational acceptance (Cash et al., 2005). Avoidance and appearance fixing are seen as maladaptive and are associated with lower levels of psychosocial functioning and more distress, whilst positive rational acceptance is associated with positive adjustment (Cash et al., 2005).

The call to investigate BI in SCI has begun to be answered with a number of (mainly qualitative) papers being published in recent years (Bassett & Martin Ginis, 2009; Bassett et al., 2009; Sheldon et al., 2011; Yetzer, Schandler, Root, & Turnbaugh, 2003). Both qualitative and quantitative studies have also shown links between BI dissatisfaction and general psychological functioning (Gilbert & Miles, 2002; Newell, 2000; Newell & Marks, 2000) and also with physical health outcomes (Harding-Okimoto, 1997). Conclusions can also be drawn from a wider body of research from other clinical populations who have experienced a change in their appearance.

Body Image after Altered Appearance

It is clear that changes to one's appearance can affect BI in women (Atisha et al., 2008; Haertl et al., 2010; Vos et al., 2004) and that, if not addressed, concerns or dissatisfaction increase over time (Ganz et al., 1996). Studies looking specifically at men have found similar concerns (Wienke, 1998); however, men reported that their concerns were not taken seriously (Cecil et al., 2010). Research has also shown that BI dissatisfaction is associated with poor outcomes for psychosocial functioning (Thombs et al., 2008) and can also account for the variance in depression (Thombs et al., 2007).

Body image research across many spheres has shown that social comparison plays an important role in developing BI disturbance (Hargreaves & Tiggemann, 2009; Heinberg & Thompson, 1992; Stormer & Thompson, 1996). Whilst in the rehabilitation phase, people with SCI have a limited available comparison group, which consists of other individuals with changed bodies, frequently in wheelchairs and with a wide range of physical difficulties. However, when discharged they are thrust into a world from which they have often been almost entirely sheltered for many months. Outside of the hospital they are very much in the minority and the awareness of the differences in their appearance becomes increasingly evident.

Spinal cord injury studies have looked at the relationship between psychological factors and physical health and highlighted the importance of BI. For example, pressure sores, a serious consequence for those with SCI, have been found to be significantly related to psychological factors such as quality of life and self-concept (Anderson & Andberg, 1979), with psychosocial variables also shown to predict their extent and persistence. Further research has begun to consider whether the key psychological variable in this relationship to physical health is BI (Harding-Okimoto, 1997).

Coping with Body Image Dissatisfaction

Coping strategies utilised by those with BI dissatisfaction have also been shown to be associated with psychological wellbeing (Fauerbach et al., 2002) and to impact upon quality of life over time (Manderson, 1999; Schopp, Good, Mazurek, Barker, & Stucky, 2007). An important issue is the timing of BI concern after a change to appearance, with many studies concluding that BI is not an important concern during the initial recovery phase, but becomes a significant problem later on (Chau et al., 2008; Horgan & MacLachlan, 2004; Manderson, 1999). These findings show clear parallels to the staged models of adapting to unexpected changes in appearance (Partridge, 2005; Thompson et al., 2002) based on research with burn survivors and patients with vitiligo respectively.

It is suggested that navigation through the various proximal influences in the cognitive behavioural model of BI occurs in stages. Partridge (2005) outlined a stage framework with a focus upon burn survivors. The framework outlines three stages, survival, socialization and advocacy. During the survival stage, which is characterised by physical recovery and rehabilitation, the individual maintains a pre-incident sense of self-concept. Key psychological issues at this stage include pain, grief, posttraumatic stress and early appearance anxiety. As recovery progresses, socialisation becomes a key issue with individuals oscillating between a pre-incident vision of the self and an identity as a person with a permanent disfigurement.

Partridge outlines at this stage central issues shift towards anger, shame about BI and low mood. The third stage, advocacy, is where adaptation to the new BI begins to occur, and it is during this stage that BI attitudes are adjusted (as outlined by Cash & Smolak, 2011 in the cognitive behavioural model of body image).

This staged approach has been put to the test by Thombs et al. (2008) who investigated the trajectories of BI dissatisfaction in burn survivors, aiming to test whether BI worsens over the first year after discharge from hospital as suggested by Partridge and Thompson et al. (Partridge, 2005; Thompson et al., 2002). As well as providing further evidence that BI is a major factor in post injury psychological functioning, they generated support for the respective models of Thompson and Partridge. This evidence suggests that BI dissatisfaction or disturbance may not become apparent until discharge from hospital (typically two months post discharge, Thombs et al., 2008). It is theorised that at this point the individual is struggling with acceptance of the new body and is yet to develop the necessary adaptive coping strategies to deal with the psychological challenges. Given the similar BI challenges faced by those adjusting to burn injury or facial disfigurement, it is reasonable to question if the same staged processes might occur in the SCI population.

Aims of the Current Study

The objective of this study was to expand on the evidence for a staged framework of adjustment to a change in appearance, by investigating whether there were group differences in BI between SCI inpatients and outpatients. It also aimed to investigate whether changes in investment and the use of coping strategies could explain outcome in terms of quality of life and negative affect for individuals after discharge into the community.

Hypotheses

Hypothesis 1: Male outpatients (transition and established groups) with spinal cord injuries will report poorer BI evaluation[5] than inpatients.

Hypothesis 2: BI evaluation will correlate positively with BI quality of life and negatively with low mood and anxiety for all patient status groups in the sample.

Hypothesis 3: Low mood in men with SCI will be predicted by BI evaluation and BI investment. It is hypothesised that the effect of BI evaluation will be moderated by the effect of BI investment i.e. BI dissatisfaction will have a bigger effect on mood in participants who are more invested in their body image.

Hypothesis 4: Male SCI patients who use maladaptive coping strategies will have poorer BI quality of life scores than those who do not. This difference will be more pronounced for those who have been using these strategies for the longest period of time (established group).

---

[5] For descriptions of the questionnaires used to measure each of these concepts see p78-80.

Method

Design

A cross-sectional design was used throughout. Independent groups were used to test hypothesis 1. The dependant variables were BI evaluation and mood scales, with group as the independent variable with three levels. Three separate groups of participants (inpatients, a transition group and a group who were established in the community) were used.

A correlational design was utilised to test hypothesis two by exploring the relationships between BI evaluation, BI quality of life and mood variables.

To test hypothesis 3 the BI evaluation and BI investment scores were used as independent variables to establish how much variance in the dependent variable, low mood, could be accounted for.

In order to examine hypothesis 4 an independent group design was used. The dependent variable was BI quality of life. The between-subjects independent variable was group, with three levels (inpatients transition, and established). The within-subjects independent variable maladaptive coping had two levels: those who used negative coping strategies and those who did not. These groups were achieved by using median split.

Participants

Eligibility criteria. All male inpatients at Salisbury District Hospital (SDH) Spinal Cord Unit and male outpatients who experienced any level of SCI within five years of the interview date were considered eligible if they were 18 years old or older at time of participation. Female patients were excluded due to the substantial differences in BI concerns identified by research. An assessment of capacity to consent and participate was considered vital due to the potential neurological and physical consequences of the events that led to the SCI.

Inpatient recruitment. Thirty-two inpatients were recruited from the spinal wards at SDH. Eligible participants were identified by their care team and referred to the researcher. Only those who were already in the process of rehabilitation rather than immobilised, were approached. Individuals were excluded if the consultant or any member of the care team felt that they were too physically, cognitively or psychologically unwell to give valid consent. Inpatients were given information about the research study (Appendix A) and had an opportunity to ask questions to the researcher.

Outpatient recruitment. Outpatients were recruited using one of three methods;

Method 1: Eligible individuals who were due to attend outpatient appointments at SDH were identified by their care team and sent information regarding the research study (Appendix A) and a letter inviting them to take part (Appendix B). They were given an ‘opt in’ form (Appendix C) and the details of the researcher in order to express their interest in participating. When they attended their appointment those who opted in were approached by the researcher to complete the consent (Appendix D) and questionnaire pack (Appendix E). Forty-one participants were recruited using this method.

Method 2[6]*:* An advertisement was placed on the Spinal Injury Association ‘Research Forum’ (Appendix F). Individuals who met the eligibility criteria were encouraged to contact the researcher to discuss the research study and to receive a research pack[7] through the post. Three participants were recruited using this

---

[6] Method 2 required an amendment to ethical approval, see appendix (J), (L) and (N).

[7] Research pack included an information sheet (A), invite letter (B), opt-in (C), consent form (D) and questionnaire pack (E).

method; however, the data from one of these revealed that his injury was over 6 years ago and therefore his data was not used.

Method 3[8]*:* Eligible outpatients were identified from a database by the administration team at SDH. A research pack[9] was sent to each of these individuals to complete and post back in a stamped addressed envelope should they wish to participate. Once returned, participants were sent debrief form (Appendix G) and their voucher in the post.

Of the 252 research packs sent out, 11 were returned as undeliverable or incorrect addressee, one person returned an incomplete pack registering his interest but was not contactable during the data collection period and 30 were returned completed. Taking into account the administrative errors with addresses, it is assumed that 241 were delivered successfully giving a 13% response rate. Due to an error on the database, one of these participants was rejected at return due to his injury date being 10 years previously. Two participants had not completed the questionnaire pack, missing whole pages or whole questionnaires and could not be contacted in order to complete them. They were subsequently removed from the study due to the large amount of missing data, bringing the total useable participants from this recruitment method to 27.

---

[8] Method 3 required an amendment to ethical approval, see appendix (J), (L) and (N).

[9] Research pack included an amended invite letter (H), information sheet (A), opt-in (C), consent form (D) and questionnaire pack (E).

Measures

The following measures were included in the questionnaire pack for all participants.

The Multidimensional Body Self Relations Questionnaire - Appearance Scales (MBSRQ-AS, Brown, Cash, & Mikulka, 1990)**.** The MBSRQ-AS is a well validated multi-dimensional assessment, with subscales primarily used to measure *Appearance Evaluation* and *Appearance Orientation* in those over 15 years old. All of the subscales possess acceptable internal consistency and stability and have strong convergent, discriminant and construct validities (Cash & Grasso, 2005).

The *Appearance Evaluation* scale captures feelings of satisfaction or dissatisfaction with one's looks. High scorers feel mostly positive and satisfied with their appearance, whereas low scorers typically have a general unhappiness with their physical appearance. Cronbach’s alpha in this sample, α = .83, (7 items).

The *Appearance Orientation* scale measures the extent of investment in one's appearance. Those scoring highly typically place more importance on how they look, pay attention to their appearance, and engage in extensive grooming behaviours. Low scorers display indifference to their appearance; their looks are not especially important and they do not expend much effort to "look good". Cronbach’s alpha in this sample, α = .83, 11 items[10].

The MBSRQ-AS also includes three multi-item subscales. The *Overweight Preoccupation* scale (α = .66, 4 items[11]) assesses fat anxiety, weight vigilance, dieting, and eating restraint and the *Self-Classified Weight* scale (α = .91, 2 items),

---

[10] Eleven items were used in this sample rather than the possible 12 due to an administrative error. The value of the missing item was replaced with the mean of the subscale as indicated in the questionnaire manual(Cash & Grasso, 2005). The Cronbach’s alpha level of .83 reveals good internal consistency.

[11] All reported alpha levels refer to those calculated for this sample.

assesses self-appraisals of weight from “very underweight” to “very overweight.” The *Body Areas Satisfaction* scale (BASS, α = .85, 9 items) measures body-image evaluation on a Likert scale, from dissatisfaction to satisfaction, focusing upon different body areas and attributes.

The Appearance Schemas Inventory-Revised (ASI-R, Cash, Melnyk, et al., 2004)**.** This empirically validated 20-item measure assesses individuals’ psychological investment in their physical appearance. It consists of two subscales *Self-Evaluative Salience* (α = .86, 12 items) and *Motivational Salience* (α = .80, 8 items). *Self-Evaluative Salience* reflects the extent to which individuals define or measure themselves and their self-worth by their physical appearance. *Motivational Salience* reflects the extent to which participants attend to their appearance and engage in appearance-management behaviours. The ASI-R is a measure for use with adults, 18 years old and older.

The Body Image Quality of Life Inventory (BIQLI, Cash & Fleming, 2002). This inventory quantifies how an individual’s BI experiences affect a broad range of life domains, including their sense of self, social functioning, sexuality, emotional well-being, eating, exercise and grooming. This self-report assessment for late adolescents and adults uses a 7-point response format, ranging from very negative to very positive effects of BI on 19 life domains. The BIQLI has been shown to be internally consistent and stable (Cash, Jakatdar, & Williams, 2004). It converges significantly with multiple measures of BI evaluation and investment as well as with body mass. The BIQLI has potential utility as a clinical assessment in discerning specifically how an individual’s BI impacts his or her life and as an outcome measure of BI interventions. Cronbach’s alpha in this sample, α = .95, 19 items

The Body Image Coping Strategies Inventory (BICSI, Cash et al., 2005). This empirically validated assessment measures cognitive and behavioural activities used to manage or cope with threats or challenges to their BI. This 29-item measure consists of three internally consistent scales, derived via principal components analysis: *Avoidance, Appearance Fixing*, and *Positive Rational Acceptance*.

Cash et al. (2005) state that avoidance "is an attempt to escape or avert stressful body-image situations" *(*p.3, α = .71, 7 items,), appearance fixing "is directed at altering appearance by covering, camouflaging, or correcting the perceived defect" (p.3, α = .85, 10 items), and positive rational acceptance "entails strategies emphasising acceptance of the challenging event and positive self-care or rational self-talk about one's appearance" (p.4, α = .80, 11 items).

These three BI coping scales show good convergent validity, including relationships with other pertinent BI measures as well as measures of psychosocial functioning (e.g., self-esteem, social support, and eating attitudes). The BICSI is a measure for use with adults, both men and women.

Hospital Anxiety and Depression Scale (HADS, Zigmond & Snaith, 1983). The HADS is a self-report measure used widely in the NHS to measure anxiety and depression. The HADS consists of 14 items, *Anxiety* (α = .78, 7 items) and *Depression (*α = .77, 7 items). It was created in order to detect anxiety and depression in people with physical health problems and therefore avoids reliance on aspects of anxiety and depression that are also common somatic symptoms of illness, for example fatigue, insomnia or hypersomnia. It has consistently performed well in assessing the symptom severity of anxiety and depression both internationally (Herrmann, 1997), in somatic, psychiatric and primary care patients and in the general population (Bjelland, Dahl, Haug, & Neckelmann, 2002).

Ethical Review

This research study was given favourable ethical opinion by NRES South Central, Oxford Research Ethics Committee B (Appendix I and J). Research and Development at Salisbury District Hospital (SDH) also approved the Duke of Cornwall Spinal Treatment Centre, SDH as a participant recruitment centre (Appendix K and L). Southampton University School of Psychology Ethics committee also reviewed and approved the study (Appendix M and N).

Procedure

Clinicians working within the spinal unit in SDH identified individuals meeting the research criteria. Patients were approached and invited as described above, given information regarding the study and asked to complete consent forms, should they wish to take part. Participants then completed the questionnaire measures (Appendix E), which took between 25 and 35 minutes. For those participants with mobility issues, the researcher was available to provide assistance by reading and or completing the questionnaires alongside the participant, either face to face (inpatient) or over the telephone (outpatient). Participants were fully debriefed (Appendix G), offered the opportunity to discuss the study with the researcher and given a £5 gift token to thank them for their participation. Any participants with clinical levels of distress were offered an appointment with a member of the clinical psychology team at SDH.

Data preparation. Data preparation was carried out once all data had been collected and scored[12].

Coding and missing data. All demographic information collected from the

---

[12] All questionnaires were scored as stated in their respective manuals. Scoring procedures can be seen in the accompanying material, appendix O.

questionnaires was coded into numerical data in preparation for analysis with SPSS. In order to check for data entry errors, 10% of the data was re-entered and checked with zero errors found. Data were inspected to ensure maximum and minimum values for each variable were appropriate. Following these checks, data were assumed to have been entered correctly. Initial data inspection revealed 11 items of missing data from BI questionnaire measures, none of which had more than one missing item for each subscale. In all cases, missing variables were replaced by the mean of the subscale as suggested by each of the manuals.

Parametric Assumptions. Each individual's data were collected separately, with no relationships between participants. Participants were also recruited using sampling methods that do not pose a systematic bias; therefore the assumption of independence of observations was not violated.

Before statistical analysis of the data, the demographic and questionnaire measures were examined to ascertain their distribution. All but the HADS scales were found to represent normal samples. Normal curves were observed on histograms and analysis of skewness and kurtosis (Kolmogorov-Smirnov test) revealed figures less than +/- 1 (a conservative guide as suggested by Morgan, 2004).

Creating box-plots revealed that both the HADS Anxiety and Depression scales included outliers which were skewing the data. In the HADS Anxiety scale, one outlier had their score replaced with the next highest score from the sample, plus one, as suggested by (Morgan, 2004). The HADS Depression scale included four outliers, each of which had their scores replaced with the next highest score from the sample, plus one, in succession. Following this manipulation both of the HADS scales formed normal distributions acceptable for parametric statistical analysis.

It was necessary to check linearity for different variables across numerous hypotheses, therefore a matrix scatterplot was created using SPSS. All combinations showed linear or no relationship; therefore, with no curvilinear patterns this assumption was not violated.

Demographic characteristics of groups. As suggested by the literature, certain demographic variables may influence BI aside from the influence of time. Age and extent of injury appear particularly important. Statistical analyses were therefore conducted in order to determine whether significant group differences could be accounted for by extraneous variables and to assess group homogeneity for further analysis.

Groups were compared on each demographic variable using one-way ANOVA for age and Pearson Chi-squared for all other categorical variables, using group (Inpatient, Transition and Established) as the independent variable (IV). No significant differences were found between three groups on age ($F(2,99)=0.19$, $p=.83$), ethnicity ($\chi^2(8, N = 102) = 13.95$, $p = .083$), relationship status ($\chi^2(14, N = 102) = 10.69$, $p = .710$), educational attainment ($\chi^2(12, N = 102) = 13.81$, $p = .313$), cause of injury ($\chi^2(14, N = 102) = 15.21$, $p = .364$), level of injury[13] ($\chi^2(6, N = 102) = 7.76$, $p = .256$) or completeness of injury ($\chi^2(4, N = 102) = 6.56$, $p = .161$).

---

[13] Spinal cord injury levels are used to explain some of the variation in severity of paralysis. Generally, the higher the level of injury to the nerves of the spinal cord, the greater the degree of paralysis will result. Cervical nerves (C2-8) are the highest on the spine, followed by the Thoracic nerves (T1-12) followed by the Lumbar (L1-5) nerves.

Results

Participant Demographics

A total of 106 participants were recruited for this study; four were removed due to missing data or ineligibility. The remaining 102 participants fell into one of three categories, inpatient (n = 32), transition (n = 34) or established (n = 36). Outpatients were split into categories based on the amount of time since they were discharged. The transition group, so called because they are clinically transitioning from inpatient to outpatient services, were discharged four to 18 months previously (M = 9 months, SD = 0.32). The established group, so called because they are established into the community, were discharged between 18 months and five years (M = 3 years, SD =1.2) at the date of participation. Further demographic data can be found in Table 2. As age was considered a particularly important demographic variable, ANOVA was used in order to assess the impact of age across the four major variables used in the further analysis (HADS Depression scale, BI investment, BI evaluation, BI Quality of Life Inventory). None of these showed significant effects of age, (HADS Depression: *F* (6,101) = 0.49, *p*=.82), investment: *F* (6,101) = 1.62, *p*=.15, evaluation: (*F* (6,101) = 0.32, *p*=.93, and BIQLI: (*F* (6,101) = 0.91, *p*=.49).

Table 2 *Demographics and Clinical Characteristics of Study Participants (N = 102).*

Variable	Inpatient (n=32)	Transition (n=34)	Established (n=36)	*% of total sample*
Age				
18-25	1	3	4	7.8
26-35	5	2	4	10.8
36-45	6	7	5	17.6
46-55	4	10	7	20.6
56-65	9	8	6	22.5
66-75	5	2	9	15.7
76-85	2	2	1	4.9
Ethnicity				
White British	31	34	28	91.2
White Irish	0	0	1	1.0
Black British	1	0	2	2.9
Indian	0	0	1	1.0
Not specified	0	0	4	3.9
Relationship Status				
Single	6	7	6	18.6
In a relationship	3	1	1	4.9
Cohabiting	3	2	1	5.9
Married	17	18	19	52.9
Separated	0	0	1	1.0
Divorced	2	5	6	12.7
Widowed	1	0	1	1.0
Not specified	0	1	2	2.9

Education				
No formal qualification	2	1	3	5.9
Primary	3	1	1	4.9
Secondary	17	11	13	40.2
Diploma	5	13	12	29.4
Degree	5	6	6	16.7
Postgraduate	0	2	0	2.0
Other	0	0	1	1.0
Cause of Injury				
Fall	9	9	16	33.3
Sporting accident	3	6	15	13.7
Other accident	1	2	3	5.9
RTA	5	8	6	18.6
Assault	2	0	0	2.0
Post-operative complications	1	3	1	4.9
Other medical	10	6	5	20.6
Unexplained	1	0	0	1.0
Level of Injury				
C2-8	16	13	23	51.0
T1-12	14	14	10	37.3
L1-5	2	6	2	9.8
Not specified	0	1	1	1.9
Type of Injury				
Complete	8	15	12	34.3
Incomplete	24	16	22	60.8
Not specified	0	3	2	4.9

Note. See footnote on p.82 for brief explanation of the injury levels of the spinal cord (C, T and L).

Body Image and Mood: from Inpatient to Community Living (H:1)

In order to test hypothesis one and determine if there are significant group differences in BI evaluation an ANOVA was conducted.

Further exploratory analysis was conducted in line with the literature. The literature indicates that there may be changes over time in the way individuals with SCI evaluate and invest in their appearance. It has also been suggested that the methods of coping with dissatisfaction with one's BI may change as individuals adjust to a changed appearance. The impact of BI upon quality of life is suggested to change correspondingly. In turn these BI factors may influence psychological wellbeing such as depression and anxiety. The results of the ANOVA, along with the means and standard deviations for each measure can be found in Table 3.

Table 3

Means and SDs of all Questionnaire Measures for each Group

Measure	Inpatient (n=32)		Transition (n=34)		Established (n=36)	
	Mean	*(SD)*	*Mean*	*(SD)*	*Mean*	*(SD)*
HADS Anxiety	6.19	(3.60)	5.82	(3.80)	6.40	(3.92)
HADS Depression	5.90	(4.47)	5.74	(3.21)	6.06	(3.54)
ASIR Self Evaluative Salience	2.33^a	(0.88)	2.52	(0.70)	2.85^b	(0.76)
ASIR Motivational Salience	3.29	(0.72)	3.22	(0.84)	3.31	(0.91)
BICSI Appearance Fixing	0.89	(0.66)	0.82	(0.59)	0.97	(0.66)
BICSI Avoidance	0.71	(0.62)	0.85	(0.58)	0.89	(0.49)
BICSI Positive Rational Acceptance	1.44	(0.67)	1.16	(0.57)	1.28	(0.55)
BIQLI Quality of Life	0.05	(0.77)	-0.03	(1.04)	-0.10	(1.41)
MBSRQ-AS Appearance Evaluation	3.25^a	(0.98)	2.95	(0.73)	2.69^b	(0.82)
MBSRQ-AS Appearance Orientation	2.85	(0.78)	2.88	(0.72)	3.06	(0.80)
MBSRQ-AS Body Satisfaction Scale	3.23	(0.84)	3.19	(0.73)	2.97	(0.79)
MBSRQ-AS Overweight Preoccupation	1.99	(0.97)	2.13	(0.73)	2.48	(0.92)
MBSRQ-AS Self Classified Weight Scale	2.92^a	(1.00)	3.25	(0.67)	3.49^b	(0.83)

Note. Within rows, means with differing subscripts are significantly different (at the .05 level) using Bonferroni correction. See appendix O for scoring details and theoretical ranges.

An appropriate Bonferroni correction for multiple comparisons gives a corrected significance level of 0.004. This is felt to be overly conservative, especially given that the results match those hypothesised; however, some caution is needed in the interpretation of significance.

Hypothesis one stated that male outpatients with spinal cord injuries would report poorer body image evaluation than inpatients. In order to test this ANOVA was carried out. Significant differences were found between groups in their evaluation of their appearance as measured by MBSRQ-AS Appearance Evaluation Scale, F (2, 99) = 3.69, p = .029. Bonferroni post hoc comparisons showed that the mean for the inpatients (M = 3.25, SD = 0.98) differed significantly from the mean of established (M = 2.69, SD = 0.82). It appears that established (outpatient) participants rate their physical appearance as significantly less attractive than inpatients. There was no significant difference between the mean of inpatients and transition (M = 2.95, SD = 0.73) nor the two outpatient groups.

In further exploratory analysis it was found that groups differed significantly on the ASI-R Self Evaluative Salience scale, F (2, 99) = 3.78, p = .026, with post hoc Bonferroni comparisons indicating that the mean for the inpatients (M = 2.33, SD = 0.88) differed significantly from the mean of established (M = 2.85, SD = 0.76)[14]. Thus, it seems that established participants define themselves by their physical appearance significantly more than inpatients. There were no significant differences between the mean of inpatients and transition (M = 2.52, SD = 0.70) nor the two outpatient groups.

Finally, there were also significant results of the group comparisons of self-classified weight (MBSRQ-AS), F (2, 99) = 3.83, p = .025, with post hoc comparisons using the Tukey HSD test indicating that the mean for the inpatients (M = 2.92, SD = 1.00) differed significantly from the mean of established (M = 3.49, SD = 0.83). This suggests that established participants rated themselves as significantly heavier than inpatients. There was no significant difference between the mean of inpatients and transition (M = 3.25, SD = 0.67) nor the two outpatient groups.

---

[14] Further details regarding the meaning of high and low scores for the measures can be found on page 78-80

As can be seen in Table 3, the groups did not differ significantly on the following measures: HADS Anxiety (F (2, 99) = 0.22, p = 0.81), HADS Depression (F (2, 99) = 0.64 p = 0.94), ASIR Motivational Salience (F (2, 99) = 0.11, p = 0.89), BICSI Appearance Fixing (F (2, 99) = 0.49 , p = 0.62), BICSI Avoidance (F (2, 99) = 1.00, p = 0.37), BICSI Positive Rational Acceptance (F (2, 99) = 1.72, p = 0.19), BIQLI Quality of Life (F (2, 99) = 0.15, p = 0.86), MBSRQ-AS Appearance Orientation (F (2, 99) = 0.81, p = 0.44), MBSRQ-AS Body Satisfaction Scale (F (2, 99) = 1.13, p = 0.33), MBSRQ-AS Overweight Preoccupation (F (2, 99) = 2.82, p = 0.065); thus, it appears that patient status had no significant impact upon these variables.

Relationship between Body Image, Mood and Quality of Life (H:2)

Hypothesis two predicted that body image evaluation would negatively correlate with BI quality of life and positively correlate with negative affect in all patients in the sample. This means that it was predicted that those who rated themselves as dissatisfied with their appearance would report poorer BI quality of life and more low mood and anxiety. Correlations were initially conducted in order to first establish the relationships between the different constructs of BI. Correlations were considered significant only where $p<.01$ due to multiple correlations being carried out (see Table 4).

BI evaluation, as measured by the MBSRQ-AS Appearance Evaluation scale, correlated with the MBSRQ-AS Body Areas Satisfaction scale ($r = .78$, $p < .01$). Both of these subscales measure how positively or negatively participants rated the appearance of their body.

BI evaluation (as measured by MBSRQ-AS Appearance Evaluation and Body Areas Satisfaction scale) correlated positively with BI quality of life as measured by the BIQLI, ($r = .45$, $p < .01$ and $r = .41$, $p < .01$). This means that as participants evaluated their BI more negatively, their BI quality of life became poorer as predicted by hypothesis two.

BI evaluation, as measured by the Appearance Evaluation scale correlated negatively with HADS depression ($r = -.45$, $p < .01$), along with the Body Areas Satisfaction scale which demonstrated a negative correlation ($r = -.39$, $p < .01$); those who were more satisfied with their bodies had more positive affect whilst negative BI evaluation was associated with low mood. This result again supported hypothesis two.

BI evaluation, as measured by the MBSRQ-AS Appearance Evaluation scale and MBSRQ-AS Body Areas Satisfaction scale, showed weak but significant negative correlations with HADS anxiety (r = -0.28, p < .01) and (r = -.27, p < .01) respectively.

Additional correlations were carried out in order to further explore the data. Some of the most interesting findings are presented here. BI investment, as measured by the two ASIR sub scales (Self- Evaluative Salience and Motivational Salience) were positively correlated with the MBSRQ-AS Appearance Orientation scale (r = .56, p = .01 and r = .70, p = .01). None of these scales correlated significantly with BI quality of life or low mood.

Secondly, the maladaptive coping subscales, BICSI Avoidance and Appearance Fixing, were positively correlated (r = .34, p = .01), meaning those who use one strategy tended to use the other. However, only avoidance was positively correlated with low mood (HADS Depression scale); higher levels of low mood being associated with greater reported use of avoidance. There was no significant correlation between appearance fixing and low mood. Both avoidance and appearance fixing correlated with anxiety (HADS Anxiety scale) with positive correlations (r = .35, p = .01 and r = .33, p = .01) respectively. Greater levels of anxiety were related to the use of more maladaptive coping strategies. The maladaptive coping strategies were not correlated with BI quality of life (BIQLI).

Finally the positive coping strategy, positive rational acceptance (as measured by the ASIR subscale), is not correlated with either body image quality of life or positive affect as might have been expected from previous research findings.

Table 4

Correlations between Dependent Variables

Measure	1	2	3	4	5	6	7	8	9	10	11	12	13
1. HADS Anxiety	-												
2. HADS Depression	.479**	-											
3. ASIR Self Evaluative Salience	.305**	.126	-										
4. ASIR Motivational Salience	-.017	-.253*	.469**	-									
5. BICSI Appearance Fixing	.328**	.082	.628**	.395**	-								
6. BICSI Avoidance	.354**	.416**	.415**	-.134	.341**	-							
7. BICSI Positive Rational Acceptance	.243*	-.077	.320**	.206*	.333**	.330**	-						
8. BIQLI Quality of Life	-.320**	-.408**	-.233*	.040	-.223*	-.319**	.007	-					
9. MBSRQ-AS Appearance Evaluation	-.284**	-.446**	-.457**	-.070	-.331**	-.506**	-.022	.453**	-				
10. MBSRQ-AS Appearance Orientation	.075	-.065	.563**	.698**	.570**	.136	.174	-.016	-.216*	-			
11. MBSRQ-AS Body Satisfaction Scale	-.270**	-.386**	-.430**	-.176	-.315**	-.378**	-.058	.406**	.775**	-.277**	-		
12. MBSRQ-AS Overweight Preoccupation	.135	.046	.440**	.126	.352**	.443**	.104	-.100	-.544**	.377**	-.490**	-	
13. MBSRQ-AS Self Classified Weight	.020	.013	.048	-.147	.071	.196*	-.049	-.142	-.334**	.006	-.175	.516**	-

Note. **. Correlation is significant at the 0.01 level (2-tailed). *. Correlation is significant at the 0.05 level (2-tailed).

Multicollinearity. In order to explore if a relationship existed between BI evaluation and investment upon low mood (hypothesis three), linear regression analysis was used. In order to reduce multicollinearity, correlations between the scales measuring these constructs were examined prior to the use of the regression. Of concern were the strong correlations between the scales that measured BI evaluation and separately between the scales that measured BI investment constructs. The MBSRQ-AS Appearance Evaluation scale was positively correlated with MBSRQ-AS Body Satisfaction scale ($r = .78$, $p < .01$). The highly correlated MBSRQ-AS Appearance Evaluation scale scores were added to the MBSRQ-AS Body Satisfaction scale scores to form a new factor labeled BI ‘evaluation’.

MBSRQ-AS Appearance Orientation was positively correlated with ASIR Self Evaluative Salience ($r = .56$, $p < .01$) and ASIR Motivational Salience ($r = .70$, $p < .01$), all of which measure BI investment. The 20 ASIR items measure the extent to which participants defined themselves by and attended to their appearance. These items were separated into two subscales (Self Evaluative Salience and ASIR Motivational Salience), which can be averaged to form a composite score (Cash, Melnyk, et al., 2004) . The ASIR Composite scores were added to the MBSRQ-AS Appearance Orientation scale scores to create a new factor labeled BI ‘investment’.

Interaction factor and Z-scores. Z scores of the ‘investment’ and ‘evaluation’ factors were calculated in order that an interaction factor could be created. By using z-scores each of the factors were adjusted (M= 0 and SD = 1), enabling the interaction factor to have equal weighting from each factor when they were multiplied (evaluation x investment).

Moderated Effect of Body Image Investment on Low Mood (H:3)

As discussed in the introduction, evidence has been presented in disfigurement literature suggesting that BI dissatisfaction is significantly associated with depression, accounting for a substantial proportion of the variance (18%, Thombs et al., 2007). BI investment also appears to play an important role in outcome (Thombs et al., 2008). These research findings are reflected in hypothesis three which stated that BI evaluation and BI investment would account for variance in scores of low mood in men with SCI. It was also hypothesised that an interaction would exist within this relationship. Those reporting high investment and BI dissatisfaction would report more negative affect than those with low investment and BI dissatisfaction. For those who report satisfaction with their BI the level of investment would not influence the level of low mood. In order to explore this hypothesis and establish which variables were predictive of low mood in this sample, it was necessary to carry out a multiple regression.

As both investment in BI and evaluation of BI are considered to be conceptually important, these variables were entered into the regression model using a hierarchical method. The predictor and moderator factors were entered into the model at step 1 (‘evaluation’ and ‘investment’). The interaction factor (‘evaluation’ multiplied by ‘investment’) was added at step 2.

Model 1 significantly contributed to the prediction of low mood, F (2, 99) = 16.02, $p < .001$, with investment (t (99) = -2.52, p= .014) and evaluation (t (2, 99) = -5.63, p < 001) both adding significant contributions to the prediction. The addition of the interaction factor added extra predictive value, as shown by the increase in the adjusted R^2 value from $R^2 = .229$ to an $R^2 = .26$, F (1, 98) = 12.85, $p < .001$.

The beta weights, presented in Table 5, suggest that negative BI evaluation contributes most to predicting low mood and that investment and the interaction between evaluation and investment also contributes to this prediction. Whilst the data used in the regression analysis was continuous, median splits of the evaluation and investment factors, producing low and high groups, have been used to present the results illustrated in Figure 3. These groups were used only for the graph not in the computation of the regression analysis. This graph demonstrates that investment in BI has a moderating effect on low mood (HADS Depression) for those who report BI dissatisfaction (Evaluation factor). These results are plotted in Figure 3.

Table 5

Regression to Explore the Moderating Effect of Body Image Investment

Variable	B	SEB	β	p
Model 1				
Investment(I)	-.871	.346	-.234	.014
Evaluation E)	-1.949	.346	-.524	<.001
Model 2				
Investment (I)	-.952	.341	-.256	.006
Evaluation (E)	-.202	.341	-.543	<.001
I x E	.587	.259	.196	.025

Note. B = unstandardized beta weights, SEB = Standard error of B, β = standardized beta weights.
Model 1 adjusted R^2 = .229, F change (2, 99) = 16.02, p <.001. Model 2 change in R^2 = .038, F change (1, 98) = 5.16, p = 0.025
Tolerance and VIF were acceptable throughout (Morgan, 2004).

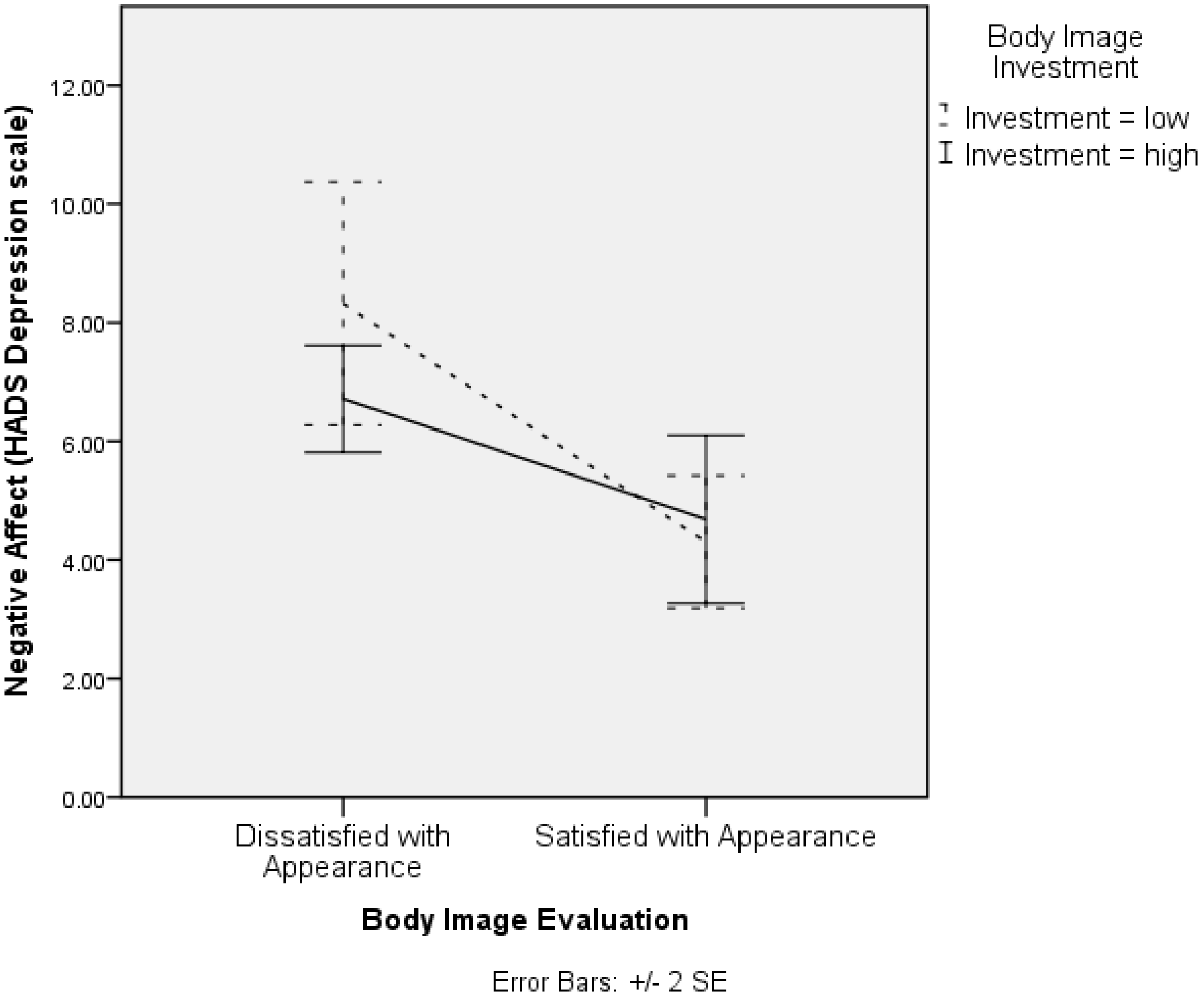


Figure 3. Interaction between Satisfaction with Appearance and Body Image Investment upon Negative Affect.

The adjusted R squared value of the final model (including the interaction) was .26, indicating that 26% of the variance in low mood was explained by simply BI evaluation and BI investment[15]. These results support hypothesis three showing that BI investment and BI evaluation account for some of the variance in negative affect (low

---

[15] In order to check that the effect was not due ASIR Motivational Salience representing a symptom of depression, the ASIR Composite scale was substituted with the individual item ASIR Self Evaluative Salience; a similar pattern of results was found.

mood). However, the predicted direction of interaction was not supported by this data. Where it was predicted that high investment would yield more negative affect when participants were dissatisfied with their bodies, instead those who reported low investment and poor evaluation of their BI reported the most negative affect.

Moderated Effect of Coping on Quality of Life (H:4)

The final hypothesis made predictions about the relationship between the use of coping strategies and BI quality of life. Hypothesis four predicted that male SCI patients who use maladaptive coping strategies would have poorer BI quality of life than those who did not.

Three coping strategies were identified using the Body Image Coping Strategies Inventory (BICSI), with participants revealing the frequency which they used each of the three subscale strategies, Avoidance, Appearance Fixing and Positive Rational Acceptance. The first two of these are both conceptualised as negative strategies (Cash et al., 2005) with the third representing a positive strategy.

Avoidance and Appearance Fixing were found to be positively correlated (r = .34, p = .01) and were combined into an overall maladaptive coping variable[16]. A median split was used to produce two groups; those who used maladaptive coping and those who did not[17]. The median split technique was used because this was a straightforward way of investigating the interaction between patient status and coping strategy. A 3x2 univariate analysis of variance was chosen as the most appropriate statistical test to assess group differences (three levels of patient status; inpatient, transition and established, and two levels of coping; those who use maladaptive coping and those who do not). It was hypothesised that maladaptive coping strategy would moderate the impact of patient status upon BI quality of life; therefore an interaction variable was generated as detailed previously.

---

[16] This new variable continued to meet the assumptions necessary for parametric analysis.

[17] The median split intercepted Likert scale boundaries of the BICSI of ‘definitely not like me’ and ‘mostly not like me’, indicating that the use of maladaptive coping strategies of those falling below the lower limit of the median split were negligible.

Significant main effects of coping were found, *F* (1, 96) = 7.19, *p* = .009, further qualified by a significant patient status x coping interaction, *F* (2, 96) = 3.52, *p* = .033[18]. Pairwise comparisons revealed significant differences only in the established patient group, indicating that once settled in the community, those who used maladaptive coping strategies had significantly poorer BI quality of life. Coping strategies did not have a significant impact on BI quality of life in the patient groups who had not yet reached this stage (Table 6 and illustrated by Figure 4). No significant main effect of patient status was found, *F* (2, 96) = 0.04, *p* = .964.

---

[18] Age was added into the analysis due to previous literature suggesting its importance. A similar pattern of results was indicated with the inclusion of age. Age was found to be significant with *F* (1, 95) = 5.26, *p* = .024, with correlations revealing that as men aged their body image quality of life improved.

Table 6

Mean, SD and Pairwise Comparisons Assessing the Effect of Maladaptive Coping on Body Image Quality of Life in each Patient Status Group.

Patient Status	*n*	*M*	*SD*	*df*	*t*	*p*
Inpatient						
Maladaptive coping	11	0.038	0.75	30	0.05	.964
No maladaptive coping	21	0.052	0.81			
Transition						
Maladaptive coping	20	-0.18	1.19	32	1.02	.316
No maladaptive coping	14	0.19	0.91			
Established						
Maladaptive coping	20	-0.70	1.24	34	3.187	.003**
No maladaptive coping	16	0.64	1.27			

Note. ** p < .01.

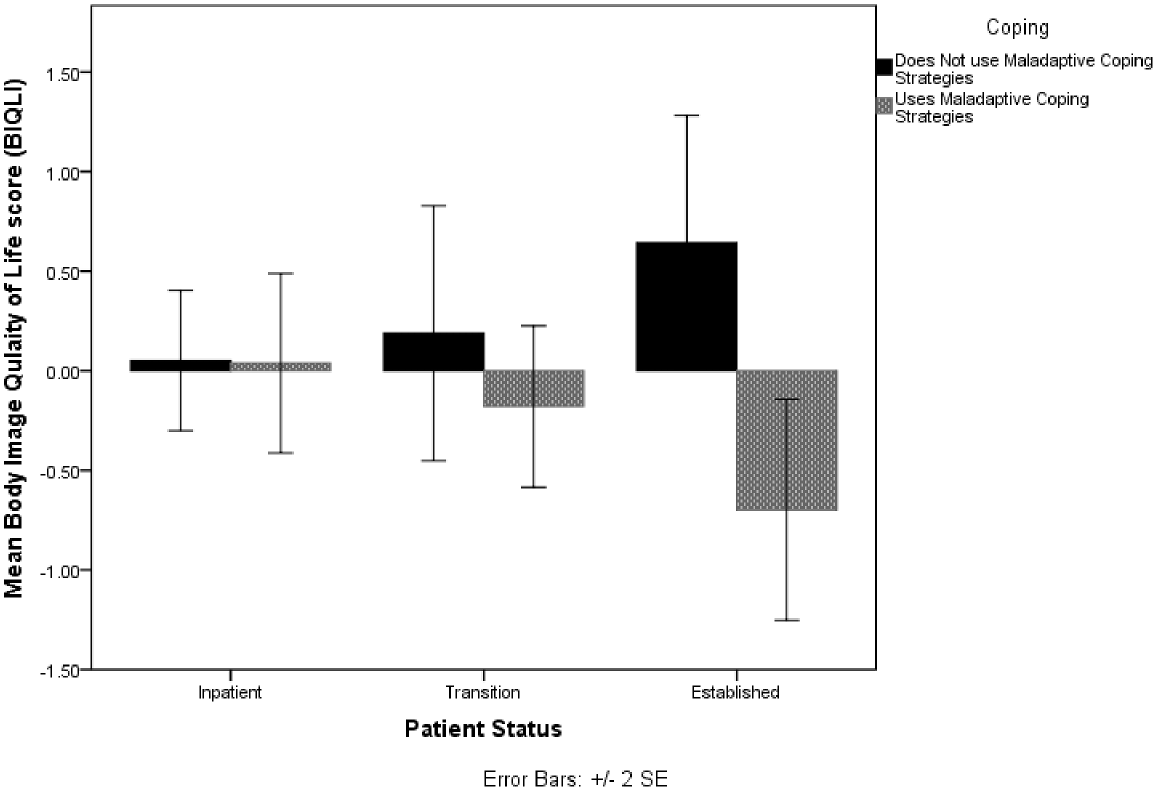


Figure 4. Interaction between Patient Status and use of Maladaptive Coping Strategies upon BI Quality of Life.

The interaction effect of maladaptive coping upon quality of life for patients in the three patient status groups is illustrated by Figure 4. The established patients show a greater difference in their self-reported BI quality of life than those in transition or inpatient groups. Once they are established in the community, those who use maladaptive coping reported poorer BI quality of life than those who do not use maladaptive coping strategies.

The adaptive coping strategy, Positive Rational Acceptance (BICSI subscale), did not show any significant effects of BI quality of life, patient status or interaction (*F* (1, 96) = 0.26, *p* = .614, *F* (2, 96) = 0.08, *p* = .926 and *F* (2, 96) = 0.1, *p* = .906, respectively).

Discussion

Summary of Main Findings

This study aimed to explore BI and psychosocial wellbeing in men with spinal cord injuries, with a specific focus upon patient status. It sought to build upon theoretical models and empirical evidence from other populations in relation to the impact of BI dissatisfaction upon negative affect (low mood and anxiety). Furthermore, it looked to investigate the effect of BI coping strategies upon BI quality of life. The clinical objective of this research was to provide evidence for the need for increased assessment of BI concerns in men with SCI at the most efficacious point in rehabilitation. Additionally, the objective was to suggest targets for clinical intervention and improve the wellbeing of those with BI dissatisfaction.

The results indicated that men with SCI who were established in the community, reported more BI dissatisfaction, as measured by the MBSRQ-AS *Appearance Evaluation* scale, than those who were inpatients of the hospital undergoing rehabilitation. This result partially supported hypothesis one, as the patient status group who were 'established' within the community (outpatients) reported significantly more BI dissatisfaction than the 'inpatients'. However no significant differences were found between the 'established' and 'transition' outpatient status groups. Many associations were found between the BI and psychosocial variables. Key relationships indicated that those who were dissatisfied with their appearance also reported more negative affect (especially symptoms of low mood) and poorer BI related quality of life, as hypothesised in hypothesis 2.

In this sample, low mood was significantly associated with BI dissatisfaction and

BI investment. As shown in figure 3, a significant interaction was also found. This interaction indicated that when participants were dissatisfied with their appearance and reported low levels of investment, they tended to report the most negative affect. This is contrary to the direction of relationship predicted in hypothesis 3.

Maladaptive coping strategies were found to be associated with low mood and anxious symptomology; however, the adaptive coping strategy did not appear to play a key role. Those using maladaptive coping strategies showed significantly poorer BI related quality of life once established in the community, as compared to inpatients (as stated in hypothesis 4). Although patients in the transition group who were using maladaptive coping strategies had lower mean quality of life than those who did not use maladaptive coping this difference was not found to be significant.

Interpretation of Main Findings

The three groups did not significantly differ on demographic factors (age, relationship status, educational attainment, cause of injury, level of injury or completeness of injury); therefore, there is no evidence that these factors were the reason for the reported group differences.

Analysis revealed that men with SCI who were established in the community had significantly poorer BI evaluation scores (MBSRQ-AS Appearance Evaluation scale) than inpatients. This indicated that they were experiencing more dissatisfaction about the appearance of their bodies, supporting the initial hypothesis. Previous literature and theoretical models can be used to infer that BI becomes a greater concern once men are no longer dealing with the immediate physical and medical consequences of SCI, and have transitioned into the community. Over time, perhaps social comparison (as suggested by Cash & Pruzinsky, 2002) is the mechanism by which BI concern begins to develop. Whilst in hospital, participants were in a SCI ward where the vast majority of other people had also experienced similar bodily changes to themselves (65 patients, far fewer medical staff and visitors). Only when discharged would the balance shift to the majority being able bodied individuals. A trend in the data revealed that those in the transition group reported more BI dissatisfaction than inpatients, which also supports this conclusion.

Those in the established group also showed significant differences in the level of investment in their BI (ASIR, *Self Evaluative Salience*) compared to the inpatient group. In particular, this scale refers to the extent these men defined themselves and their self-worth by their physical appearance. Previous research has identified that defining oneself by ones appearance is linked to more BI dissatisfaction (Cash, 1994), a conclusion which is supported here. Data from other studies indicate that greater investment in one's appearance is associated with poorer overall BI quality of life Cash, Melnyk, et al. (2004).

Interestingly, participants in the established group also reported being significantly heavier than inpatient group. When drawing inferences from these findings, it is important to bear in mind the meaning of the categories in interpreting this difference. The mean for inpatients (M = 2.92) corresponds to a value between the categories of "somewhat underweight (1)" and "normal weight (2)" with the mean for outpatient at time 2 (M = 3.49, SD = 0.83) between "normal (2)" and "somewhat overweight (3)". Therefore, BI differences are not thought to be accounted for simply by self-reported weight differences.

The correlations found in the data suggested that further analysis was warranted. Indeed, the regression analysis indicated that both BI evaluation and BI investment play a significant role in accounting for variance in low mood. It was hypothesised that those who invest in their appearance and report BI dissatisfaction would report the lowest mood. This hypothesis was not supported. In fact, those with the lowest mood reported that they did not define themselves by their appearance. One interpretation of this result, which would still support previous research evidence, is that those who were most dissatisfied with their appearance sought to adjust their values and beliefs regarding the importance of appearance, in order to cope with their dissatisfaction. Wienke (1998), using a narrative qualitative approach, concluded that the men in his study were reformulating their own standards in order to cope with bodies which they viewed to be far from the masculine ideal. Perhaps the men in this study were in the process of adjusting their own values in order to cope. It is possible that this group of men reported that their bodies were not important to them in order to protect their self-esteem whilst simultaneously reporting body dissatisfaction. If this cognitive processing strategy had not yet altered their BI attitudes at the belief level, then appearance dissatisfaction may still be associated with low mood.

Another result which supports previous findings was that those who were satisfied with their appearance showed no significant difference in low mood, whether or not they were highly invested in their appearance. Those who were highly invested in their appearance and were also satisfied with their appearance also tended to show most positive mood. This result could be interpreted as further supporting Wienke (1998), suggesting that these men as no emotional conflict occurred between the ideal appearance and actual appearance of the body.

The final and perhaps most clinically applicable finding, was that BI quality of life in male SCI patients differed significantly in those who used the maladaptive coping strategies ‘avoidance’ and ‘appearance fixing’. The influence of these maladaptive coping strategies was greatest in the established group. Those who used maladaptive strategies reported their BI had a negative effect on their quality of life, whereas those who did not use maladaptive strategies reported their BI had a positive effect on their quality of life.

Avoidance included behaviour such as withdrawing and interacting less with others, avoiding looking in the mirror and tuning out thoughts and feelings about their bodies. Appearance fixing included strategies such as trying to cover up what they found troublesome about their looks, spending time thinking about how to look different or spending time in front of the mirror. It appears that these strategies influenced how much impact BI had upon their quality of life. Those with poor BI quality of life felt that their appearance influences which activities they choose for exercise, their dietary choices, personal and professional relationships and even how happy they felt in everyday life. It is unsurprising that those with poor BI quality of life also reported higher levels of low mood and anxiety.

The adaptive coping strategy, positive rational acceptance, did not show any significant influence upon quality of life, nor did it indicate a significant relationship with positive affect. It did however, show positive correlations with the maladaptive strategies reported by these participants. It appears that those who used the maladaptive strategies were also using adaptive strategies. Conversely, in a student sample, Cash et al. (2005) reported that for both women and men a greater BI quality of life was related to less use of avoidant coping and greater use of positive rational acceptance. Perhaps, as previous qualitative research in clinical populations has indicated, this positive strategy cannot be sustained long enough in those who are adjusting to altered appearances to have a positive impact upon quality of life or affect (Thompson et al., 2002).

Theoretical Implications

Theoretical models of BI can be used to explain patterns of results found in this study. However, as there is so little research in this clinical population, this empirical evidence can also be used to support and expand upon models of BI after a change to physical appearance. The evidence regarding the influence that coping strategies can have upon psychosocial functioning is particularly important. The work by Cash and colleagues (Cash & Pruzinsky, 2002; Cash et al., 2005) is supported by this study, which provides evidence in a clinical sample of how coping impacts BI attitudes (as predicted by the BI cognitive behavioural model) and affect.

When reflecting upon the acquired disfigurement models of staged adjustment BI disturbance (Horgan & MacLachlan, 2004; Partridge, 2005), it is concluded that evidence from this study provides partial support. Indeed, the status of patients (i.e. stage of recovery or rehabilitation) appears to be of importance. Those who had inpatient status reported less BI dissatisfaction (perhaps BI was not salient due to the physical trauma and adjustment to the health and motor consequences of paralysis being the primary focus) than those who had been discharged into the community. However, after 18 months in the community these models might predict that men would have reached the stage of ‘advocacy’ (Partridge, 2005; Thombs et al., 2008) or ‘long term adaptation phase’ and begin to show decreased influence of their appearance dissatisfaction upon their wellbeing. This element of Partridge (2005) and Thombs et al. (2008) models was not supported by the data here. It was found that investment in appearance actually increased over time, and that those who had low investment were in fact reporting the highest levels of negative affect. It is worth considering methodological issues here regarding the validity of the scales used to measure investment. Alternatively, perhaps there is a difference in the SCI population. Perhaps the length of time after discharge necessary for positive adaptation to a changed body is greater after SCI. Investigation of these issues could be a clear objective for further studies.

Clinical Implications

The clinical relevance of this research is widespread and far reaching. It indicates the impact that BI dissatisfaction and maladaptive coping strategies can have upon the quality of life and psychological wellbeing of men with SCI.

Currently, at the SDH Spinal Unit, as in the many other specialist SCI units across the country, there is no formal assessment of BI concerns. Problems are only picked up if a patient explicitly states that BI is an issue. In a male dominated ward (with the associated pressures of masculinity norms), clinical observation suggests that males initiating discussion about BI is rare. Concerns may well be trivialised by responses from others, believing that such concerns are inevitable and irredeemable. Evidence provided here suggests that men should be assessed for BI concerns after the transition into the community. Perhaps, included as part of the annual health check, these men could be assessed using a variety of measures similar to those used here.

This research provides evidence that BI dissatisfaction is associated with higher levels of depressive symptoms, and that using maladaptive coping strategies to manage BI dissatisfaction has implications across a wide range of psychosocial domains. Whilst these consequences would be thought of as detrimental in any population, for those with SCI the physical consequences can be much greater. Physical complaints such as pressure sores and poor cardiovascular health can be fatal (Backhaus et al., 2011; Harding-Okimoto, 1997; Thietje, Kowald, & Hirschfeld, 2011).

The symptoms of depression (DSM-IV, 1995) are such that motivation can decrease, self-care may become less important, there may be appetite changes and increased social and activity withdrawal. There may also be increases in behaviour such as smoking (Cargill, Emmons, Kahler, & Brown, 2001). It is evident that the physical effects of low mood are of paramount importance in this population. It is greatly important to engage in self-care routines (bowel and bladder care), eat a healthy diet and reduce smoking (Vogt, Hanscom, Lauerman, & Kang, 2002) to keep skin quality at its best (in order to reduce the prevalence and persistence of pressure sores). Remaining active in order to enhance independence in those with SCI is also vital.

Similarly, the maladaptive coping strategies can have equally serious consequences for those with SCI. Avoiding looking in the mirror could have a severe detrimental consequence in the reduction of self-checks for pressure sores. There may also be other consequences of avoidance strategies, such as failure to catheterise leading to bladder problems, failure to perform bowel care, impact upon sexual or intimate relationships, all of which have huge physical and psychological impacts.

Similarly, a possible appearance fixing strategy is spending time trying to fix a problem area. One area that is frequently a cause for concern in men is the mid torso, where abdominal muscles no longer hold in the organs, instead causing them to sag out with the illusion of a fat stomach, sometimes referred to by patients “quad belly” (Chau et al., 2008). Dieting or disordered eating as a BI coping strategy could lead to pressure sores due to nutritional balance being vital in their prevention. Serious complications such as Fournier's gangrene are associated with pressure sores (Backhaus et al., 2011) and according to recent research in Germany they are the only major SCI-related complication leading to death in paraplegic patients who have lived with SCI (Thietje et al., 2011).

Limitations and Directions for Future Research

Whilst this study benefits from a large sample size (one of the largest UK samples of SCI individuals), covering a wide range of ages and demographic factors, the ethnicity of participants was approximately 90% white British. Therefore, although this study provides a good basis for generalisability across most demographic factors, any cultural differences in BI concerns of those of other ethnicities cannot be reliably inferred. It may be beneficial for future research to occur in a location with greater cultural difference, in order to recruit a more multicultural sample of participants. It is also important to note that, throughout each recruitment method, participants were self-selected. No data exist as to those who chose not to participate; therefore, it is difficult to know if this sample is representative. The scores for negative affect (HADS Depression and Anxiety) were found to be quite low; therefore it is possible that those with higher levels of distress chose not to engage in the research. Similarly, due to the way data were processed, it was also not possible to analyse any differences between participants who were recruited using different methods.

The questionnaire measures that were chosen all show acceptable levels of validity and reliability[19] and have been widely tested across many populations. It would, however, have been beneficial to have measured functional BI, especially considering the importance of physical function for men indicated in previous research. Future studies might look to explore the relationship between functional BI and appearance BI in men with SCI and to consider the relationship that functional BI has on both negative affect and coping.

---

[19] See Cronbach's Alpha levels on page 78-80.

Limitations of this research include the cross sectional design, meaning that it was not possible to draw firm inferences as to the trajectory of BI concerns over time or to causation. A longitudinal design would not have these caveats; however, in terms of practical and financial constraints the use of a cross sectional design was reasonable in order to explore the chosen hypotheses.

Concluding Remarks

This study aimed to explore the relationships between BI and psychosocial wellbeing in men with SCI. Results indicated that BI dissatisfaction was a real concern for men, in particular after transition into the community. It appeared that those men who were established in the community experienced an association between maladaptive coping strategies and poor BI related quality of life. More optimistically, those who did not use maladaptive coping reported a positive impact of their BI upon quality of life, thus providing an avenue for clinical input. The use of theory to guide this research has the added advantage of guiding such input, with data from this study suggesting that decreasing maladaptive coping strategies could be achieved through cognitive behavioural understanding.

References

Aaronson, N. K., Ahmedzai, S., Bergman, B., Bullinger, M., Cull, A., Duez, N. J., . . . Takeda, F. (1993). The European-Organization-for-Research-and-Treatment-of-Cancer Qlq-C30 - a Quality-of-Life Instrument for Use in International Clinical-Trials in Oncology. *Journal of the National Cancer Institute, 85*(5), 365-376. doi: DOI 10.1093/jnci/85.5.365

Agliata, D., & Tantleff-Dunn, S. (2004). The impact of media exposure on males' body image. *Journal of Social and Clinical Psychology, 23*(1), 7-22. doi: 10.1521/jscp.23.1.7.26988

American Psychiatric Association. (1995). *Diagnostic and statistical manual of mental disorders- DSM-IV* (4th ed.). Washington, D.C.

Anderson, T. P., & Andberg, M. M. (1979). Psychosocial factors associated with pressure sores. *Arch Phys Med Rehabil, 60*(8), 341-346.

Atisha, D., Alderman, A. K., Lowery, J. C., Kuhn, L. E., Davis, J., & Wilkins, E. G. (2008). Prospective analysis of long-term psychosocial outcomes in breast reconstruction - Two-year postoperative results from the Michigan Breast Reconstruction Outcomes Study. *Annals of Surgery, 247*(6). doi: 10.1097/SLA.0b013e3181728a5c

Backhaus, M., Citak, M., Tilkorn, D. J., Meindl, R., Schildhauer, T. A., & Fehmer, T. (2011). Pressure sores significantly increase the risk of developing a Fournier's gangrene in patients with spinal cord injury. *Spinal Cord, 49*(11), 1143-1146. doi: Doi 10.1038/Sc.2011.75

Baker, C. A. (1992). Factors Associated with Rehabilitation in Head and Neck-Cancer. *Cancer Nursing, 15*(6), 395-400.

Bassett, R. L., & Martin Ginis, K. A. (2009). More than looking good: Impact on quality of life moderates the relationship between functional body image and physical activity in men with SCI. *Spinal Cord, 47*(3), 252-256. doi: 10.1038/sc.2008.114

Bassett, R. L., Martin Ginis, K. A., & Buchholz, A. C. (2009). A pilot study examining correlates of body image among women living with SCI. *Spinal Cord, 47*(6), 496-498. doi: 10.1038/sc.2008.174

Beck, A. T., Brown, G., Epstein, N., & Steer, R. A. (1988). An Inventory for Measuring Clinical Anxiety - Psychometric Properties. *Journal of Consulting and Clinical Psychology, 56*(6), 893-897. doi: Doi 10.1037/0022-006x.56.6.893

Beck, A. T., Steer, R. A., & Garbin, M. G. (1988). Psychometric Properties of the Beck Depression Inventory - 25 Years of Evaluation. *Clinical Psychology Review, 8*(1), 77-100. doi: Doi 10.1016/0272-7358(88)90050-5

Bjelland, I., Dahl, A. A., Haug, T. T., & Neckelmann, D. (2002). The validity of the Hospital Anxiety and Depression Scale. An updated literature review. *J Psychosom Res, 52*(2), 69-77.

Boekamp, J. R., Overholser, J. C., & Schubert, D. S. P. (1996). Depression following a spinal cord injury. *International Journal of Psychiatry in Medicine, 26*(3), 329-349.

Breakey, J. W. (1997). Body image: The lower-limb amputee. *Journal of Prosthetics and Orthotics, 9*(2), 58-66.

Brown, T. A., Cash, T. F., & Mikulka, P. J. (1990). Attitudinal Body-Image Assessment - Factor-Analysis of the Body-Self Relations Questionnaire. *Journal of Personality Assessment, 55*(1-2), 135-144. doi: DOI 10.1207/s15327752jpa5501&2_13

Bruchon-Schweitzer, M. (1987). Dimensionality of the body-image: the body-image questionnaire. *Perceptual and Motor Skills, 65*(3), 887-892.

Cargill, B. R., Emmons, K. M., Kahler, C. W., & Brown, R. A. (2001). Relationship among alcohol use, depression, smoking behavior, and motivation to quit smoking with hospitalized smokers. *Psychology of Addictive Behaviors, 15*(3), 272.

Carver, C. S., Scheier, M. F., & Weintraub, J. K. (1989). Assessing Coping Strategies - a Theoretically Based Approach. *Journal of Personality and Social Psychology, 56*(2), 267-283. doi: Doi 10.1037//0022-3514.56.2.267

Cash, T. F. (1994). Body image attitudes - evaluation, investment and affect. *Perceptual and Motor Skills, 78*(3), 1168-1170.

Cash, T. F. (2002). An investigation of changes in body image following cosmetic surgery - Discussion. *Plastic and Reconstructive Surgery, 109*(1), 370-371. doi: Doi 10.1097/00006534-200201000-00061

Cash, T. F., & Fleming, E. C. (2002). The impact of body image experiences: Development of the Body Image Quality of Life Inventory. *International Journal of Eating Disorders, 31*(4), 455-460. doi: Doi 10.1002/Eat.10033

Cash, T. F., & Grasso, K. (2005). The norms and stability of new measures of the multidimensional body image construct. *Body Image, 2*(2), 199-203. doi: 10.1016/j.bodyim.2005.03.007

Cash, T. F., Jakatdar, T. A., & Williams, E. F. (2004). The Body Image Quality of Life Inventory: further validation with college men and women. *Body Image, 1*(3), 279-287. doi: 10.1016/s1740-1445(03)00023-8

Cash, T. F., Melnyk, S. E., & Hrabosky, J. I. (2004). The assessment of body image investment: An extensive revision of the Appearance Schemas Inventory. *International Journal of Eating Disorders, 35*(3), 305-316. doi: Doi 10.1002/Eat.10264

Cash, T. F., & Pruzinsky, T. (2002). *Body image : a handbook of theory, research and clinical practice*. New York ; London: Guilford.

Cash, T. F., Santos, M. T., & Williams, E. F. (2005). Coping with body-image threats and challenges: validation of the Body Image Coping Strategies Inventory. *J Psychosom Res, 58*(2), 191-199. doi: 10.1016/j.jpsychores.2004.07.008

Cash, T. F., & Smolak, L. (2011). *Body image : a handbook of science, practice, and prevention* (2nd ed. ed.). New York ; London: Guilford.

Cecil, R., McCaughan, E., & Parahoo, K. (2010). 'It's hard to take because I am a man's man': An ethnographic exploration of cancer and masculinity. *European Journal of Cancer Care, 19*(4), 501-509. doi: 10.1111/j.1365-2354.2009.01085.x

Chau, L., Hegedus, L., Praamsma, M., Smith, K., Tsukada, M., Yoshida, K., & Renwick, R. (2008). Women living with a spinal cord injury: Perceptions about their changed bodies. *Qualitative Health Research, 18*(2). doi: 10.1177/1049732307312391

Collins, K. K., Liu, Y., Schootman, M., Aft, R., Yan, Y., Dean, G., . . . Jeffe, D. B. (2011). Effects of breast cancer surgery and surgical side effects on body image over time. *Breast Cancer Research and Treatment, 126*(1). doi: 10.1007/s10549-010-1077-7

Conomy, J. P. (1973). Disorders of Body Image After Spinal Cord Injury. *Neurology, 23*(8), 842-850.

Couture, M., Desrosiers, J., & Caron, C. D. (2011). Cognitive appraisal and perceived benefits of dysvascular lower limb amputation: A longitudinal study. *Archives of Gerontology and Geriatrics, 52*(1). doi: 10.1016/j.archger.2009.11.002

Dazord, A., Terra, J. L., Manificat, S., & Boissel, J. P. (1994). A New French Instrument to Evaluate Patients Quality-of-Life - First Results. *Quality of Life Research, 3*(1), 41-41.

Elliott, T. R., & Kennedy, P. (2004). Treatment of depression following spinal cord injury: An evidence-based review. *Rehabilitation Psychology, 49*(2), 134-139. doi: Doi 10.1037/0090-5550.49.2.134

Every Eight Hours. (2013). Spinal Cord Injuries Day. Retrieved 1st March, 2013, from www.everyeighthours.com

Fauerbach, J. A., Heinberg, L. J., Lawrence, J. W., Bryant, A. G., Richter, L., & Spence, R. J. (2002). Coping with body image changes following a disfiguring burn injury. *Health Psychology, 21*(2), 115-121. doi: 10.1037/0278-6133.21.2.115

Fehlings, M. (2013). *Essentials of spinal cord injury : basic research to clinical practice*. New York: Thieme ; Birmingham : Computer Bookshops [distributor].

French, J. K., & Phillips, J. A. (1991). Shattered images: recovery for the SCI client. *Rehabilitation nursing : the official journal of the Association of Rehabilitation Nurses, 16*(3), 134-136.

Ganz, P. A., Coscarelli, A., Fred, C., Kahn, B., Polinsky, M. L., & Petersen, L. (1996). Breast cancer survivors: Psychosocial concerns and quality of life. *Breast Cancer Research and Treatment, 38*(2). doi: 10.1007/bf01806673

Gerschick, T., & Miller, A. (1994). Gender identities at the crossroads of masculinity and physical disability. *Masculinities, 2*, 34-55.

Gilbert, P. J., & Miles, J. (2002). *Body shame : conceptualisation, research and treatment*. Philadelphia, Pa. ; Hove: Brunner/Routledge.

Grossman, R. G., Frankowski, R. F., Burau, K. D., Toups, E. G., Crommett, J. W., Johnson, M. M., . . . Harrop, J. S. (2012). Incidence and severity of acute complications after spinal cord injury. *Journal of Neurosurgery-Spine, 17*, 119-128. doi: Doi 10.3171/2012.5.Aospine12127

Haertl, K., Schennach, R., Mueller, M., Engel, J., Reinecker, H., Sommer, H., & Friese, K. (2010). Quality of Life, Anxiety, and Oncological Factors: A Follow-Up Study of Breast Cancer Patients. *Psychosomatics, 51*(2).

Hammell, K. W. (2004). Exploring quality of life following high spinal cord injury: a review and critique. *Spinal Cord, 42*(9), 491-502.

Harding-Okimoto, M. B. (1997). Pressure ulcers, self-concept and body image in spinal cord injury patients. *SCI nursing : a publication of the American Association of Spinal Cord Injury Nurses, 14*(4), 111-117.

Hargreaves, D. A., & Tiggemann, M. (2009). Muscular Ideal Media Images and Men's Body Image: Social Comparison Processing and Individual Vulnerability. *Psychology of Men & Masculinity, 10*(2), 109-119. doi: Doi 10.1037/A0014691

Hartkopp, A., Bronnum-Hansen, H., Seidenschnur, A. M., & Biering-Sorensen, F. (1998). Suicide in a spinal cord injured population: Its relation to functional status. *Archives of Physical Medicine and Rehabilitation, 79*(11), 1356-1361. doi: Doi 10.1016/S0003-9993(98)90227-1

Heinberg, L. J., & Thompson, J. K. (1992). Social-Comparison - Gender, Target Importance Ratings, and Relation to Body-Image Disturbance. *Journal of Social Behavior and Personality, 7*(2), 335-344.

Herrmann, C. (1997). International experiences with the Hospital Anxiety and Depression Scale--a review of validation data and clinical results. *J Psychosom Res, 42*(1), 17-41.

Horgan, O., & MacLachlan, M. (2004). Psychosocial adjustment to lower-limb amputation: A review. *Disability and Rehabilitation: An International, Multidisciplinary Journal, 26*(14-15), 837-850. doi: 10.1080/09638280410001708869

Jackson, A. B., Dijkers, M., DeVivo, M. J., & Poczatek, R. B. (2004). A demographic profile of new traumatic spinal cord injuries: Change and stability over 30 years. *Archives of Physical Medicine and Rehabilitation, 85*(11), 1740-1748. doi: DOI 10.1016/j.apmr.2004.04.035

Kimmel, M. S. (1987). *Changing men : new directions in research on men and masculinity*. Beverly Hills, CA: Sage Publications.

Kimmel, M. S., & Messner, M. A. (1995). *Men's lives* (3rd ed. ed.). Boston ; London: Allyn and Bacon.

Krause, J. S., Kemp, B., & Coker, J. (2000). Depression after spinal cord injury: Relation to gender, ethnicity, aging, and socioeconomic indicators. *Archives of Physical Medicine and Rehabilitation, 81*(8), 1099-1109. doi: DOI 10.1053/apmr.2000.7167

Lawrence, J. W., Heinberg, L. J., Roca, R., Munster, A., Spencer, R., & Fauerbach, J. A. (1998). Development and validation of the Satisfaction With Appearance Scale: Assessing body image among burn-injured patients. *Psychological Assessment, 10*(1), 64-70. doi: Doi 10.1037/1040-3590.10.1.64

Leit, R. A., Gray, J. J., & Pope, H. G. (2002). The media's representation of the ideal male body: A cause for muscle dysmorphia? *International Journal of Eating Disorders, 31*(3), 334-338. doi: Doi 10.1002/Eat.10019

Long, A. F., & Godfrey, M. (2004). An evaluation tool to assess the quality of qualitative research studies. *International Journal of Social Research Methodology, 7*(2), 181-196.

Long, A. F., Godfrey, M., Randall, T., Brettle, A., & Grant, M. (2002). Developing evidence based social care policy and practice. Part 3: feasibility of undertaking systematic reviews in social care.

Manderson, L. (1999). Gender, normality and the post-surgical body. *Anthropology & Medicine, 6*(3), 381-394. doi: 10.1080/13648470.1999.9964594

Martin Ginis, K. A., Latimer, A. E., Hicks, A. L., & Craven, B. C. (2005). Development and evaluation of an activity measure for people with spinal cord injury. *Medicine and Science in Sports and Exercise, 37*(7), 1099-1111. doi: DOI 10.1249/01.mss.0000170127.54394.eb

Morgan, G. A. (2004). *SPSS for introductory statistics : use and interpretation* (2nd ed. ed.). Mahwah, N.J. ; London: Lawrence Erlbaum.

Muth, J. L., & Cash, T. F. (1997). Body-image attitudes: What difference does gender make? *Journal of Applied Social Psychology, 27*(16), 1438-1452. doi: DOI 10.1111/j.1559-1816.1997.tb01607.x

Newell, R. (2000). Psychological difficulties amongst plastic surgery ex-patients following surgery to the face: a survey. *Br J Plast Surg, 53*(5), 386-392. doi: 10.1054/bjps.1999.3273

Newell, R., & Marks, I. (2000). Phobic nature of social difficulty in facially disfigured people. *Br J Psychiatry, 176*, 177-181.

NICE (2008). [Chronic spinal cord injury: management of patients in acute hospital settings].

Partridge, J. (2005). Survival, socialisation and advocacy. *Journal of Burn Care and Rehabilitation, 26*(S32).

Pope, H. G., Phillips, K. A., & Olivardia, R. (2000). *The Adonis complex : the secret crisis of male body obsession*. New York ; London: Free Press.

Porter, J. R., & Beuf, A. H. (1991). Racial Variation in Reaction to Physical Stigma - a Study of Degree of Disturbance by Vitiligo among Black-and-White Patients. *Journal of Health and Social Behavior, 32*(2), 192-204. doi: Doi 10.2307/2137152

Radloff, L. S. (1991). The Use of the Center for Epidemiologic Studies Depression Scale in Adolescents and Young-Adults. *Journal of Youth and Adolescence, 20*(2), 149-166. doi: Doi 10.1007/Bf01537606

Reboussin, B. A., Rejeski, W. J., Martin, K. A., Callahan, K., Dunn, A. L., King, A. C., & Sallis, J. F. (2000). Correlates of satisfaction with body function and body appearance in middle- and older aged adults: The Activity Counseling Trial (ACT). *Psychology & Health, 15*(2), 239-254. doi: 10.1080/08870440008400304

Richards, J. S., Elliot, T. R., Shewchuk, R. M., & Fine, P. R. (1997). Attribution of responsibility for onset of spinal cord injury and psychosocial outcomes in the first year post-injury. *Rehabilitation Psychology, 42*(2), 115.

Schag, C. A. C., Ganz, P. A., Polinsky, M. L., Fred, C., Hirji, K., & Petersen, L. (1993). Characteristics of Women at Risk for Psychosocial Distress in the Year after Breast-Cancer. *Journal of Clinical Oncology, 11*(4), 783-793.

Schopp, L. H., Good, G. E., Mazurek, M. O., Barker, K. B., & Stucky, R. C. (2007). Masculine role variables and outcomes among men with spinal cord injury. *Disabil Rehabil, 29*(8), 625-633. doi: 10.1080/09638280600902620

Sheldon, A. P., Renwick, R., & Yoshida, K. K. (2011). Exploring Body Image and Self-Concept of Men With Acquired Spinal Cord Injuries. *American Journal of Mens Health, 5*(4), 306-317. doi: 10.1177/1557988310375714

Slade, P. D. (1994). What is body image? *Behav Res Ther, 32*(5), 497-502.

Stensman, R. (1989). Body-Image among 22 Persons with Acquired and Congenital Severe Mobility Impairment. *Paraplegia, 27*(1), 27-35.

Stormer, S. M., & Thompson, J. K. (1996). Explanations of body image disturbance: a test of maturational status, negative verbal commentary, social comparison, and sociocultural hypotheses. *Int J Eat Disord, 19*(2), 193-202. doi: 10.1002/(SICI)1098-108X(199603)19:2<193::AID-EAT10>3.0.CO;2-W

Thietje, R., Kowald, B., & Hirschfeld, S. (2011). What are the Causes of Death in Patients with Spinal Cord Injury Today? - A Descriptive Analysis of 102 Cases. *Rehabilitation, 50*(4), 251-254. doi: DOI 10.1055/s-0031-1273774

Thombs, B. D., Haines, J. M., Bresnick, M. G., Magyar-Russell, G., Fauerbach, J. A., & Spence, R. J. (2007). Depression in burn reconstruction patients: symptom prevalence and association with body image dissatisfaction and physical function. *General Hospital Psychiatry, 29*(1). doi: 10.1016/j.genhosppsych.2006.09.002

Thombs, B. D., Notes, L. D., Lawrence, J. W., Magyar-Russell, G., Bresnick, M. G., & Fauerbach, J. A. (2008). From survival to socialization: A longitudinal study of body image in survivors of severe burn injury. *Journal of Psychosomatic Research, 64*(2). doi: 10.1016/j.jpsychores.2007.09.003

Thompson, A. R., Kent, G., & Smith, J. A. (2002). Living with vitiligo: dealing with difference. *Br J Health Psychol, 7*(Pt 2), 213-225. doi: 10.1348/135910702169457

Vogt, M. T., Hanscom, B., Lauerman, W. C., & Kang, J. D. (2002). Influence of smoking on the health status of spinal patients: the National Spine Network database. *Spine, 27*(3), 313-319.

Vos, P. J., Garssen, B., Visser, A. P., Duivenvoorden, H. J., & de Haes, H. C. J. M. (2004). Early Stage Breast Cancer: Explaining Level of Psychosocial Adjustment Using Structural Equation Modeling. *Journal of Behavioral Medicine, 27*(6), 557-580. doi: 10.1007/s10865-004-0003-z

Ware, J. E., & Sherbourne, C. D. (1992). The Mos 36-Item Short-Form Health Survey (Sf-36) .1. Conceptual-Framework and Item Selection. *Med Care, 30*(6), 473-483. doi: Doi 10.1097/00005650-199206000-00002

Weber, C. S., Bronner, E., Thier, P., Schoeneich, F., Walter, O., Klapp, B. F., & Kingreen, D. (2001). Body experience and mental representation of body image in patients with haematological malignancies and cancer as assessed with the Body Grid. *Br J Med Psychol, 74*(Pt 4), 507-521.

Weber, C. S., Fliege, H., Arck, P. C., Kreuzer, K. A., Rose, M., & Klapp, B. F. (2005). Patients with haematological malignancies show a restricted body image focusing on function and emotion. *European Journal of Cancer Care, 14*(2), 155-165. doi: 10.1111/j.1365-2354.2005.00533.x

Wienke, C. (1998). Negotiating the male body: Men, masculinity, and cultural ideals. *The Journal of Men's Studies, 6*(3), 255-282.

Yetzer, E. A., Schandler, S., Root, T. L., & Turnbaugh, K. (2003). Self-concept and body image in persons who are spinal cord injured with and without lower limb amputation. *SCI nursing : a publication of the American Association of Spinal Cord Injury Nurses, 20*(1), 18-23.

Zidarov, D., Swaine, B., & Gauthier-Gagnon, C. (2009). Quality of Life of Persons With Lower-Limb Amputation During Rehabilitation and at 3-Month Follow-Up. *Archives of Physical Medicine and Rehabilitation, 90*(4). doi: 10.1016/j.apmr.2008.11.003

Zigmond, A. S., & Snaith, R. P. (1983). The Hospital Anxiety and Depression Scale. *Acta Psychiatrica Scandinavica, 67*(6), 361-370. doi: DOI 10.1111/j.1600-0447.1983.tb09716.x

Accompanying Material

A. Participant Information Sheet

B. Invitation Letter

C. Opt- in Form

D. Consent Form

E. Questionnaire Pack

F. Participant Advertisement

G. Debrief Form

H. Amended Invitation Letter

I. NHS Ethical Approval Letter

J. NHS Amendment Letter

K.SDH Research and Development Approval Letter

L. SDH Amendment Letter

M. Southampton University Ethical Approval Letter

N. Southampton University Amendment Letter

Appendix A

UNIVERSITY OF Southampton

INFORMATION SHEET

Project title: Investigating Body Image after Spinal Cord Injury

We would like to invite you to take part in our research study. Before you decide we would like you to understand why the research is being done and what it would involve for you. Please take time to read the following information carefully. **One of our team will go through the information sheet with you and answer any questions you have.** This should take about 5 minutes. Please talk to others about the study if you wish and ask us if there is anything that is not clear.

Part 1 tells you the purpose of this study and what will happen to you if you take part.

Part 2 gives you more detailed information about the conduct of the study.

PART 1

1. What is the purpose of this study?

This study aims to help us better understand how people's body image and style of coping is impacted after their body has experienced a physical change. We are specifically interested in finding out more about the impact that body image has upon how people feel and what they do to cope with this physical change at different stages after the physical change. The findings will help us to plan what assessments and input people need after they have experienced a physical change to their body. We are also conducting this study as part of a University of Southampton Doctorate in Clinical Psychology.

2. Why have I been invited to take part?

You are invited to take part because you have experienced a spinal cord injury and this is the sort of physical change to one's body that we are interested in learning more about. In total we will be asking 120 people who have spinal cord injuries to take part in the study. Some people will still be in hospital and some will have left hospital but are returning for regular outpatient appointments.

3. Do I have to take part?

It is up to you to decide to join the study. We will describe the study and go through this information sheet. If you agree to take part, we will then ask you to sign a consent form. You are free to withdraw at any time, without giving a reason. Choosing not to take part or withdrawing will not affect the standard of care you receive.

4. What do I have to do if I agree to take part?

If you agree to take part, you will be asked to complete a consent form and a short set of five questionnaires which will ask you questions about yourself and about different aspects of how you view your body. We expect these questionnaires to take around 30 minutes to complete. You may ask for someone to help you with them if you would like.

5. Expenses and payment

Unfortunately we cannot pay for your travel to your hospital appointment or parking costs but if you complete the study questionnaires then you will be given a £5 Amazon voucher for your time and effort.

6. What are the potential disadvantages and risks of taking part?

The questionnaires that you will be asked to complete may contain questions which are uncomfortable to answer. We do not anticipate that there are risks to taking part in this study; however, it is possible that you might become upset. If this happens, you will be offered the opportunity to discuss this with someone from the Clinical Psychology or counselling team at Salisbury District Hospital.

7. What are the possible benefits of taking part?

This study is not a treatment study and we cannot promise that it will help you. We do hope that the information we get from this study might help to improve the psychological treatment of people with spinal cord injury.

8. Will my taking part in the study be kept confidential?

Yes. We will follow ethical and legal practice and all information about you will be handled in confidence. The details are included in Part 2. However, if you reveal during the study that you are at risk to yourself or others we will have a duty of care to inform someone. You will be offered the opportunity to meet with someone from the Clinical Psychology or counselling team at Salisbury District Hospital.

If the information in Part 1 has interested you and you are considering participation, please read the additional information in Part 2 before making any decision.

PART 2

9. What will happen if I don’t want to carry on with the study?

If you choose to withdraw from the study, we will destroy any information you gave us that is identifiable. If, however, your information has already been made anonymous then we will continue to use this data in the study.

10. What will my information be used for?

We will use the information you give us to assess the research question of how body image impacts the way people feel and what they do to cope with physical changes in their body. The information we collect will also be used as part of a University of Southampton Doctorate in Clinical Psychology. You will not be identified in any way in reports of this study.

11. Where and how will my information be stored?

All information which is collected about you during the course of the study will be kept strictly confidential. The paper questionnaires you complete will be kept in a locked filing cabinet at Salisbury District Hospital until the end of the study when they will be transferred to the University of Southampton confidential storage facility. Questionnaire responses will be entered into a secure computer database; we will not enter your name or other identifying information so that the data is completely anonymous. Only authorised persons will have access to the information you provide such as members of the research team or regulatory authorities to monitor the quality of the research. Paper copies of the questionnaires and anonymous electronic data will be kept for ten years after the study is complete and then securely destroyed.

12. What will happen to the results of the research study?

When the study is complete it will be used as part of a University of Southampton Doctoral project and it is intended that results will be published in an academic journal. The results will also be made available to the Duke of Cornwall Spinal Treatment Centre if you would like to find out more. You will not be identified in any report or publication.

13. What if there is a problem?

If you have a concern about any aspect of this study, you should ask to speak to one of the researchers who will do their best to answer your questions (contact details below). If you remain unhappy and wish to complain formally, you can do this via the University of Southampton Complaints Procedure. Details can be obtained from Sarah Boak or Martina Johnson on 023 80 598101 or s.l.boak@soton.ac.uk.

14. Who is organising and funding the study?

This study is being funded by the University of Southampton and the researchers will not be paid for conducting the study.

15. Who has reviewed the study?

All research in the NHS is looked at by an independent group of people, called a Research Ethics Committee, to protect your interests. This study has been reviewed and given favourable opinion by Oxford B Research Ethics Committee. This study has also been given approval by the University of Southampton, School of Psychology Ethics Committee.

16. Where can I get more information or ask questions?

If you have any questions you can speak to a member of the research team using the contact details below or ask one of the clinical staff to get in touch with us.

Rachel Hamblin, Chief Investigator

Dr. Nigel North, Clinical Psychologist

a: Department of Clinical Psychology, Salisbury District Hospital, Odstock Road, Salisbury, SP2 8BJ
t: 01722 425105
e: rachel.hamblin@nhs.net
e: nigel.north@salisbury.nhs.uk

Thank you for taking time to read this information sheet.

Appendix B

Salisbury NHS
NHS Foundation Trust

To be addressed and dated as details of appointment for each individual patient

Department of Clinical Psychology (Health)
Salisbury NHS Foundation Trust
Salisbury District Hospital
Salisbury
Wiltshire
SP2 8BJ
Ext. 2105
Direct Line & Fax: 01722 425105

Research Study

Investigating Body Image after Spinal Cord Injury

I am writing to tell you that we are currently conducting a research project within the Duke of Cornwall Spinal Treatment Centre investigating how people's body image and style of coping is impacted after their body has experienced a physical change, like spinal cord injury (NHS Research Ethics Committee Reference Number: 12/SC/0629). We would like to invite you to take part in this study and we have enclosed an information sheet that tells you more about the project.

We hope that with the help of our patients in this study we will be able to understand more about the impact that body image has upon how people feel and what they do to cope. We will therefore learn how to improve the psychological treatments we offer.

Please read the information sheet carefully and think about whether you would like to be involved in the project. This decision is up to you and if you do decide to take part you will be asked to sign a consent form. Even if you do decide to take part you are still free to withdraw at any time and without giving a reason. Whatever you decide your care will not be affected now or in the future and you should come to your appointment(s) as normal.

If you think you might be interested in becoming involved please fill in your name and details on the form provided and hand it in to the clinic when you come for your appointment. Alternatively, please tell a member of staff when you come for your appointment that you are interested or contact the researcher directly: Rachel Hamblin on 01722 425105.

Yours sincerely,

Mr Chalil Vinod
Consultant in Spinal Cord Injuries

Appendix C

OPT IN SHEET

Project title: Investigating Body Image after Spinal Cord Injury

I am interested in finding out more about this project and agree to be contacted

Name...

Telephone
Number...

Email...

Please give this form to a member of staff or get in touch with us:

Rachel Hamblin, Chief Investigator
Dr. Nigel North, Clinical Psychologist
a: Department of Clinical Psychology, Salisbury District Hospital, Odstock Road, Salisbury,
SP2 8BJ
t: 01722 425105
e: rachel.hamblin@nhs.net
e: nigel.north@salisbury.nhs.uk

Appendix D

UNIVERSITY OF Southampton

Salisbury NHS
NHS Foundation Trust

CONSENT FORM

Project title: Investigating Body Image after Spinal Cord Injury

Study number: 12/SC/0629
Researcher name: Rachel Hamblin

Please initial the boxes if you agree with the statement(s):

I confirm that I have read and understand the information sheet (version 1.0, 10.08.12) for the above study.
I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily. ☐

I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason, without my medical care or legal rights being affected. ☐

I understand that data collected during the study will remain secure and confidential and used for the purpose of this research by the University of Southampton. It may be looked at by individuals from regulatory authorities and Salisbury NHS Foundation Trust where relevant. ☐

I agree to take part in the above study. ☐

Name of participant (print name)…………………………………………………...........

Signature of participant……………………………………………**Date**……………….........

I have discussed this study with the participant using a language that is understandable and appropriate. I believe the participant understood this explanation.

Name of person taking consent……………………………….......**Date**……………….…

PARTICIPANT COPY

UNIVERSITY OF Southampton

Salisbury NHS
NHS Foundation Trust

CONSENT FORM

Project title: Investigating Body Image after Spinal Cord Injury

Study number:
Researcher name: Rachel Hamblin

Please initial the boxes if you agree with the statement(s):

I confirm that I have read and understand the information sheet dated (version 1.0, 10.08.12) for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily. ☐

I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason, without my medical care or legal rights being affected. ☐

I understand that data collected during the study will remain secure and confidential and used for the purpose of this research by the University of Southampton. It may be looked at by individuals from regulatory authorities and Salisbury NHS Foundation Trust where relevant. ☐

I agree to take part in the above study. ☐

Name of participant (print name)…………………………………………………...........

Signature of participant……………………………………………**Date**………………...........

I have discussed this study with the participant using a language that is understandable and appropriate. I believe the participant understood this explanation.

Name of person taking consent……………………………….......**Date**………………...

INVESTIGATOR COPY

Appendix E

UNIVERSITY OF Southampton

Salisbury NHS
NHS Foundation Trust

QUESTIONNAIRE PACKAGE

Project title: Investigating Body Image after Spinal Cord Injury

DEMOGRAPHICS

1. What is your gender?	☐ Male ☐ Female
2. Date of birth (DD/MM/YY)	
3. What is your ethnicity?	
4. What is your relationship status?	☐ Single ☐ Cohabiting ☐ Married ☐ Separated ☐ Divorced ☐ Widowed ☐ Other_____________________________
5. What is your highest educational qualification?	☐ No formal qualification ☐ Primary ☐ Secondary (e.g., GCSE, O-levels, GNVQ) ☐ Diploma (or professional qualification) ☐ Degree ☐ Postgraduate ☐ Other_____________________________
6. When was your spinal cord injury?	
7. What caused your spinal cord injury?	☐ Fall ☐ Sporting accident ☐ Other accident ☐ RTA ☐ Self-harm ☐ Assault ☐ Other ____________________________
8. At what level is your spinal cord injury?	☐ C2-8 _____________________________ ☐ T1-12 ____________________________ ☐ L1-5 _____________________________ ☐ S1-5 _____________________________
9. Injury type	☐ Complete ☐ Incomplete
10. Date of discharge	

Date: _____________________ Office use only
Time since discharge: Weeks____________ Months______________
PARTICIPANT GROUP
☐ 2 (6-12 months post-discharge/ outpatient)
☐ 3 (24-60 months post-injury/ outpatient)

HADS

Read each item and place a firm tick (✓) in the box opposite the reply which comes closest to **how you have been feeling in the past week.** Tick only one box in each section.

I feel tense or “wound up”:

Most of the time…………………………..	3
A lot of the time…………………………..	2
Time to time. Occasionally……………….	1
Not at all…………………………………..	0

I still enjoy the things I used to enjoy:

Definitely as much………………………..	0
Not quite so much………………………...	1
Only a little………………………………..	2
Hardly at all……………………………….	3

I get a sort of frightened feeling as if something awful is about to happen:

Very definitely and quite badly……	3
Yes, but not too badly…………………	2
A little, but it doesn’t worry me……	1
Not at all…………………………………..	0

I can laugh and see the funny side of things:

As much as I always could………………..	0
Not quite so much now…………………...	1
Definitely not so much now………………	2
Not at all…………………………………..	3

Worrying thoughts go through my mind:

A great deal of the time…………………...	3
A lot of the time…………………………..	2
From time to time but not too often…	1
Only occasionally………………………..	0

I feel cheerful:

Not at all…………………………………..	3
Not often…………………………………..	2
Sometimes………………………………...	1
Most of the time…………………………..	0

I can sit at ease and feel relaxed:

Definitely………………………………….	0
Usually…………………………………….	1
Not often………………………………….	2
Not at all…………………………………..	3

I feel as if I am slowed down:

Nearly all the time…………………….…..	3
Very often…………………………………	2
Sometimes………………………………...	1
Not at all…………………………………..	0

I get a sort of frightened feeling like ‘butterflies’ in the stomach:

Not at all…………………………………..	0
Occasionally………………………………	1
Quite often………………………………...	2
Very often…………………………………	3

I have lost interest in my appearance:

Definitely………………………………….	3
I don’t take so much care as I should…	2
I may not take quite as much care……	1
I take just as much care as ever………	0

I feel restless as if I have to be on the move:

Very much indeed………………………...	3
Quite a lot…………………………………	2
Not very much…………………………….	1
Not at all…………………………………..	0

I look forward with enjoyment to things:

As much as ever I did……………………..	0
Rather less than I used to…………………	1
Definitely less than I used to…………..	2
Hardly at all……………………………….	3

I get sudden feelings of panic:

Very often indeed………………………..	3
Quite often………………………………...	2
Not very often……………………………..	1
Not at all…………………………………..	0

I can enjoy a good book or radio or TV programme:

Often………………………………………	0
Sometimes………………………………...	1
Not often…………………………………..	2
Very seldom ………………….…………..	3

ASI-R

The statements below are beliefs that people may or may not have about their physical appearance and its influence on life. Decide on the extent to which you personally **disagree or agree** with each statement and enter a number from 1 to 5 in the space on the left. There are no right or wrong answers. Just be truthful about your personal beliefs.

	Strongly Disagree	Mostly Disagree	Neither Agree or Disagree	Mostly Agree	Strongly Agree
1. I spend little time on my physical appearance.	1	2	3	4	5
2. When I see good-looking people, I wonder about how my own looks measure up.	1	2	3	4	5
3. I try to be as physically attractive as I can be.	1	2	3	4	5
4. I have never paid much attention to what I look like.	1	2	3	4	5
5. I seldom compare my appearance to that of other people I see.	1	2	3	4	5
6. I often check my appearance in a mirror just to make sure I look okay.	1	2	3	4	5
7. When something makes me feel good or bad about my looks, I tend to dwell on it.	1	2	3	4	5
8. If I like how I look on a given day, it’s easy to feel happy about other things.	1	2	3	4	5
9. If somebody had a negative reaction to what I look like, it wouldn’t bother me.	1	2	3	4	5
10. When it comes to my physical appearance, I have high standards.	1	2	3	4	5

	Strongly Disagree	Mostly Disagree	Neither Agree or Disagree	Mostly Agree	Strongly Agree
11. My physical appearance has had little influence on my life.	1	2	3	4	5
12. Dressing well is not a priority for me.	1	2	3	4	5
13. When I meet people for the first time, I wonder what they think about how I look.	1	2	3	4	5
14. In my everyday life, lots of things happen that make me think about what I look like.	1	2	3	4	5
15. If I dislike how I look on a given day, it’s hard to feel happy about other	1	2	3	4	5
16. I fantasize about what it would be like to be better looking than I am.	1	2	3	4	5
17. Before going out, I make sure that I look as good as I possibly can.	1	2	3	4	5
18. What I look like is an important part of who I am.	1	2	3	4	5
19. By controlling my appearance, I can control many of the social and emotional events in my life.	1	2	3	4	5
20. My appearance is responsible for much of what’s happened to me in my life.	1	2	3	4	5

BICSI

“Body image” refers to how we think and feel about our own physical appearance. In the course of everyday life, there are situations and events that occur which can negatively affect our body image. These situations and events are called “body image threats or challenges,” because they threaten or challenge our ability to feel okay about our looks.

People do lots of different things to cope or deal with these challenges or threats.
Listed below are some of the ways that people may try to cope with body image threats or challenges. For each item, think about how much it is characteristic of **how you usually cope or would probably cope with an event or situation that poses a threat or challenge to your body image feelings.**

Using the scale below, enter a number from 0 to 3 in the space to indicate how well each way of coping describes what you actually do or would do. There are no right or wrong answers. It doesn't matter how helpful or unhelpful your ways of coping are. Don't answer based on how you wish you usually reacted. Just be completely truthful.

	Definitely <u>Not</u> Like Me	Mostly <u>Not</u> Like Me	Mostly Like Me	Definitely Like Me
1. I spend extra time trying to fix what I don't like about my looks.	0	1	2	3
2. I consciously do something that might make me feel good about myself as a person.	0	1	2	3
3. I try to tune out my thoughts and feelings.	0	1	2	3
4. I seek reassurance about my looks from other people.	0	1	2	3
5. I do something to try to look more attractive.	0	1	2	3
6. I spend more time in front of the mirror.	0	1	2	3
7. I try to ignore the situation and my feelings.	0	1	2	3
8. I think about what I should do to change my looks.	0	1	2	3
9. I avoid looking at myself in the mirror.	0	1	2	3
10. I remind myself of my good qualities.	0	1	2	3
11. I eat something to help me deal with the situation.	0	1	2	3

	Definitely Not Like Me	Mostly Not Like Me	Mostly Like Me	Definitely Like Me
12. I tell myself that I'm just being irrational about things.	0	1	2	3
13. I fantasize about looking different.	0	1	2	3
14. I think about how I could "cover up" what's troublesome about my looks.	0	1	2	3
15. I tell myself that the situation will pass.	0	1	2	3
16. I try to figure out why I am challenged or threatened by the situation.	0	1	2	3
17. I tell myself that I am helpless to do anything about the situation.	0	1	2	3
18. I tell myself that I am probably just overreacting to the situation.	0	1	2	3
19. I compare my appearance to that of physically attractive people.	0	1	2	3
20. I remind myself that I will feel better after a while.	0	1	2	3
21. I react by overeating.	0	1	2	3
22. I tell myself that there are more important things than what I look like.	0	1	2	3
23. I tell myself that I probably look better than I feel I that do.	0	1	2	3
24. I make a special effort to look my best.	0	1	2	3
25. I withdraw and interact less with others.	0	1	2	3
26. I make a special effort to hide or "cover up" what's troublesome about my looks.	0	1	2	3
27. I react by being especially patient with myself.	0	1	2	3

28. I make no attempt to cope or deal with the situation.	0	1	2	3
29. I tell myself that the situation is not that important.	0	1	2	3

Scoring

Office use only

APPEARANCE FIXING: MEAN OF 10 ITEMS (1, 4, 5, 6, 8, 13, 14, 19, 24, 26)
AVOIDANCE: MEAN OF 8 ITEMS (3, 7, 9, 11, 17, 21, 25, 28)
POSITIVE RATIONAL ACCEPTANCE: MEAN OF 11 TEMS (2, 10, 12, 15, 16, 18, 20, 22, 23, 27, 29)

(BICSI Thomas F. Cash, Ph.D., 2003)

BIQLI

Different people have different feelings about their physical appearance. These feelings are called “body image.” Some people are generally satisfied with their looks, while others are dissatisfied.

At the same time, people differ in terms of how their body-image experiences affect other aspects of their lives. Body image may have positive effects, negative effects, or no effect at all.

Listed below are various ways that your own body image may or may not influence your life. For each item, circle how and **how much your feelings about your appearance affect that aspect of your life**. Before answering each item, think carefully about the answer that most accurately reflects how your body image usually affects you.

-3	**-2**	**-1**	**0**	**1**	**2**	**3**
Very Negative Effect	**Moderate Negative Effect**	**Slight Negative Effect**	**No Effect**	**Slight Positive Effect**	**Moderate Positive Effect**	**Very Positive Effect**

	Very Negative Effect	Moderate Negative Effect	Slight Negative Effect	No Effect	Slight Positive Effect	Moderate Positive Effect	Very Positive Effect
1. My basic feelings about myself —feelings of personal adequacy and self-worth.	-3	-2	-1	0	1	2	3
2. My feelings about my adequacy as a man or woman—feelings of masculinity or femininity.	-3	-2	-1	0	1	2	3
3. My interactions with people of my own sex.	-3	-2	-1	0	1	2	3
4. My interactions with people of the other sex.	-3	-2	-1	0	1	2	3
5. My experiences when I meet new people.	-3	-2	-1	0	1	2	3
6. My experiences at work or at school.	-3	-2	-1	0	1	2	3
7. My relationships with friends.	-3	-2	-1	0	1	2	3

8. My relationships with family members.	-3	-2	-1	0	1	2	3
9. My day-to-day emotions.	-3	-2	-1	0	1	2	3
10. My satisfaction with my life in general.	-3	-2	-1	0	1	2	3
11. My feelings of acceptability as a sexual partner.	-3	-2	-1	0	1	2	3
12. My enjoyment of my sex life.	-3	-2	-1	0	1	2	3
13. My ability to control what and how much I eat.	-3	-2	-1	0	1	2	3
14. My ability to control my weight.	-3	-2	-1	0	1	2	3
15. My activities for physical exercise.	-3	-2	-1	0	1	2	3
16. My willingness to do things that might call attention to my appearance.	-3	-2	-1	0	1	2	3
17. My daily “grooming” activities (i.e., getting dressed/ physically ready for the day).	-3	-2	-1	0	1	2	3
18. How confident I feel in my everyday life.	-3	-2	-1	0	1	2	3
19. How happy I feel in my everyday life.	-3	-2	-1	0	1	2	3

MBSRQ-AS

The following pages contain a series of statements about how people might think, feel, or behave.
You are asked to indicate the extent to which each statement pertains to you personally.

In order to complete the questionnaire, read each statement carefully and decide how much it relates to you personally. Using the scales below, indicate your answer by circling

	Definitely Disagree	Mostly Disagree	Neither Agree or Disagree	Mostly Agree	Definitely Agree
1. Before going out in public, I always notice how I look.	1	2	3	4	5
2. I am careful to buy clothes that will make me look my best.	1	2	3	4	5
3. My body is sexually appealing.	1	2	3	4	5
4. I constantly worry about being or becoming fat.	1	2	3	4	5
5. I like my looks just the way they are.	1	2	3	4	5
6. I check my appearance in a mirror whenever I can.	1	2	3	4	5
7. Before going out, I usually spend a lot of time getting ready.	1	2	3	4	5
8. I am very conscious of even small changes in my weight.	1	2	3	4	5
9. Most people would consider me good-looking.	1	2	3	4	5
11. I use very few grooming products.	1	2	3	4	5
12. I like the way I look without my clothes on.	1	2	3	4	5
13. I am self-conscious if my grooming isn't right.	1	2	3	4	5
14. I usually wear whatever is handy without caring how it looks.	1	2	3	4	5
15. I like the way my clothes fit me.	1	2	3	4	5
16. I don't care what people think about my appearance.	1	2	3	4	5
17. I take special care with my hair grooming.	1	2	3	4	5
18. I dislike my physique.	1	2	3	4	5

	Definitely Disagree	Mostly Disagree	Neither Agree or Disagree	Mostly Agree	Definitely Agree
19. I am physically unattractive.	1	2	3	4	5
20. I never think about my appearance.	1	2	3	4	5
21. I am always trying to improve my physical appearance.	1	2	3	4	5
22. I am on a weight-loss diet.	1	2	3	4	5
23. I have tried to lose weight by fasting or going on crash diets.	Never	Rarely	Sometimes	Often	Very Often
24. I think I am:	Very Underweight	Somewhat Underweight	Normal Weight	Somewhat Overweight	Very Overweight
25. From looking at me, most other people would think I am:	Very Underweight	Somewhat Underweight	Normal Weight	Somewhat Overweight	Very Overweight

	Very Dissatisfied	Mostly Dissatisfied	Neither Satisfied Nor Dissatisfied	Mostly Satisfied	Very Satisfied
26. Face (facial features, complexion)	1	2	3	4	5
27. Hair (colour, thickness, texture)	1	2	3	4	5
28. Lower torso (buttocks, hips, thighs, legs)	1	2	3	4	5
29. Mid torso (waist, stomach)	1	2	3	4	5
30. Upper torso (chest or breasts, shoulders, arms)	1	2	3	4	5
31. Muscle tone	1	2	3	4	5
32. Weight	1	2	3	4	5
33. Height	1	2	3	4	5
34. Overall appearance	1	2	3	4	5

Scoring Office use only

APPEARANCE EVALUATION (3, 5, 9, 12, 15, 18*, 19*)
APPEARANCE ORIENTATION (1, 2, 6, 7, 10, 11*, 13, 14*, 16*, 17, 20*, 21)
BODY AREAS SATISFACTION (26, 27, 28, 29, 30, 31, 32, 33, 34)
OVERWEIGHT PREOCCUPATION (4, 8, 22, 23)
SELF-CLASSIFIED WEIGHT(24, 25)

(*REVERSE-SCORED ITEMS)

Appendix F

RESEARCH STUDY

Investigating Body Image after Spinal Cord Injury

We are currently conducting a research project sponsored by University of Southampton investigating how body image and style of coping is impacted after a spinal cord injury. The Duke of Cornwall Spinal Treatment Centre has been helpful in identifying participants and we would also like to invite you to take part in this study.

Are you?

- **Male**
- **Over 18 years old**
- **Experienced a spinal cord injury in the last 6 years**

Then you could be eligible to take part!

We'll ask you to fill in a consent form and some questionnaires, which usually take about 25 minutes and in return we will send you a £5 Amazon voucher to say thank you.

We hope that with the help of our patients in this study we will be able to understand more about the impact that body image has upon how people feel and what they do to cope. We will therefore learn how to improve the psychological treatments we offer.

If you'd like to take part, please contact me, Rachel Hamblin for a research pack - rph1g10@soton.ac.uk

Are you over 18 and have experienced a sudden onset spinal cord injury in the last three years? You could be eligible for another study within our research group – contact Philippa Beckwith for details – **pjb1g10@soton.ac.uk**

Thank you!

Appendix G

UNIVERSITY OF Southampton

Salisbury NHS
NHS Foundation Trust

DEBRIEF FORM

Project title: Investigating Body Image after Spinal Cord Injury

Study number: 12/SC/0629

Researcher name: Rachel Hamblin

The aim of this study is to help us better understand how people's body image and style of coping is impacted after their body has experienced a physical change.

Previous research has shown that people who have a spinal cord injury often experience changes in their body image which can impact upon the way that they cope with the physical changes in their body. Body image also has an impact upon psychological functioning and affects the way people feel and what they do. Some people appear to cope well and others have more problems adjusting to the way their body looks or functions. At the moment it is not clear what factors contribute to some people coping with these changes and your data will help us to understand some of the processes responsible.

The results of this study will not include your name or any other identifying information.

If you have any further questions or would like to speak to someone in the Clinical Psychology or Counselling team, please contact me, Rachel Hamblin or Dr. Nigel North

a: Department of Clinical Psychology, Salisbury District Hospital, Odstock Road, Salisbury, SP2 8BJ
t: 01722 425105
e: rachel.hamblin@nhs.net
e: nigel.north@salisbury.nhs.uk

NHS Ethics Committee

a: NRES Committee South Central - Oxford B, Bristol Research Ethics Committee Centre , Whitefriars , Level 3, Block B , Lewin's Mead , Bristol , BS1 2NT
t: 0117 342 1333

Thank you for your participation in this study.

Appendix H

Salisbury NHS
NHS Foundation Trust

Department of Clinical Psychology (Health)
Salisbury NHS Foundation Trust
Salisbury District Hospital
Salisbury
Wiltshire
SP2 8BJ
Ext. 2105
Direct Line & Fax: 01722 425105

Research Study

Investigating Body Image after Spinal Cord Injury

I am writing to tell you that we are currently conducting a research project within the Duke of Cornwall Spinal Treatment Centre investigating how people's body image and style of coping is impacted after their body has experienced a physical change, like spinal cord injury (NHS Research Ethics Committee Reference Number: 12/SC/0629). We would like to invite you to take part in this study and we have enclosed an information sheet that tells you more about the project.

We hope that with the help of our patients in this study we will be able to understand more about the impact that body image has upon how people feel and what they do to cope. We will therefore learn how to improve the psychological treatments we offer.

Please read the information sheet carefully and think about whether you would like to be involved in the project. This decision is up to you and if you do decide to take part you will be asked to sign a consent form**.** Even if you do decide to take part you are still free to withdraw at any time and without giving a reason. Whatever you decide your care will not be affected now or in the future and you should come to your appointment(s) as normal.

If you think you might be interested in becoming involved please either;

1. Fill in the consent form and questionnaires enclosed and post them both back in the stamped addressed envelope provided, or
2. Fill in your name and details on the opt in form and hand it in to the clinic when you come for your appointment,
3. Alternatively, please tell a member of staff when you come for your appointment that you are interested or contact the researcher directly: Rachel Hamblin on 01722 425105.

If you have any questions or concerns at any time during your participation in the study, or if you require help to complete the questionnaires please contact Rachel Hamblin on 01722 425105.

Yours sincerely,

Dr Chalil Vinod
Consultant in Spinal Cord Injuries

Appendix I

NHS
Health Research Authority

NRES Committee South Central - Oxford B
Bristol Research Ethics Committee Centre
Whitefriars
Level 3, Block B
Lewin's Mead
Bristol
BS1 2NT

Telephone: 0117 342 1333
Facsimile: 0117 342 0445

21 November 2012

Miss Rachel Hamblin
Trainee Clinical Psychologist
University of Southampton
34 Bassett Crescent East
Highfield
Southampton
SO16 7PB

Dear Miss Hamblin

Study title: **A Questionnaire Study Examining Body Image in Individuals with Spinal Cord Injury**
REC reference: **12/SC/0629**
Protocol number: **RGO ref 8797**

Thank you for your letter of 16 November 2012, responding to the Committee's request for further information on the above research and submitting revised documentation.

The further information has been considered on behalf of the Committee by the Chair.

Confirmation of ethical opinion

On behalf of the Committee, I am pleased to confirm a favourable ethical opinion for the above research on the basis described in the application form, protocol and supporting documentation as revised, subject to the conditions specified below.

Ethical review of research sites

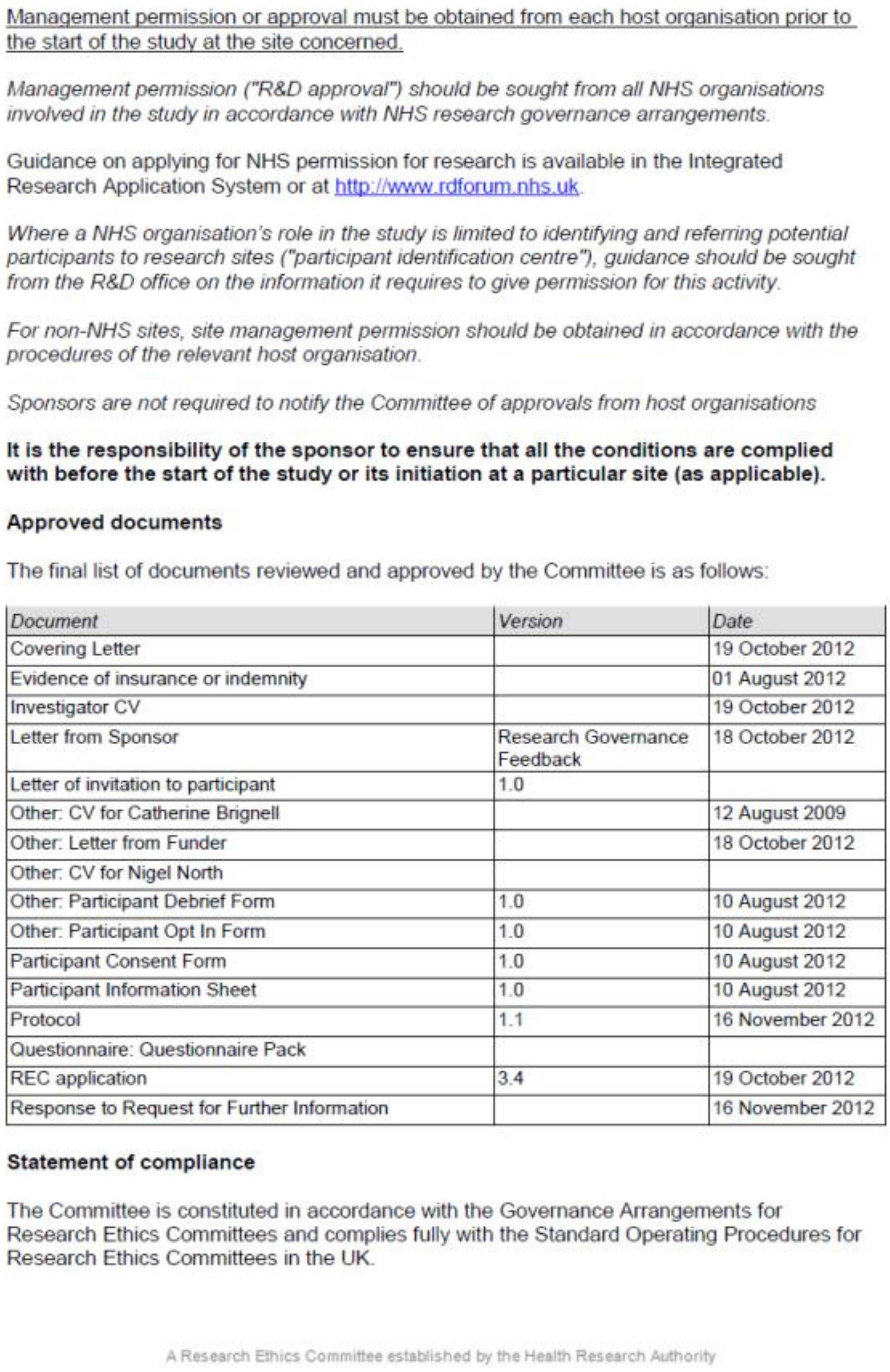
NHS sites

The favourable opinion applies to all NHS sites taking part in the study, subject to management permission being obtained from the NHS/HSC R&D office prior to the start of the study (see "Conditions of the favourable opinion" below).

Non-NHS sites

Conditions of the favourable opinion

The favourable opinion is subject to the following conditions being met prior to the start of the study.



Management permission or approval must be obtained from each host organisation prior to the start of the study at the site concerned.

Management permission ("R&D approval") should be sought from all NHS organisations involved in the study in accordance with NHS research governance arrangements.

Guidance on applying for NHS permission for research is available in the Integrated Research Application System or at http://www.rdforum.nhs.uk.

Where a NHS organisation's role in the study is limited to identifying and referring potential participants to research sites ("participant identification centre"), guidance should be sought from the R&D office on the information it requires to give permission for this activity.

For non-NHS sites, site management permission should be obtained in accordance with the procedures of the relevant host organisation.

Sponsors are not required to notify the Committee of approvals from host organisations

It is the responsibility of the sponsor to ensure that all the conditions are complied with before the start of the study or its initiation at a particular site (as applicable).

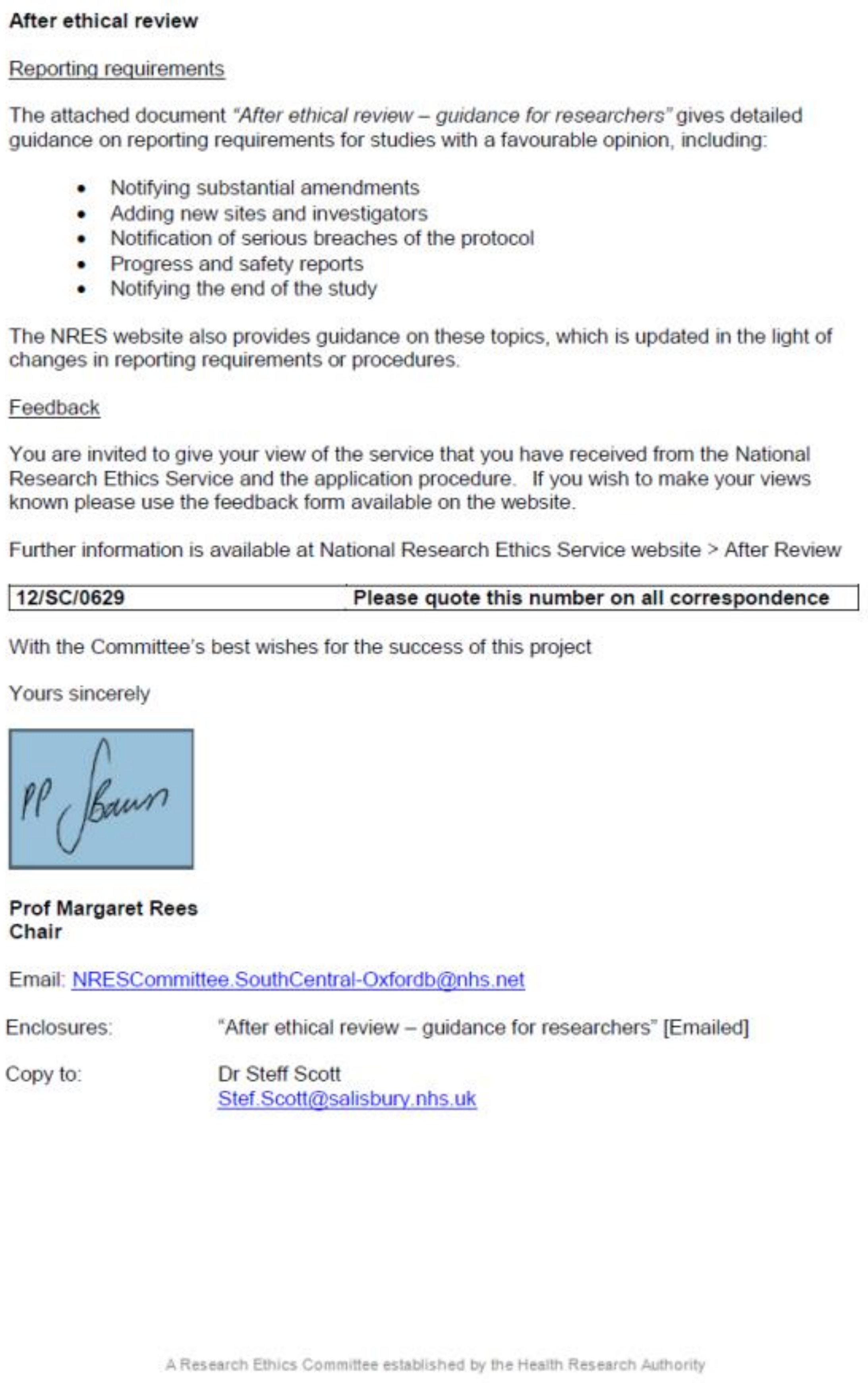
Approved documents

The final list of documents reviewed and approved by the Committee is as follows:

Document	*Version*	*Date*
Covering Letter		19 October 2012
Evidence of insurance or indemnity		01 August 2012
Investigator CV		19 October 2012
Letter from Sponsor	Research Governance Feedback	18 October 2012
Letter of invitation to participant	1.0	
Other: CV for Catherine Brignell		12 August 2009
Other: Letter from Funder		18 October 2012
Other: CV for Nigel North		
Other: Participant Debrief Form	1.0	10 August 2012
Other: Participant Opt In Form	1.0	10 August 2012
Participant Consent Form	1.0	10 August 2012
Participant Information Sheet	1.0	10 August 2012
Protocol	1.1	16 November 2012
Questionnaire: Questionnaire Pack		
REC application	3.4	19 October 2012
Response to Request for Further Information		16 November 2012

Statement of compliance

The Committee is constituted in accordance with the Governance Arrangements for Research Ethics Committees and complies fully with the Standard Operating Procedures for Research Ethics Committees in the UK.



After ethical review

Reporting requirements

The attached document *"After ethical review – guidance for researchers"* gives detailed guidance on reporting requirements for studies with a favourable opinion, including:

- Notifying substantial amendments
- Adding new sites and investigators
- Notification of serious breaches of the protocol
- Progress and safety reports
- Notifying the end of the study

The NRES website also provides guidance on these topics, which is updated in the light of changes in reporting requirements or procedures.

Feedback

You are invited to give your view of the service that you have received from the National Research Ethics Service and the application procedure. If you wish to make your views known please use the feedback form available on the website.

Further information is available at National Research Ethics Service website > After Review

12/SC/0629	**Please quote this number on all correspondence**

With the Committee's best wishes for the success of this project

Yours sincerely

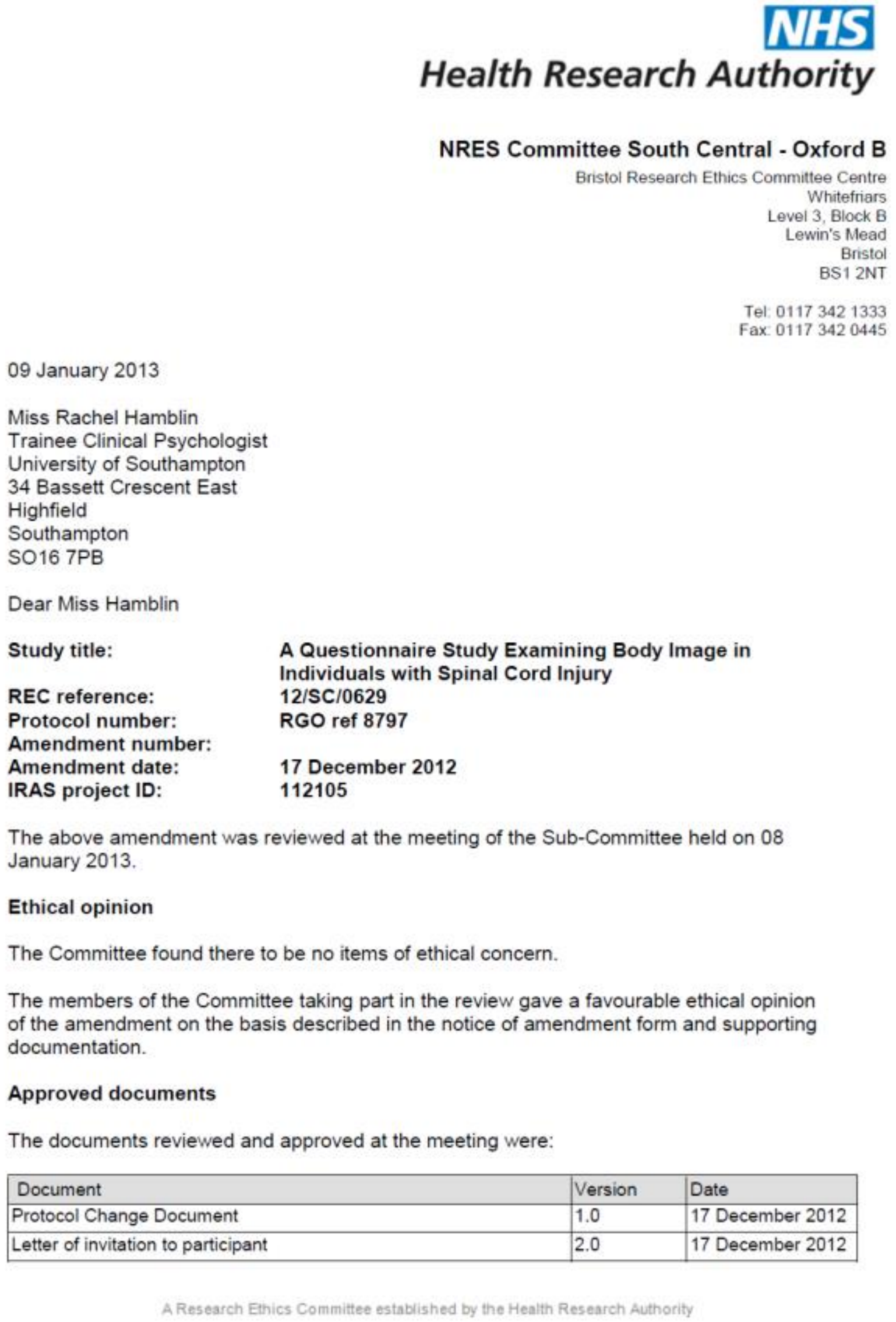
Prof Margaret Rees
Chair

Email: NRESCommittee.SouthCentral-Oxfordb@nhs.net

Enclosures: "After ethical review – guidance for researchers" [Emailed]

Copy to: Dr Steff Scott
Stef.Scott@salisbury.nhs.uk

Appendix J



NHS
Health Research Authority

NRES Committee South Central - Oxford B
Bristol Research Ethics Committee Centre
Whitefriars
Level 3, Block B
Lewin's Mead
Bristol
BS1 2NT

Tel: 0117 342 1333
Fax: 0117 342 0445

09 January 2013

Miss Rachel Hamblin
Trainee Clinical Psychologist
University of Southampton
34 Bassett Crescent East
Highfield
Southampton
SO16 7PB

Dear Miss Hamblin

Study title:	**A Questionnaire Study Examining Body Image in Individuals with Spinal Cord Injury**
REC reference:	**12/SC/0629**
Protocol number:	**RGO ref 8797**
Amendment number:	
Amendment date:	**17 December 2012**
IRAS project ID:	**112105**

The above amendment was reviewed at the meeting of the Sub-Committee held on 08 January 2013.

Ethical opinion

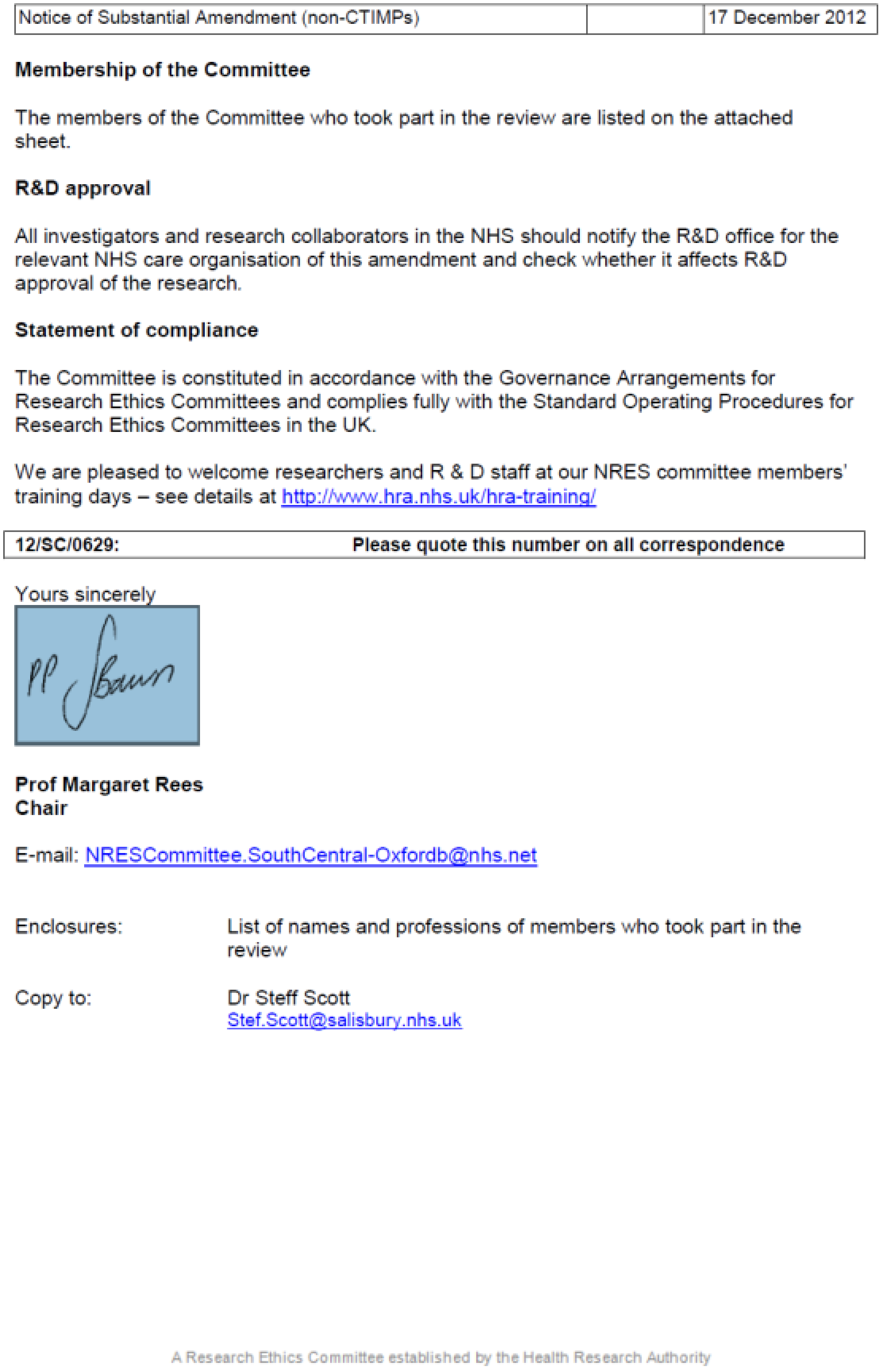
The Committee found there to be no items of ethical concern.

The members of the Committee taking part in the review gave a favourable ethical opinion of the amendment on the basis described in the notice of amendment form and supporting documentation.

Approved documents

The documents reviewed and approved at the meeting were:

Document	Version	Date
Protocol Change Document	1.0	17 December 2012
Letter of invitation to participant	2.0	17 December 2012



Notice of Substantial Amendment (non-CTIMPs)		17 December 2012

Membership of the Committee

The members of the Committee who took part in the review are listed on the attached sheet.

R&D approval

All investigators and research collaborators in the NHS should notify the R&D office for the relevant NHS care organisation of this amendment and check whether it affects R&D approval of the research.

Statement of compliance

The Committee is constituted in accordance with the Governance Arrangements for Research Ethics Committees and complies fully with the Standard Operating Procedures for Research Ethics Committees in the UK.

We are pleased to welcome researchers and R & D staff at our NRES committee members' training days – see details at http://www.hra.nhs.uk/hra-training/

12/SC/0629:	**Please quote this number on all correspondence**

Yours sincerely

Prof Margaret Rees
Chair

E-mail: NRESCommittee.SouthCentral-Oxfordb@nhs.net

Enclosures:	List of names and professions of members who took part in the review
Copy to:	Dr Steff Scott Stef.Scott@salisbury.nhs.uk

A Research Ethics Committee established by the Health Research Authority

Appendix K

Salisbury NHS
NHS Foundation Trust

Salisbury Research Support Service
Block 24 SDH South
Salisbury District Hospital
Salisbury
Wiltshire
SP2 8BJ
Telephone: (01722) 425026
Email: stef.scott@salisbury.nhs.uk

30th November 2012

Ms Rachel Hamblin
Clinical Psychology
Salisbury District Hospital
Salisbury
Wiltshire
SP2 8BJ

Dear Rachel Hamblin

CSP number:	**Not applicable**
REC number :	**12/SC/0629**
UKCRN ID number:	**Not applicable**
RDMC number	**38/2012/2013**
Title:	**Examining Body Image in Spinal Cord Injury**

Thank you for submitting the above research project to the Salisbury Research Support Service (RSS) for NHS permission to proceed at Salisbury NHS Foundation Trust.

I am pleased to inform you that NHS permission to proceed for the above research was granted for Salisbury NHS Foundation Trust on Date. Salisbury NHS Foundation Trust will act as a Participant Identification Centre. We note that Spinal Unit may identify and refer potential study participants to the Chief Investigator and their study team. The NHS permission to proceed applies to this referral only. Salisbury NHS Foundation Trust is not a research site, and is not responsible for the conduct of any research activities..

NHS permission was granted on the basis described in the application form, protocol and supporting documentation.

You should notify the RSS Office, within the same timeframe of notifying the REC and any other regulatory bodies, of the following:

- Amendments (including changes to the local research team) in accordance with guidance on IRAS
- Progress reports
- Changes to the status of the study
- End of study reports

Please do not hesitate to contact the RSS Office on 01722 425026 if you require any additional information or support.

I wish you every success with your research project

Yours sincerely

Stef Scott

Dr Stef Scott
RSS Manager

The Salisbury Research Support Service provides research management and governance services to Salisbury NHS Foundation Trust, NHS Bournemouth and Poole, NHS Dorset, and Salisbury NHS Foundation Trust (Sarum Consortia Alliance).

Appendix L

Salisbury NHS
NHS Foundation Trust

Salisbury Research Support Service
Block 24 SDH South
Salisbury District Hospital
Salisbury
Wiltshire
SP2 8BJ
Telephone: (01722) 425026
Email: stef.scott@salisbury.nhs.uk

14th January 2013

Ms Rachel Hamblin
Clinical Psychology
Salisbury District Hospital
Salisbury
Wiltshire
SP2 8BJ

Dear Rachel Hamblin

CSP number:	**Not applicable**
REC number :	**12/SC/0629**
UKCRN ID number:	**Not applicable**
RDMC number	**38/2012/2013**
Title:	**Examining Body Image in Spinal Cord Injury**
REC amendment dated	**17 December 2012**

Thank you for submitting substantial amendment 1 of the above named study to to the Salisbury Research Support Service (RSS) for NHS continuing permission to proceed within Salisbury NHS Foundation Trust We have reviewed the amendment documentation accordingly, and this letter confirms their continued permission for Salisbury NHS Foundation Trust to act as a participant identification centre for the above study. The amendment may be implemented locally at your convenience.

Please ensure that all study personnel, including those in support departments, are aware of the amendment, and have up-to-date versions of the paperwork.

Please do not hesitate to contact the RSS Office on 01722 425026 if you require any additional information or support.

I wish you every success with your research project

Yours sincerely

pp

Dr Stef Scott
RSS Manager
Cc:

	Dr Nigel North
Academic Supervisor:	Dr Catherine Brignell
Sponsor Contact:	Martina Prude

The Salisbury Research Support Service provides research management and governance services to Salisbury NHS Foundation Trust, NHS Bournemouth and Poole, NHS Dorset, and Salisbury NHS Foundation Trust (Sarum Consortia Alliance).

Appendix M

Research Governance Feedback on your Ethics Submission (Ethics ID:3998)

ERGO [DoNotReply@ERGO.soton.ac.uk]
Sent:18 October 2012 15:42
To: Hamblin R.P.

Submission Number 3998:
Submission Title Examining Body Image in people with Spinal Cord Injury:
The Research Governance Office has reviewed and approved your submission

You can begin your research unless you are still awaiting specific Health and Safety approval (e.g. for a Genetic or Biological Materials Risk Assessment) or external ethics review (e.g. NRES).If your study is classified as requiring NRES review and you are being sponsored by the University of Southampton you will receive a paper notification of sponsorship from the Research Governance Office which will enable you to submit for NRES review.
If you do not receive this within two working weeks or have any queries please email rgoinfo@soton.ac.uk quoting your ERGO submission ID number.The following comments have been made:

"I can confirm that this study and the work detailed in the protocol and Ethics Submission will be covered by the University of Southampton Insurance Programme. A letter of Sponsorship and Insurance Certificate will be forwarded shortly. I have reviewed your IRAS application separately, this is all correct to be submitted to the REC; please upload a copy after you have approval and inform RSO for your faculty so this is not re-submitted to the FEC for review. "

ERGO : Ethics and Research Governance Online
http://www.ergo.soton.ac.uk

DO NOT REPLY TO THIS EMAIL

Appendix N

Research Governance Feedback on your Ethics Submission (Ethics ID:5102)

ERGO [ergo@soton.ac.uk]
Sent:19 December 2012 09:54
To: Hamblin R.P.

Submission Number 5102:
Submission Title Examining Body Image in people with Spinal Cord Injury (Amendment 1):
The Research Governance Office has reviewed and approved your submission

You can begin your research unless you are still awaiting specific Health and Safety approval (e.g. for a Genetic or Biological Materials Risk Assessment) or external ethics review (e.g. NRES).The following comments have been made:

"I am happy to approve this amendment and for you to submit it to the NHS REC"

ERGO : Ethics and Research Governance Online
http://www.ergo.soton.ac.uk

DO NOT REPLY TO THIS EMAIL

Appendix O

Scoring Procedures

The Multidimensional Body Self-Relations Questionnaire (MBSRQ-AS)

(*reverse-scored items)

Appearance evaluation = mean of items 3 5 9 12 15 18* 19* (Range 1=dissatisfied, 5= satisfied)

Appearance orientation = mean of items 1 2 6 7 10 11* 13 14* 16* 17 20* 21 (Range 1= importance not important, 5=appearance orientated)

Body areas satisfaction = mean of items 26 27 28 29 30 31 32 33 34 (1=dissatisfied, 5= satisfied)

Overweight preoccupation= mean of items 4 8 22 23 (1=dissatisfied, 5= satisfied)

Self-classified weight = mean of items 24 25 (1=underweight, 5=overweight)

The Appearance Schemas Inventory-Revised (ASI-R) (*reverse-scored items)

Range from 1-5 (1 = appearance not important, 5 = appearance orientated)

Composite ASI-R score = mean of the 20 items

Self-evaluative salience = mean of items 2, 5, 7, 8, 9*, 11*, 13, 14, 15, 16, 19, 20.

Motivational salience = mean of items 1*, 3, 4*, 6, 10, 12*, 17, 18.

The Body Image Quality Of Life Inventory (BIQLI)

The BIQLI provides one composite score, computed as the mean of its 19 items on the 7-Point response scale with values and score range from -3 to +3 (-3 poor BI quality of life, +3 good BI quality of life)

The Body Image Coping Strategies Inventory (BICSI)

Range 0-3 (0 = doesn’t use coping strategy, 3 = frequent use of coping strategy)

Appearance fixing: mean of 10 items—1, 4, 5, 6, 8, 13, 14, 19, 24, 26

Avoidance: mean of 8 items—3, 7, 9, 11, 17, 21, 25, 28

Positive rational acceptance: mean of 11 tems—2, 10, 12, 15, 16, 18, 20, 22, 23, 27, 29

Hospital Anxiety and Depression Scale (HADS)

Range 0-21(0-7= normal range, 8-10= borderline, 11+ clinical range)

Items 1, 3, 5, 7, 9, 11 and 13 were added together to form the Anxiety subscale

Items 2, 4, 6, 8, 10, 12 and 14 were added together to form the Depression subscale