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## Instagram Use and Body Dissatisfaction: A Research Portfolio

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Doctorate in Clinical Psychology

The University of Edinburgh

Final submission: May 2019



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## Lay summary

Billions of people worldwide use social media, and social networking sites such as Facebook to connect with friends and interests. Consequently, we are exposed to more photographs of people than ever before. Many people, both those we know, and others we might see on social media sites such as celebrities, will often upload the best photographs of themselves online, they may even use photoshopping to make themselves look 'better'. In the past, research has shown that seeing images of models and celebrities in fashion magazines and on television can make us feel worse about our own bodies, often because they show people who have aesthetically desirable features such as smooth skin, a slender figure or perhaps they are toned and muscular. Self-comparison to these 'ideals' is a common reaction, leaving us feeling we too should look like this, which for many people is impossible. Recent research discovered that just like when we see fashion magazines and TV programmes, looking at photographs of others on social media might have the same effect on how we feel about our bodies, especially if the images we see aren't realistic due to filters and photoshopping.

This portfolio is split into two parts. The first chapter attempts to bring together the research undertaken thus far exploring whether Instagram use and body image have a relationship. Instagram was chosen because it is a popular social networking site, but also as it is solely used for sharing photos and videos, this being the specific element of social media we are interested in investigating. When examining all the research together, we found some evidence that Instagram use does impact on how we feel about our bodies, depending upon, how long we use it for, what types of photos and images we spend time looking at, and how likely we are to compare ourselves to other people when using it. However, not all the research was consistent and so we have made suggestions on how to further explore this topic, and ways in which the research can be made more reliable. We have also explored issues around how reliable our own review of the research was. Finally, we consider how we might use the findings in the hope of protecting people from potential negative impact of Instagram use on their body image.

The second chapter outlines an experiment investigating whether looking at Instagram photos of attractive celebrities and peers would cause a change in body dissatisfaction and mood in teenage girls, compared to looking at photos without people in them. We put 225 girls into one of three different groups, either looking at Instagram images of attractive female celebrities, attractive non-familiar peers, or travel. The results showed that the girls who looked at photos of people (celebrities and peers) felt more dissatisfied with their own bodies

and worse in mood after looking at them, compared to the girls who looked at travel images who did not feel worse about their bodies or their mood. This experiment adds to what we know about the impact of photo-based social media use on young people. Ways in which this information could be used, and suggestions of avenues for further research are discussed.

## Thesis abstract

**Aims:** Similarly to traditional mass media, social media use has recently been identified as a potential risk factor in negative body image outcomes. Given its numerous uses and applications, it is important to investigate which specific aspects of social media and the way it is used influences body image. Social comparison has been identified as a possible mechanism by which the influence of exposure to social media impacts upon body image. Unprecedented twenty-four-hour access to photographs of others has led to increased opportunities for making social comparisons. Therefore, the aim of the first chapter of this research portfolio is to systematically collect and review research conducted thus far on the impact of using Instagram, a photo-based, social media platform on body image outcomes. The second aim, addressed through an empirical approach, investigates whether exposure to appearance-based Instagram content, impacts upon body dissatisfaction and negative mood in a group of adolescent females, a population at increased vulnerability to body image concerns, and who demonstrate increased social comparison.

**Method:** A systematic review of the current literature was carried out to address the first aim of this project. This included a review of 13 quantitative studies which all examined the effects of Instagram on body image outcomes. To address the second aim, 225 female adolescents completed an online experiment, after being randomly allocated to one of three conditions; exposure to Instagram images of attractive female celebrities; exposure to Instagram images of attractive non-familiar peers; and exposure to non-appearance-based Instagram images of travel. Both prior to and post exposure, participants were asked to complete measures of state mood and body dissatisfaction. A measure of trait self-esteem was also taken to investigate whether this construct acts as a moderator in the relationship between exposure to the celebrity and peer images and body dissatisfaction.

**Results:** The systematic review highlighted a significant relationship between certain elements of Instagram use and various body image outcomes. Findings from experimental studies suggest the type of images one is exposed to, particularly images of others, impacts negatively upon body image. However, there were some inconsistencies in findings across studies reviewed. Results also suggest that social comparison plays a moderating role between Instagram use, and appearance dissatisfaction with other individual characteristics, such as one's appearance self-schema also implicated. Further research is recommended. Within the empirical project, multiple hierarchical regression revealed that adolescent females exposed to images of attractive celebrities and unfamiliar peers experience a

significant increase in body and appearance dissatisfaction, and a significant increase in negative mood in comparison to those exposed to non-appearance-based images. There was no significant difference between the celebrity and peer image exposure groups. A moderation analysis revealed that self-esteem did not have a moderating effect between exposure to appearance centric social media images of celebrities or peers upon body dissatisfaction.

**Conclusion:** There appears to be emerging evidence that Instagram use, an image centric social media platform, and exposure to certain aspects of its content is related to negative body image outcomes. There is also an indication that the strength of this relationship may depend upon the extent to which one engages in social comparison. Research is still in its infancy, and given the popularity of such applications, particularly amongst young people, further research is recommended in strengthening and extending the evidence available.

## **Thesis overview**

This thesis comprises of a research portfolio carried out and submitted in partial fulfilment of the academic component of the Doctorate in Clinical Psychology at the University of Edinburgh. Chapter one provides a systematic review of empirical research exploring the relationship between the use of Instagram and body dissatisfaction. Chapter two details an empirical study, which explores the impact of exposure to Instagram images of celebrities, non-familiar peers and travel on body dissatisfaction and mood in adolescent females. Both chapters are prepared for submission to the journal *Body Image* and follow the authors guidelines (Appendix D).



# Instagram use and body image: A systematic review

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## **Abstract**

Exposure to social media has recently been identified as a potential risk factor associated with negative body image and disordered eating. In particular, social media use involving engagement with photo related activity, such as viewing images of others, has been identified as problematic in relation to body image. This paper aims to systematically collate, assess and review research examining the relationship between Instagram, a popular photo-sharing social networking site, and body image. A systematic search of electronic databases yielded 13 studies which met inclusion and exclusion criteria. Overall, the studies included demonstrated use of Instagram is associated with body image. The impact of frequency and duration of Instagram use on body image was inconsistent. Exposure to appearance-focused images such as fitpiration was identified as particularly problematic in several experimental studies. Appearance based social comparison was identified by two studies as having a mediating influence on the relationship between Instagram use and body image. It was concluded that further research is needed in light of limited evidence and methodological limitations to the current literature.

Keywords: body image; body dissatisfaction; Instagram; social media; social networking sites; adolescence;



## Introduction

The use of social media is prolific, and has expanded rapidly over the last decade (Greenwood, Perrin, & Duggan, 2016). Facebook, the most popular social media site, boasts nearly 2.19 billion active worldwide users, up from 12 million in 2006 (Facebook, 2018). Various social media applications have developed over the last decade, capitalising on the growth in popularity of this new method of connecting and communicating. One such area of development has been in image based social networking sites (SNS) such as Instagram, which allows the user to take, manipulate, send and post photographs and images of themselves, their lives and interests. With the introduction of the forward-facing camera into smart phones, the 'selfie', a photograph of oneself taken by oneself, and often posted on social media has become an everyday activity (Sorokowski et al., 2015), with up to 91% of teenage girls who use social media regularly posting photos of themselves online (Madden, Lenhart, & Cortesi, 2013). A consequence of this development in social media is a huge increase in the number of photographs and images of others that we are now exposed to, with 3.2 billion images uploaded onto social media platforms each day (Smith, 2018). Understanding the impact of this relatively new technology and subsequent behaviour change on our health and wellbeing has become the focus of much debate and scientific attention, one area which has attracted attention has been the impact upon body image.

Body image is considered a multifaceted construct, thought to contain several elements such as appearance and weight satisfaction; appearance orientation and evaluation; appearance and body esteem as well as body and weight perception, but it can be generally defined as 'a person's perceptions, thoughts, and feelings about his or her body' (Grogan, 2008, p. 4). The impact of exposure to traditional media imagery such as that in magazines and television has long been investigated, particularly in the field of body image (Grogan, 2008). Conclusions from meta-analysis examining the impact of exposure to models and celebrities in traditional mass media formats indicate that there is a detrimental impact upon women's body image (Grabe, Ward, & Hyde, 2008); these findings have also been observed in adolescent females (Hargreaves & Tiggemann, 2004). Similar findings have been observed in both adult and adolescent males (Aglia & Tantleff-Dunn, 2004; Knauss, Paxton, & Alsaker, 2007), however reported results in these populations have been mixed (Hargreaves & Tiggemann, 2004; McCabe, Ricciardelli, & Finemore, 2002; Van den Berg et al., 2007). Dissatisfaction with one's body has been identified as a particularly salient risk factor for a number of negative outcomes such as the development of eating disorders (Ohring, Graber, & Brooks-Gunn, 2002; Stice,

Marti, & Durant, 2011); obesity (Centers for Disease Control and Prevention, 2009) depression, and low self-esteem (Smolak, 2004) and suicidal ideation (Kim & Kim, 2009). Factors which contribute to its development therefore warrant academic investigation and attention.

Stice and Agras (1998) argue that the mass media acts as a transmitter of the 'body ideal' and conveys messages about the importance of appearance for social desirability. In western societies this body ideal in the female form is characterised by a slim, toned figure (Benton & Karazsia, 2015), something which many women find unattainable. For men, the ideal body image is seen as athletic, lean and muscular (Cohane & Pope, 2001). Due to continual and repeated exposure to such images in the media, individuals begin to internalise and accept these 'ideals' as reality, and they are subsequently seen as expected, achievable and normal (Grabe et al., 2008). Social Comparison Theory (Festinger, 1954) proposed that individuals are driven to compare themselves to others to evaluate their own qualities. Dissatisfaction occurs when 'upwards' comparisons, are made, whereby individuals deem their own qualities to be 'less than' those of the comparison target (Tesser, Millar, & Moore, 1988). Building upon this framework, Thompson, Heinberg, Altabe, & Tantleff-Dunn (1999) suggested the influence of the mass media on body image is generated by the process of social comparison to the portrayed beauty ideal and thin-ideal internalisation, and the extent to which one internalises or 'buys into' the appearance/attractiveness ideal constructed within society as the standard (Thompson & Stice, 2001).

Given the impact of traditional mass media imagery on body image, researchers have been keen to explore whether 'new' social media may have a similar effect. It has been argued that exposure to imagery of others on social media may lead to a greater risk of negative body image outcomes in comparison to traditional media due to its ease of accessibility, its interactive and multi-purpose nature, and also that the imagery displayed is not just of fashion models or celebrities, but of people familiar and similar to us (Perloff, 2014; Prielor & Choi, 2014). Social comparison theory suggests that individuals are more motivated to compare themselves to those whom they perceive as similar (Festinger, 1954) and therefore with vast the increase in exposure to imagery of peers via social media use, there are more opportunities than ever to make social appearance comparisons. Perloff's (2014) transactional model of social media and body image suggests that social media, working via social comparison, can significantly influence body image concerns dependent upon predisposing individual vulnerabilities such as low self-esteem or low mood, which may drive

an individual to seek out gratification online for reassurance, only to face increased dissatisfaction due to upwards social comparison against idealised images of peers and others.

One of the possible risks of such comparisons is the tendency for individuals to manipulate the images they share on social media in order to present their 'best selves' (McLean, Paxton, Wertheim, & Masters, 2015). By using a variety of appearance modifying tools users can enhance their self-images towards the more attractive ideal, whether this be smoother skin, a slender figure, whiter teeth, or brighter eyes. Unfortunately, research has suggested that individuals can find it difficult to detect whether images of others have been manipulated in this way (Kleemans, Daalmans, Carbaat, & Anschütz, 2018) and so comparisons and subsequent self-evaluations may once again be made against something which is unrealistic and unattainable creating the potential for dissatisfaction with the self.

A systematic review conducted by Holland & Tiggemann (2016), examined the evidence surrounding the impact of general social media use on body image. They identified an emerging link between the use of social media, body dissatisfaction and eating concerns, however findings were inconsistent. They concluded that specific types of social media and SNS use may be more likely to contribute to negative outcomes and recommended continued research, particularly in relation to image based social media platforms, implicating that engagement with appearance focused imagery may increase the risk of negative body image outcomes. Since this time, several studies have focused on image based social media use and its relationship to body image. One specific social media application that has attracted empirical research over the past few years has been Instagram. Unlike Facebook, this SNS is almost exclusively image based, its main purpose being the creation, editing and sharing of photographs. Instagram has more than 800 million users and is the leading SNS photo-sharing application globally (Instagram, 2018). Given that this is a rapidly expanding and developing area of technology, and the reach across vast numbers of users, efforts should be made to keep abreast of current developments to refine and focus future research, and to support the generation of potential interventions in protecting people from adverse outcomes.

The aims of this review are therefore to systematically collate the research exploring the relationship between Instagram use and changes in body image, and to assess the methodological quality of the identified research in an attempt to address whether use of Instagram has a negative impact upon body image outcomes.



## Method

The literature review was carried out following guidance outlined in the 'Methods for the development of National Institute of Clinical Excellence (NICE) public health guidance, third edition' (National Institute for Health and Clinical Excellence, 2006) which describes the methodology used by the Centre for Public Health Excellence in NICE to develop and update public health guidance. As part of this aim, it outlines good practice for the generation of systematic reviews. A protocol for the review was submitted to PROSPERO international prospective register of systematic reviews in January 2018 ref: CRD42018086046.

### Literature search strategy

A systematic literature search was carried out in January 2018 using the following electronic databases: PsycINFO, Medline and Embase; ProQuest Social Science Journals, ASSIA and ProQuest Dissertation and Thesis Global to search for grey literature. The following search terms were used with date parameters set between 2005 and 2018: ("body image" OR "body dissatisfaction" OR "weight dissatisfaction" OR "appearance dissatisfaction" OR "body satisfaction" OR "appearance satisfaction" OR "weight satisfaction" OR "body esteem" OR "drive for thinness" OR "drive for muscularity") AND Instagram. The search parameters for the term 'Instagram' was set to 'full text' as it was identified several studies reviewed a range of social media platforms which may not have been specifically alluded to in the title or abstract individually. As well as the electronic search, a manual search of the reference lists from included articles was also conducted to identify any further articles not generated by the electronic search.

### Inclusion and exclusion criteria

#### *Population*

Studies were included which contained research on any age, nationality and gender of participant. The majority of studies included were conducted with an undergraduate female population between the ages of 18 and 30.

Studies were excluded from the review if they were investigating a clinical population with any mental or physical health condition which may have impinged on or influenced their body esteem, for example studies including participants with eating disorders or body dysmorphic disorder.

### *Outcomes*

Studies were included if they utilised a measure of body image, as well as an indicator of Instagram use. Given body image is considered a multifaceted and multidimensional construct which has been measured in a multitude of ways across the literature, this review used an inclusive approach to outcome measures given the broad definition of body image used. Therefore, any validated measure for which the author of the studies under review had identified as measuring either: body image; body or appearance esteem; body/weight/appearance satisfaction or dissatisfaction; body/weight/appearance orientation or preoccupation, as well as related or slightly more indirect psychological indicators of body dissatisfaction such as drive for thinness or drive for muscularity. However, studies were excluded if the only indication of body image/dissatisfaction related to measures of behaviour, such as exercise or eating habits as it could not be assumed these are a measure of body image or dissatisfaction.

A measure of Instagram use was defined as any measure of time spent or exposure to the site in any form (for example via personal computer mobile phone, laboratory or natural setting). Measures pertaining to more specific types of exposure to Instagram content, for example exposure to images relating to hashtags such as #fitspiration, were also included. Finally, also included were any measures of a specific style or type of use of the site: for example, studies measuring the posting of 'selfies' onto Instagram, or any measure of the following of certain types of accounts (e.g. celebrity accounts).

Studies were excluded if they measured exposure to or use of Instagram as well as other social media platforms such as Facebook but only reported outcomes as a general 'total' measure of SNS use rather than breaking analyses down by specific site. In these cases, authors were contacted to investigate whether the original outcomes relating to Instagram were available however none were subsequently included as none were made available.

### *Study Design*

Studies were eligible for inclusion if they provided data on the relationship between Instagram use as described above and a measure of body image, regardless of the specific aim of the study. To reduce publication bias, dissertation and theses were included. Qualitative and single case study designs were excluded, as were poster presentations and conference abstracts. Only articles written or published in English were included for review.

### **Extraction of data**

Table I.1 details a summary of the key characteristics extracted from each study. This includes the author and year, the sample characteristics, study design, the measures of body image; measure of Instagram use, and the key findings relating to the relationship between Instagram and body image.

### **Quality assessment**

The tools utilised to assess the methodological quality and risk of bias in each of the papers selected for review were the NICE Quality Appraisal Checklists for Quantative Intervention Studies and for Quantative Studies Reporting Correlations and Associations. Due to the review including literature with both types of research methodology, it was felt these tools were closely comparable and required little in the way of adaptation for use within the current review. Minor adaptations were made by removing questions pertaining to the relevance of outcomes in the UK. For the final tools utilised see Appendix A.

There are five sub-sections within each of the checklists which contain several items relating to the specific area of methodological quality under scrutiny, with each item awarded a grade (please refer to Appendix A for grading descriptions) dependent upon how well the study under assessment has met the specific issue in question. The first section relates to external validity and the extent to which the findings are generalisable beyond the scope of the population drawn for the study. Section two considers selection bias and any differences between groups. Section three addresses outcome measures used, their reliability, relevance and completion. Section four relates to the analyses conducted, power and sample size. The final summary section requires an overall grade for both internal validity and external validity based upon all of the grades assigned. The quality assessment checklists recommended by NICE are based upon the GATE framework for critical appraisal (Jackson et al., 2006).

Each paper was assessed using these checklists by the first author of this review. The third author carried out an independent review of three of the included studies (23%) using the same quality checklists to review inter-rater reliability. Agreement between the two raters was subsequently calculated at 88% for summary scores. The items which held the discrepancy were subsequently discussed between the two raters, an agreement was reached and the score subsequently amended to reflect this agreement.



**Table 1.1 Characteristics of included studies**

Author	Study Design, setting	Participants Sample size and sample	Gender, mean, age	Intervention Aim and method	Outcomes Measures of body image and Instagram use	Main findings
Ahadzadeh, Pahlevan Sharif, & Ong, (2017)	Correlational Malaysia	N = 273 Undergraduates from 2 private universities	Males: 37.7% Females: 62.3% Age range: 18-26 yrs Mean age: 20.9 yrs	Investigated relationship between Instagram use and body dissatisfaction. Investigated self-schema and self-discrepancy as mediators, self-esteem as moderator. Online survey	BIQ BASS  Time spent on Instagram per day Follower of celebrity account or not Types of image posted on Instagram	Total effects model indicated a significant negative effect of Instagram use (duration) on body satisfaction. Self-schema and self-discrepancy mediated this relationship Self-esteem moderated relationship between Instagram use and self-schema
Brown & Tiggeman (2016)	Experimental Australia	N = 138 Undergraduates	Female: 100% Age range: 18-30 yrs Mean age: 20.10 yrs	Investigated impact of exposure to Instagram appearance-centric images on body image. Random assignment into three image exposure groups: attractive celebrities, peers or control group (travel condition).	3 x VAS scales measuring facial, weight and appearance satisfaction State Appearance Comparison Scale	Appearance-centric Instagram image exposure led to significantly greater negative mood and body dissatisfaction. No difference between peer and celebrity image exposure State appearance comparison mediated the impact of image type on body dissatisfaction
Cohen & Waters (2016)	Correlational USA	N = 129 Convenience sample via researcher's professional contacts and social media account	Female: 100% Age range: 18-25 yrs Mean age not reported	Explored impact of frequency and duration of Instagram use and type of account followed on body image outcomes and whether type of account followed (celebrities or celebrities and peers). Online survey	MBSRQ Appearance subscales: <i>Appearance Evaluation</i> <i>Appearance Orientation</i> <i>Overweight Preoccupation</i> BASS Frequency of Instagram use Duration of Instagram use Type of account followed	No difference found between those considered high frequency users (7 days per week) vs low frequency users (<7 days per week) in any of the MBSRQ subscales or BASS. Significant increase in AO subscale in those that spent 1-2 hours per day on Instagram in comparison to those that spent more and less time than this duration. Significantly higher scores on OP subscale for those that followed celebrities and friends vs. just friends.
Cohen, Newton-John & Slater. (2017)	Correlational Australia	N = 259 Participants recruited via social media	Female: 100% Age range: 18yrs-29 yrs Mean age: 22.97 yrs	Investigated whether type of Instagram account followed (appearance focused vs. appearance neutral) impacts upon body image outcomes. Online survey	SATAQ-3 subscale: <i>Thin ideal internalisation</i> PACS MBSRQ subscale: <i>Appearance Comparison</i> OBCS <i>Body surveillance subscale</i> Frequency and duration of Instagram use Type of account followed: <i>Appearance focused (Health and fitness or celebrity)</i> <i>Appearance neutral (travel)</i>	Those who use Instagram demonstrated higher body surveillance compared to those who did not. There was no significant difference found in any other body image variable measured. Following health and fitness accounts was significantly positively correlated with thin ideal internalisation and drive for thinness Following celebrity accounts was significantly positively correlated with thin ideal internalisation and body surveillance Following travel accounts did not significantly correlate with any of the body image variables.

Study	Participants	Intervention	Outcomes			
Author	Design, setting	Sample size and sample	Gender, mean, age	Aim and method	Measures of body image and Instagram use	Main findings
Dignard & Jarry (2017)	Experimental Canada	N = 340  University Undergraduates	Female: 100% Age range not reported Mean age: 20.6 yrs	Study compared the impact of exposure to fitspiration images with thinspiration images and appearance neutral images in body image outcomes. Participants were randomly allocated into one of three image exposure conditions, fitspiration, thinspiration and a control condition (travel images).	BISS SSES State Appearance Comparison Scale INCOM BEECOM ASR-I	Exposure to fitspiration and thinspiration conditions (appearance focused) reported significantly lower appearance satisfaction post exposure compared to control. Those in the fitspiration condition demonstrated significantly lower appearance self esteem compared to the control. State appearance comparison mediated the effect of both appearance focused conditions on body dissatisfaction and appearance self esteem Trait social comparison and trait body comparison moderated the relationship between appearance focused images and appearance comparison.
Griffiths, Murray, Krug, & McLean, (2018)	Correlational Australia	N = 2733  Recruited via dating app	Male: 100% Transgender: 0.3% Other: 0.6% Age Range: 18-78 yrs	Investigated the impact of Instagram on body dissatisfaction in sexual minority men. Online survey	MBAS-R subscales: <i>Body fat dissatisfaction</i> <i>Muscularity dissatisfaction</i> <i>Height dissatisfaction</i> Duration of Instagram use	Increased use of Instagram was significantly positively correlated to muscularity dissatisfaction and height dissatisfaction, but not body fat dissatisfaction.
Hendrickse, Arpan, Clayton, & Ridgway (2017)	Correlational USA	N = 185  University Undergraduates	Female: 100% Age range not reported Mean age: 21.04 yrs	Examined relationship between appearance related comparisons made on Instagram and body image outcomes. Appearance related social comparison investigated as a mediator between Instagram activity and body image outcomes.	EDI subscales: <i>Drive for thinness</i> <i>Body dissatisfaction</i> 3 items regarding appearance related comparisons on Instagram Instagram photo activity (posting habits) Duration of time spent on Instagram	Direct effect of Instagram use on drive for thinness and body dissatisfaction was not significant. Relationship became significant via the mediating influence of social appearance comparison.
Holland & Tiggeman (2015)	Correlational Australia	N = 203  Participants recruited via Instagram	Female: 100% Fitspiration group: N = 101 Mean age: 26.05 yrs Travel group N = 102 Mean age: 30.51 yrs	Examined difference in body image variables between those who post appearance-based Instagram content (Fitspiration) and those who post appearance neutral content (travel). Participants were allocated into two levels of independent variable (type of image poster) depending upon observations from their accounts.	EDI subscales: <i>Drive for thinness</i> <i>Body dissatisfaction</i> <i>Drive for muscularity (adapted from Drive for Thinness)</i>	This who post fitspiration images scored significantly higher than those who post travel images for drive for thinness and drive for muscularity but not body dissatisfaction.

Study	Participants	Intervention	Outcomes			
Author	Design, setting	Sample size and sample	Gender, mean, age	Aim and method	Measures of body image and Instagram use	Main findings
Kleemans et al., (2018)	Experimental Netherlands	N = 144  Recruited from schools	Female: 100% Age Range: 14-18 yrs Mean age: 15.92 yrs	Investigated the impact of photoshopped Instagram selfies of attractive non-familiar peer vs. same non-photo-shopped image. Participants randomly allocated into one of the two conditions, Social comparison investigated as potential moderator if relationship between image type and body image outcomes.	BISS INCOM	Those in the photoshopped image condition reported lower body satisfaction post exposure compared to those in the non-photoshopped image group.  Social comparison moderated the relationship between images and body satisfaction in both groups, this effect was stronger in the photoshopped image group.
Ridgway & Clayton (2016))	Correlational USA	N = 420  Participants recruited online via Amazon M-Turk	Male: 64% Female: 36 % Age range: 18-62 yrs Mean age: 29.3yrs	Investigated the relationship between Instagram 'selfie' posting and body image. Online survey	BPSS-R Total number of selfies uploaded by participants (self-report) Duration of Instagram use Frequency of Instagram use	Body image satisfaction was positively sequentially associated with posting selfies on Instagram.
Slater, Varsani, & Diedrichs, (2017)	Experimental UK	N = 160  University undergraduates	Female: 100% Age range: 18-25 yrs Mean age: 21.21 yrs	Examined differences between exposure to Instagram fitspiration images vs. text only self-compassionate quotes Instagram posts vs. control condition (interior design Instagram images) Participants randomly allocated into exposure condition (fitspiration OR fitspiration AND compassionate quote OR self-compassionate quote OR interior design as control).	PACS SATAQ-3 subscale: <i>General internalisation</i> VAS scales: <i>Weight satisfaction</i> <i>Body satisfaction</i> <i>Overall appearance satisfaction</i> Duration of Instagram use Number of accounts followed Frequency of Instagram posting Type of image typically posted	No significant difference observed between participants who viewed fitspiration images vs. interior design on any body image outcomes. Viewing compassionate images led to greater self-compassion compared to neutral images. Exposure to a combination of both fitspiration and compassionate quotes led to more positive outcomes across variables compared to just fitspiration images alone Thin ideal internalisation moderated the relationships between image typed and body image outcomes
Tiggeman & Zaccardo (2015)	Experimental Australia	N = 130  University undergraduates	Female:100% Age range: 17-30 yrs Mean Age: 19.91 yrs	Investigated the impact of viewing fitspiration images on body image Participants randomly allocated to either view fitspiration Instagram images or control condition (travel Instagram images)	VAS scales: Facial dissatisfaction Weight dissatisfaction Appearance dissatisfaction PACS SESS State appearance comparison scale Duration of Instagram use per day	Those in the fitspiration condition reported significantly higher body dissatisfaction and lower state self-esteem n comparison to the control condition State appearance comparison mediated the impact of image type on body dissatisfaction Trait appearance comparison moderated relationship between image type and body dissatisfaction

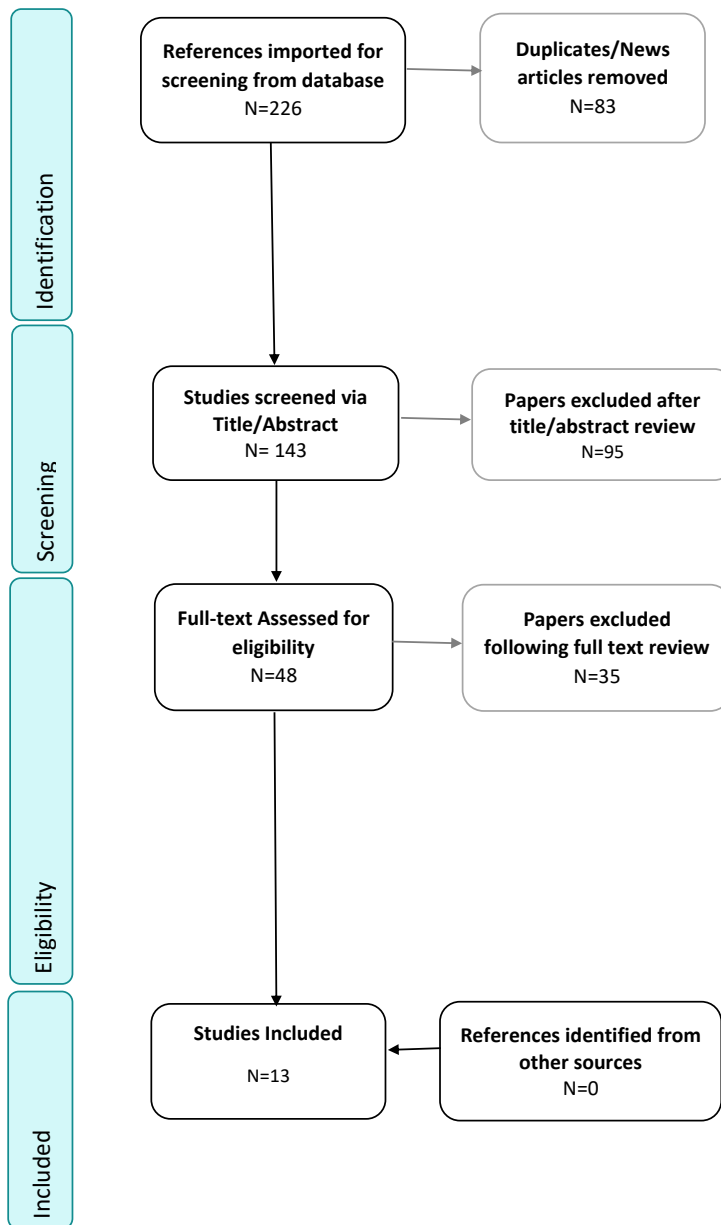
Author	Study	Participants	Intervention	Outcomes	Main findings	
Wagner, Aguirre, & Sumner, (2016)	Correlational USA	Sample size and sample N = 130  University undergraduates	Gender, mean, age Female: 100% Age range: 18-32 yrs Mean age: 19.9 yrs  Online survey	Aim and method Investigated the relationship between body size, perceived body size, body dissatisfaction and frequency of 'selfies' taken and frequency of 'selfies' uploaded onto Instagram	Measures of body image and Instagram use BMI BIAS-BD Number of selfies taken in past month Number of selfies uploaded onto Instagram in the last month	Taking of selfies was positively correlated with increased body dissatisfaction No significant relationship was found between any of the body image related measures and the posting of selfies onto Instagram.

*Note:* BASS, Body Area Satisfaction Scale; BEECOM, Body Eating and Exercise Comparison Orientation Measure; BIAS-BD, Body Image Assessment Scale – Body Dimensions; BISS, Body Image States Scale; BIQ Body Image Questionnaire; BMI, Body Mass Index; BPSS-R, Body Parts Satisfaction Scale – Revised ; EDI, Eating Disorders Inventory; INCOM, Iowa-Netherlands Comparison Orientation Measure; MBAS-R, Male Body Attitudes Scale – Revised; MBSRQ, Multidimensional Body Self Relations Questionnaire; OBCS, Objectified Body Consciousness Scale; PACS, Physical Appearance Comparison Scale; SATAQ-3, Social Attitudes Towards Appearance Scale; SSES State Self-Esteem Scale; VAS (Visual Analogue Scale)  
All measures were self-report unless otherwise stated

## Results

A total of 226 studies were initially identified via the electronic database search. Following removal of duplicates, newspaper and magazine articles, 143 studies remained. A further 95 studies were excluded after a screen of titles and abstracts, according to the inclusion and exclusion criteria. A final detailed review of the remaining studies involving a screen of the full text resulted in the exclusion of a further 34 articles. No studies were identified via screening reference lists of included and relevant articles. A total of 14 studies initially met the inclusion and exclusion criteria for the systematic review. See Figure 1.1 for a summary of the literature search process, based on the PRISMA reporting system for systematic reviews (Moher D, Liberati A, 2009). The third author of this review subsequently checked 20% of studies excluded at each stage, using the same methodology and criteria. The same individual checked all the final included studies to monitor agreement and inter-rater reliability as to whether they met the initial inclusion criteria. Agreement for the studies checked and excluded at the title and abstract screening and the full text screening stage was 100%; however, disagreement arose over one study included for review as the third author felt the measures used were not measures of body image. Following discussion with the second author, this paper was subsequently removed from the final group of accepted studies and the total included for review was 13 papers.

Figure 1.1 PRISMA flowchart of the selection process



### Summary of included studies

Of the 13 studies included, 11 were published in peer reviewed journals, whilst two were unpublished dissertations/theses. Eight of the included studies utilised a correlational design, whilst five employed an experimental design. The majority of studies investigated Instagram use in women only ( $N=10$ ) with only two studies drawing a mixed gender sample (Ahadzadeh et al., 2017; Ridgway & Clayton, 2016), and one using a male only sample (Griffiths et al., 2018). Seven of the studies drew from a university undergraduate sample, one from school age participants, and the remaining five studies utilised convenience and snowball sampling via social media to draw from the general population. Five of the studies were conducted in

Australia, four in the United States of America, with one study each carried out in the UK, Canada, and Malaysia. Table 1.2 outlines the quality assessment summary ratings of each paper included, measured by the adapted NICE tool for both internal and external validity.

### **Time spent on social media**

Five studies specifically reported upon the relationship between frequency and duration of use/exposure to Instagram and body image. In their cross-sectional study consisting of both a male and female sample, Ahadzadeh, Pahlevan Sharif, & Ong, (2017) found support for their hypothesis that increased duration of exposure to Instagram was related to increased body dissatisfaction. In another correlational study, Cohen & Waters, (2016) investigated the impact of both frequency and duration of Instagram use across a multitude of appearance satisfaction variables. By splitting the sample of 129 females into groups of high frequency users (those who used Instagram every day of the week) and low frequency users (those who used Instagram less than seven days a week), comparison analyses indicated that frequency of use did not impact upon any of the body or appearance satisfaction outcomes. When examining the daily duration of Instagram use, findings suggested that those who spent between 1 to 2 hours on Instagram per day demonstrated significantly higher appearance orientation (the importance and investment one places in their own appearance) in comparison to those who used the platform both more, and less than this period of time. In the only study using a sample solely comprised of male participants, recruited from a dating app for sexual minority men, Griffiths et al., (2018) explored the impact of multiple SNS upon body image outcomes. Analyses revealed that there was a small sized positive relationship between duration of Instagram use and both muscularity and height dissatisfaction. There was also a significant relationship between Instagram use and body dissatisfaction, however researchers felt the effect size was too small to be noteworthy given the large sample size ( $n=2733$ ). Interestingly, Instagram demonstrated the largest effect size in the relationship between muscularity dissatisfaction and exposure to the platform, equalled only by Snapchat, another purely image-based application, in contrast to other SNS studied such as Facebook, Twitter, dating apps and YouTube. Investigators concluded that 'image-centric' platforms such as Instagram and Snapchat held a stronger positive relationship with body dissatisfaction outcomes in comparison to non-image centric platforms such as Twitter, LinkedIn and Blogspot. In their exploration of Instagram use, measured by participants' self-rated frequency of various Instagram photo based activities such as browsing content and liking Instagram photographs, Hendrickse & Arpan, (2016) found no direct relationship between frequency of Instagram activity and body dissatisfaction or drive for thinness. However, when exploring the role of the extent to which participants engaged in appearance comparisons on Instagram,

they discovered that the relationships between Instagram activity and both body dissatisfaction and drive for thinness became significant with increased appearance related comparison. Therefore, those individuals with an increased tendency to compare themselves to others over Instagram whilst engaging with the content, experienced greater body dissatisfaction and drive for thinness the more they accessed the site. Finally, Cohen, Newton-John, & Slater, (2017) divided their sample of 259 women into either an 'Instagram user' group if they checked their account more than 1-2 times per day or a 'non-Instagram user group', if they indicated they did not have Instagram, or checked it 'hardly ever'. They examined differences in a number of body image outcomes such as thin ideal internalisation, body surveillance and drive for thinness between groups, and found only body surveillance was significantly higher in the Instagram user group.

### **Type of Image**

Seven of the included studies explored via various methodologies, the extent to which the types of images viewed on Instagram impacts upon body image. This was explored both in correlation and experimental studies.

Cohen et al., (2017) explored the relationships between following appearance focused (health and fitness, and celebrity) and non-appearance focused (travel) Instagram accounts and body image. Whilst controlling for BMI, they found following health and fitness accounts was positively correlated with thin ideal internalisation and drive for thinness. Following celebrity accounts was positively correlated with thin ideal internalisation and body surveillance. In contrast, following more appearance neutral accounts did not correlate with any of the body image variables. Cohen & Waters (2016), also investigated the type of account followed and compared those who followed celebrity accounts, with those who only followed friends and acquaintances, finding a significant positive correlation between following celebrity accounts, and 'overweight preoccupation', a construct which comprises anxiety and vigilance about one's weight. There was no correlation between account type followed and any of the other variables investigated including body satisfaction, appearance orientation or appearance evaluation.

Brown & Tiggeman (2016), experimentally investigated the impact of different types of images frequently found on Instagram on body image. Results demonstrated that brief exposure to appearance focused Instagram images of attractive celebrities and peers increased body dissatisfaction in comparison to exposure to appearance neutral images of travel. Kleemans, Daalmans, Carbaat, & Anschütz, (2018), found that exposure to digitally manipulated Instagram 'selfies', which had been retouched to reduce 'imperfections' such as making the

target of the photograph slimmer, and eliminating eyebags and wrinkles, resulted in lower body satisfaction in comparison to those who viewed the original untouched images.

In another experimental study, Dignard & Jarry, (2017) found that in comparison to viewing travel images, viewing 'fitspiration' images which depict thin, fit and lean individuals often engaging in exercise or dressed in exercise clothing, (Tiggeman, 2015) and 'thinspiration', images idealising thin and extremely thin individuals often designed to motivate weight loss (Boepple & Thompson, 2016), resulted in lower body satisfaction and appearance self-esteem. The effects of viewing fitspiration on these variables were 'statistically equivalent' to viewing thinspiration images. Also investigating the impact of exposure to fitspiration imagery, Slater, Varsani, & Diedrichs, (2017) randomly assigned undergraduate females into groups viewing Instagram images of either fitspiration, self-compassion quotes, a mixture of both, or appearance neutral images of interior design. Results showed no difference between those viewing fitspiration images to those who viewed appearance neutral images in body satisfaction, however they did find that those in the 'self-compassion' image condition demonstrated greater body satisfaction and body appreciation post exposure. Contrary to these findings relating to fitspiration, Tiggemann & Zaccardo (2016), assigned participants to view either Instagram fitspiration images or a control set of travel related Instagram images and found those in the fitspiration condition experienced increased body dissatisfaction and decreased state appearance self-esteem in comparison to those in the control condition.

### **Specific Instagram activity**

Three of the studies included within the review investigated the more interactive nature of Instagram, in particular the generation of imagery such as posting of photos and content. Holland & Tiggeman (2017), recruited women via Instagram who tended to exclusively post fitspiration (appearance focused) images on their accounts, and compared them to women who tended to exclusively post travel images (appearance neutral) in body image outcomes. They found that those who posted fitspiration content scored significantly higher on drive for thinness and muscularity than those who posted travel images, however no differences were observed in body dissatisfaction between groups.

Ridgway & Clayton (2016), investigated the relationship between selfie posting and body image satisfaction and found that being satisfied with one's body was sequentially associated with increased posting of selfies on Instagram, meaning that those who experienced increased satisfaction with their bodies tended to post more images of themselves on the platform. Wagner, Aguirre, & Sumner, (2016) found that dissatisfaction with one's body was not correlated to the number of selfies posted within their female sample. They did however find

that body dissatisfaction was positively correlated with taking (but not posting) selfies, meaning the more dissatisfied one is with their bodies, the more selfies are taken.

### **Underlying processes**

As previously mentioned, Thompson et al., (1999) suggested the internalisation of beauty and appearance ideals propagated by the media, and the subsequent appearance comparisons made by individuals with them can be a framework for understanding the impact of exposure to mass media on body image outcomes. In the context of Instagram use, a number of studies investigated the influence of both appearance comparison and thin ideal internalisation. Hendrickse & Arpan, (2016) found that the impact of Instagram activity on body dissatisfaction was fully mediated via appearance comparison, meaning that those who were more prone to making comparisons of the self to others on Instagram demonstrated increased body dissatisfaction and an increased drive for thinness with increased use. Brown & Tiggeman (2016), Dignard & Jarry, (2017) and Tiggemann & Zaccardo, (2016) found that state appearance comparison mediated the impact of viewing appearance focused images on body dissatisfaction, whilst Kleemans et al., (2018) found that a greater tendency to make social comparisons increased both the impact of Instagram images of an unfamiliar peer on body dissatisfaction when the image had been photoshopped to remove 'imperfections', but also when it had not. However, the increase in body dissatisfaction was greater when the image had been photoshopped. Slater et al., (2017) however found no moderating effect of thin ideal internalisation on the impact of Instagram fitspiration imagery relative to the control conditions (appearance neutral and self-compassionate imagery). They queried whether this might relate to the measure used which asked participants about their levels of social comparison to targets in traditional media formats such as TV and magazines rather than whether individuals made social comparisons to targets via social media such as friends and acquaintances (Slater et al., 2017).

In addition to social comparison, a number of studies explored other potential mediating and moderating variables when investigating the link between Instagram use and body image. Ahadzadeh et al., (2017) identified that higher appearance schema, the level of importance one places upon appearance, and self-discrepancy, the difference between an individual's perception of themselves and their 'ideal', mediated the relationship between exposure to Instagram and body dissatisfaction. They also discovered that higher levels of general self-esteem appeared to provide a 'buffering' effect, making the impact of Instagram exposure 'weaker' in terms of impact on self-schema. Conversely, lower self-esteem appeared to strengthen the impact of Instagram on appearance schema, indicating that self-esteem may

play a moderating role in the indirect effect of Instagram on body dissatisfaction via the mediating relationship of self-schema and self-discrepancy.

Hendrickse & Arpan, (2017) took an evolutionary approach and investigated the significance of intrasexual competitiveness for mates on appearance comparison. They found that intrasexual competitiveness significantly predicated appearance related comparisons made on Instagram, meaning those individuals who were 'competitive' around attracting and retaining a partner were more likely to engage in appearance comparisons on Instagram.

### **Methodological Quality**

Table 1.2 outlines the summary quality assessment ratings for each paper as measured by using both the adapted NICE recommended quality appraisal checklists for quantitative intervention studies and for studies reporting correlations and associations (National Institute for Health and Clinical Excellence, 2006).

The five experimental studies were given a higher grade of internal validity. This was mainly due to inclusion of control groups, and better overall control of confounding variables, with less risk of 'contamination' from potential confounders in comparison to the correlational studies. Some of the correlational studies were also at increased risk of bias to internal validity due to highly subjective and arbitrary creation of groups for comparison and analysis (e.g. allocation of participants into fitspiration posters vs travel posters, or frequent users vs. non-frequent users). Many studies were at risk of recall bias, given that questionnaires relied upon the memory of participants, for example to recall how often they posted selfies. A small number of studies may also be at risk of introducing a type I error, due to increased statistical testing and multiple comparisons without introducing any correction such as reduction in probability value, alongside a potential tendency to overstate any statistically significant findings obtained via these statistical methods.

External validity was limited for all studies, mainly due to convenience sampling. Most of the papers across both types of study design used an undergraduate student sample, reducing the generalisability to the wider population. One notable exception was the study by Ridgeway & Clayton (2016) who focused on recruiting a more representative sample from the general population of both males and females, with a larger age range and increased ethnic diversity when compared to the other studies included. Despite the limitations around sampling, the majority of studies reviewed provided clear details surrounding their sampling procedures and discussed these methodological limitations within their conclusions, highlighting the specific population for which their outcomes would be applicable to. One study was at

increased risk of threat to external validity given the high number of invited participants not opting in, and a lack of demographic detail about the participants who did choose to take part. Experimental studies also face external validity concerns due to difficulties generalising the findings from a laboratory setting into ‘real life’. For example, exposure to Instagram images that are flashed onto a screen for a certain number of minutes, without the opportunity to interact with it does not replicate the true nature and workings of Instagram in ‘real life’. A number of the experimental methods relied upon this type of exposure within their study.

Table 1.2 Methodological quality of the included studies

Author, year	Internal validity	External validity
<i>Experimental studies</i>		
Brown & Tiggeman (2016)	++	+
Dignard & Jarry, (2017)	++	+
Kleemans et al., (2018)	++	+
Slater, Varsani, & Diedrichs, (2017)	++	+
Tiggemann & Zaccardo, (2016)	++	+
<i>Correlational studies</i>		
Ahadzadeh et al., (2017)	+	+
Cohen & Waters, (2016)	-	+
Cohen, Newton-John, & Slater, (2017)	+	+
Griffiths, et al., (2018)	+	+
Hendrickse & Arpan, (2016)	+	+
Holland & Tiggemann, (2017)	-	-
Ridgway & Clayton (2016)	-	++
Wagner, Aguirre, & Sumner (2016)	-	+

Grade	Descriptor
++	All or most of the checklist criteria have been fulfilled, where they have not been fulfilled the conclusions are very unlikely to alter*
+	Some of the checklist criteria have been fulfilled, where they have not been fulfilled, or not adequately described, the conclusions are unlikely to alter*
-	Few or no checklist criteria have been fulfilled and the conclusions are likely or very likely to alter*

\*National Institute for Health and Clinical Excellence, pg 201 (2006)

## **Discussion**

A previous systematic review (Holland & Tiggemann, 2016) found emerging evidence of a link between the use of social networking sites and negative body image outcomes such as increased body dissatisfaction and disordered eating. One of the most salient findings from the review was that engagement in photo-based activities on Facebook, such as viewing, sharing and posting photographs was related to body dissatisfaction, and therefore they recommended that future research further examine image-based social media platforms such as Instagram in order to examine this relationship more exclusively. The aim of the current systematic review was therefore to collate and appraise the research conducted to date to explore whether Instagram use is related to body image. The authors of the current review are not aware of any other which focus purely on image-based social media engagement and body image. Following a systematic search of electronic databases, 13 studies were identified that met the criteria for inclusion into the review and included a variety of methodological approaches, both experimental and correlational. This review also sought to incorporate the methodological quality of the research to date in the interpretation of overall findings.

### **Summary of research findings**

Consistent with Holland and Tiggemann's (2016) conclusions, this review found evidence that engagement with photo-based social media content had a negative relationship with body image, with experimental research indicating that viewing several types of common Instagram content led to increased body dissatisfaction. The findings are also consistent with those investigating the impact of traditional mass media on body image (Grabe et al., 2008; Thompson & Stice, 2001; Tiggemann, Polivy, & Hargreaves, 2009)

The evidence examining the relationship between frequency and duration of use and impact upon body image is inconsistent as it is for more general use of social media (Holland & Tiggemann, 2016). Whilst the findings of some studies reported that frequency and or duration of use in and of itself is related to change in body dissatisfaction, not all studies drew the same conclusions, with some investigating and identifying individual characteristics such as one's self appearance schema, that may make users more susceptible or likely to demonstrate increased body dissatisfaction with increased usage. However, the studies investigating this link were correlational, and at this stage it is unclear whether increased appearance or body dissatisfaction leads individuals to spend more time on such sites, or vice-versa. As theorised by Perloff (2014), it may be that individuals with higher levels of appearance orientation, social comparison or appearance dissatisfaction and/or lower self-

esteem are driven to check or examine sites like Instagram to compare themselves to others, which could subsequently increase body dissatisfaction via upwards social comparison.

Within the included studies, measurement of duration and frequency of Instagram use tended to rely heavily upon participant recall which may affect accuracy and be prone to contamination by participants potentially including other social networking use in their overall judgement. It may be useful for future investigations make use of designs where Instagram use and body image outcomes can be tracked together over time, therefore reducing the burden of participant recall on the measurement. A further complication is difficulty in identifying whether increased usage of Instagram happens alongside increased usage of other social media platforms and content which remain unmeasured; consideration therefore should be afforded in attempting to control for such confounding variables. Perhaps restricting participants to one social media platform over time may be a potential solution.

In relation to the findings surrounding the type of images one is exposed to on Instagram, different methodological approaches were taken, such as investigating the impact of 'account type' participants followed, to experimentally manipulating the type of image type participants were exposed to and then measuring the impact on body image outcomes. In general, the trend in both experimental and correlational studies suggest that there is a relationship between the type of Instagram image one is exposed to and body image outcomes. Specifically that the more appearance focused the images are (such as images of celebrities, 'peers' and fitspiration), the increased risk of negative body image outcomes such as drive for thinness, thin ideal internalisation, weight preoccupations and body dissatisfaction. There was however some variation in findings and not all studies found consistent relationships between various body image variables and image type. The wide variation of images investigated, as well as variation in length of exposure, interactivity and type of image used make firm conclusions difficult to draw, but the available evidence does indicate that exposure to certain types of image, particularly those that are appearance focused are likely to be a variable risk factor for negative body image. It might be prudent to extend findings in this area by investigating a 'dose/response' approach to examine whether there is a 'critical level' of exposure duration to appearance focused Instagram imagery. In addition, investigating the specific characteristics of such imagery (e.g. leanness vs. muscularity vs. skin perfection for example) might be useful in exploring which components of the images are responsible for observed changes in body image outcomes. Replication studies would improve the quality of evidence available in discerning whether the types of images one is exposed to on Instagram is a causal risk factor in developing negative body image. In order to continue investigating the impact specifically

of these images transmitted via social media/Instagram, comparisons of exposure to such imagery should be made when they are delivered over social media in contrast to traditional media.

There was a distinct lack of research investigating the more interactive components of Instagram use. The studies included which did examine this aspect found that posting content on Instagram (specifically selfies) was not related to body dissatisfaction or negative body image outcomes; conversely the research indicates that those who are more satisfied with their bodies are likely to post more images of themselves. Should this be the case, it may be that those with more confidence and satisfaction in their appearance are generating the most content by which those who are less satisfied compare themselves to.

Finally, evidence collected under this review relating to underlying processes linking body image outcomes to Instagram use supported the mechanism of social comparison as a mediating risk factor, lending support to the social comparison theory (Festinger, 1954) and the more recent and specific transactional model of social media and body concerns proposed by Perloff (2014). In addition, other individual susceptibility characteristics were identified, such as the importance one places upon appearance and the discrepancy between where one perceives themselves to be, and where they ideally would like to be in relation to their body and appearance. Perloff (2014) and Prierer & Choi, (2014) both highlight the role social and individual differences play in putting young women at risk of body image disturbances. Drawn from body image dynamic research, they argue that vulnerabilities such as low self-esteem, depression, perfectionism, thin ideal internalisation and appearance importance are likely to play a role in the contribution of exposure to and use of social media and body image concerns. The role of these individual characteristics in the development or maintenance of body image concerns and use of social media have still to be empirically examined.

### **Limitations of the literature**

During this review of the literature, several limitations, particularly around methodological quality of the studies became apparent. One possible source of threat to the generalisability of the findings relates to how well the participants within the studies represent the wider population. Seven of the studies included in the review used convenience sampling, with researchers relying on students from their academic institution for participants. Research has suggested generalising findings from student samples to the general population is problematic, particularly when attitudinal and personal variables are studied as students as a population can vary distinctly from the public across these contexts, for example in expectation effects, motivation and intellect (Hanel & Vione, 2016). This may mean the results seen across the

studies might not translate in the same way to the wider populace. There are some positives to researching this population in and of itself however, they tended to be of the age group identified as being the largest consumers of social media (Greenwood, Perrin & Duggan, 2016) and also of an age group particularly vulnerable to the development of body dissatisfaction (Bucchianeri, Arikian, Hannan, Eisenberg, & Neumark-Sztainer, 2013). In addition, most participants across the 13 studies identified as White/Caucasian. In research conducted investigating exposure to appearance focused traditional media such as television programmes and music video, studies have demonstrated inconsistent and conflicting evidence as to whether this relationship applies to non-white females as well as it does with white females (Botta, 2000; see Levine & Murnen, 2009), therefore it would be important to establish if such findings occur across other culture and ethnicities. Holland & Tiggemann, (2016) also highlight that with the increased use of social media in older adults, investigating the impact of social media use in older adults would be of interest, particularly as older women also exhibit body dissatisfaction and are similarly judged in relation to a largely unobtainable beauty ideal of slenderness and youth (Haboush, Warren, & Benuto, 2012; Tunaley, Walsh, & Nicolson, 1999). Finally in relation to the sample, a limited number of studies investigated the impact of Instagram use on male body image. This research trend is consistent with that conducted in traditional mass media contexts and more general internet and social media use despite evidence that the mass media does influence body concerns in men (Daniel & Bridges, 2010; Galioto & Crowther, 2013; Stanford & McCabe, 2005). Applications of the findings to the male population therefore must be considered carefully with recommendations to develop further evidence within this population.

In relation to challenges with research design, as with any correlational investigations, cause and effect cannot be established. It is important to consider that although a relationship may be demonstrated, the direction of such relationship is unclear without further investigation involving longitudinal, prospective and experimental approaches. It is plausible that Instagram use does influence negative body image, however it is equally plausible that the direction of causality is reversed, or perhaps even more likely, bi-directional in nature, as suggested by Perloff (2014). It may be that if one is anxious and dissatisfied about their appearance they may be more likely to check and compare themselves to others, utilising spaces like Instagram to do so. This could then reinforce the dissatisfaction about appearance due to upward social comparison. The key ingredient in this example is the influence of individual characteristics and differences which may make one more susceptible to both the motivation to access social media and to making upward comparisons whilst doing so. The experimental research considered within this review is also subject to some limitations. All of the experimental

studies focused on short term effects and there was a lack of follow up over time to explore whether these effects were sustained. In addition, as can be typical of experimental research, ecological validity may impact upon the extent to which such outcomes might be observed in the 'real world' One of the core components identified by Perloff (2014) as pertaining to the difference social media and SNS sites hold in comparison to traditional media is its interactive content. Users can 'self-select' content by choosing to view images specific to their needs, tastes and interests. In most of the experimental studies, the images used for exposure were selected and presented by the researchers and not the participants, and were presented for a pre-specified length of time with participants unable to pause, scroll or zoom into the images. Perhaps utilising a control condition where these options are available, or whereby images are displayed in traditional media formats (like a magazine) would allow for comparison as to the difference (if any) made by transmission of and interaction with such imagery via social media specifically.

Finally, a lack of standardised measurement of SNS and social media use is apparent with researchers drawing conclusions about Instagram use in general when they have perhaps researched only a limited area of use, for example passive viewing in comparison to interactive engagement. (Prieler & Choi, 2014a) argue that given the nature of social media, its use is significantly more complex (with individuals acting as both consumers and generators of content) than the viewing of traditional media. They identify therefore that assessment of its use is a particularly difficult issue to overcome for researchers in the field. and argue the importance of measuring motivations for engaging with social media, as well as specifying the different aspects of social media use. This would allow for better scrutiny around which ingredients may contribute to the development and maintenance of body image disturbances over and above traditional media.

### **Limitations of the review**

The current review must also be considered in light of a number of limitations. Whilst efforts were made to identify all the appropriate studies relating to the variables investigated, there is a possibility some articles were missed. Only electronic databases were searched, however a manual search of the reference lists for studies included in the full screen was additionally carried out to reduce the chance of missing suitable studies not identified electronically. The review was also limited to studies written in English which may have introduced some bias into the review. However, in an attempt to increase the validity of the review findings, unpublished works were included. This is considered a strength, as excluding grey literature can expose reviews to publication bias (Winters & Weir, 2017). The review is qualitative in

nature and the methodological quality assessments were subjective. To increase the robustness of this process two independent raters were involved at both the screening and quality assessment stage to limit the impact of subjective bias where possible. Due to the difference in methodological approaches between studies, quantitative analysis was not possible, it would therefore be useful to consider a systematic meta-analysis come such a time where the research in the area has developed and grown to allow for this. The limited number of studies, which cover a wide range of Instagram uses and a multitude of outcome measures, means that more definitive and firm conclusions cannot be drawn as to the specific ingredients involved in Instagram use that contribute to the relationship with body image outcomes, nor to the direction of causality. This is particularly relevant in acknowledging that much of the research was correlational in nature. Despite this, the decision to include all relevant research was made given this is an important and relatively novel and developing area for study.

### **Implications**

As well as the further research already mentioned, practical implications of this research must be considered, especially considering the role body dissatisfaction plays as a risk factor in the development of disordered eating (Stice, 2002). Given the vast reach of social media, and its variety of uses, particularly as a tool of communication between friends and communities, limiting an individual's exposure to its content would be difficult to implement. It may therefore be more prudent to consider an educational approach in making users more aware of the potential risk factors that goes along with its use, particularly around the dangers of perceiving others idealised images and photographs on social media as accurate representations of reality. As suggested by Holland and Tiggeman (2016) adapting media literacy programmes, which have demonstrated success in contending with negative body image (Levine & Murnen, 2009), to include consideration of the impact of social media may be useful. Educating those who work with young people, who have been identified as being particularly vulnerable to both the impact of social media use on body dissatisfaction, low self-esteem and increased social comparison would also be important. A further route to consider would be to consider targeting negative body image through such social media sites as Instagram, possibly by having such platforms introduce content such as positive body talk and imagery. One of the studies included for review (Slater et al., 2017) found that exposure to self-compassionate statements and imagery over Instagram alongside fitspiration images reported increased self-compassion than those who viewed fitspiration images only.

## **Conclusion**

This systematic review covered a small but broad range of research examining the link between the use of Instagram, as an image based social networking site, and body image outcomes. The general implications from the literature, particularly the experimental studies suggest that exposure to certain types of Instagram image does negatively impact upon one's body image and satisfaction, especially for those more vulnerable to increased social comparison, and for those who place greater importance upon their appearance. The correlational studies also tended to demonstrate a similar link, however the direction of causality in these cases cannot be established. Further research is suggested in relation to both improving and extending the current evidence base.



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# The impact of Instagram image exposure on body dissatisfaction and mood in adolescent females

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This article has been written in accordance with Body Image (Appendix D)

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## **Abstract**

Previous research conducted with adult females suggests exposure to appearance-focused content on Instagram of attractive celebrities and peers leads to increased body dissatisfaction and negative mood. The current study aims to build upon this experimental research with a female adolescent sample given this population's increasing use of social media, vulnerability to social comparison, and to body dissatisfaction, a risk factor for several negative health and mental health outcomes. Participants were 225 female high school students aged 16-18 years who were randomly assigned to view either Instagram photos of attractive celebrities, equally attractive non-familiar peers or a control condition of non-appearance focused images (travel). Results showed that exposure to celebrity and peer images resulted in increased body dissatisfaction and negative mood, there was no significant difference when viewing either celebrity images or peer images. A moderation analysis revealed self-esteem did not moderate the relationship between image type and body dissatisfaction. As with previous research conducted with adult women, it was concluded that brief exposure to attractive celebrities and peers on Instagram can have a detrimental impact upon female adolescent body image and mood.

Keywords: Body image, Instagram, body dissatisfaction, negative mood, adolescents.



## Introduction

Body image is the psychological perception individuals have about the physical aspects and appearance of their own bodies (Grogan, 2008). It is considered multidimensional in nature, consisting of attitudinal, perceptual and affective dimensions (Cash & Henry, 1995). Body dissatisfaction occurs when perceived discrepancies occur between one's own body image and one's 'ideal body' (Catherine & LeAdelle, 2011). It has been linked to various negative health outcomes, particularly in adolescents, including disordered eating (Stice, 2002; Stice *et al.*, 2011); psychological distress, depression, low self-esteem, suicidal ideation (Johnson & Wardle, 2005; Kim & Kim, 2009; Siegel, 2002); and appearance altering behaviours such as steroid use and surgery (Thompson *et al.*, 1999). Investigating risk factors for development of body dissatisfaction is therefore useful in considering methods to protect from such outcomes. Traditionally, body image and body dissatisfaction were conceived as relatively stable 'trait like' constructs (Thompson, 2004); however, increasing attention in the literature has been drawn to temporal fluctuations and variations based upon personal, environmental and situational variables (Melnyk *et al.*, 2004; Tiggemann, 2001) with state body dissatisfaction recognised an independent construct that can be measured independently of trait body dissatisfaction (Cash *et al.*, 2002).

Researchers have identified an association between media exposure (such as exposure to TV and magazines) and body dissatisfaction in both females (Grabe *et al.*, 2008; Levine and Murnen, 2009), and males (Agliata & Tantleff-Dunn, 2004; Galioto & Crowther, 2013). It is argued that unrealistic beauty and appearance standards such as the ultra-thin ideal frequently portrayed and celebrated in popular mass media contributes to an internalisation of unrealistic standard of attractiveness both at an individual and societal level (Thompson & Stice, 2001). Social comparison has been identified as a potential mediating mechanism between media exposure and body dissatisfaction (Myers & Crowther, 2009). Social comparison theory proposes people evaluate themselves on various aspects of their lives by comparing themselves against others in order to gauge their own performance, standing and attributes (Festinger, 1954). Women demonstrate tendencies towards evaluating their appearance against more attractive women, and in particular against a slender or 'thin ideal' (Morrison *et al.*, 2004) with men tending to place importance upon a muscular ideal rather than slender weight (Grossbard *et al.*, 2009; Humphreys & Paxton, 2004). More recently however, there is evidence of a shift from simply a thin ideal, to a dual-dimensional thin *and* 'fit' aesthetic for women, characterised by an athletic shape, with toned, firm abdomen and

limbs (Benton & Karazsia, 2015; Thompson, Van Den Berg, Roehrig, Guarda, & Heinberg, 2004). The resulting standard for attractiveness for women, one of being unrealistically thin and toned, could be particularly dangerous for those who attempt to achieve it via unhealthy means (Benton & Karazsia, 2015). Given the continued transmission of these unrealistic beauty ideals in the mass media, individuals compare their own appearance and attributes to this internalised standard (Hargreaves & Tiggemann, 2004), and as so few individuals can match these often impossible to achieve 'ideals', such comparisons can result in bodily dissatisfaction (Stice, 2002). A number of studies have concluded that social comparison plays a mediating role between body dissatisfaction and exposure to social media (Brown and Tiggemann, 2016; Fardouly & Vartanian, 2015; Hendrickse & Arpan, 2016).

Adolescence is a developmental stage in which body image concerns and the associated difficulties such as disordered eating can increase rapidly, particularly amongst females (Abebe *et al.*, 2012; Vincent & McCabe, 2000). During adolescence, one of the main developmental tasks is the generation and maintenance of peer relationships, making this a stage where self-consciousness and importance of self-image increases, and comparison of self to others plays an important role (Harter, 1993). Body dissatisfaction in adolescent females has been linked with increased social appearance comparison (Jones, 2004), and for many adolescent females, the physical changes experienced during this time may move them further away from the thin body ideal commonly portrayed and promoted by the mass media (McCabe *et al.*, 2002). Indeed, perceived pressure from media has been identified as a predictor of both body dissatisfaction and eating concerns for adolescent females (Hargreaves & Tiggemann, 2004; Knauss *et al.*, 2008). Larger effect sizes in adolescents compared to adult females have been observed in studies investigating the negative impact of media exposure on body dissatisfaction (Levine & Murnen, 2009). Given the increased tendency of adolescent females to engage in social comparison, it is theorised that upwards self-comparison to the beauty ideal portrayed in the mass media results in increased vulnerability to bodily and appearance dissatisfaction due to failure to meet these aspirational standards (Jones, 2004; Knauss *et al.*, 2008; Rodgers *et al.*, 2015). Here, media use is seen as a mediator, explaining the link between individual differences (such as tendency to make social comparison, or gender) and body dissatisfaction (Valkenburg & Peter, 2013).

Consumption of 'traditional' mass media appears to be in decline (Perloff, 2014), with online social media use increasing. Data collected in the USA indicated that in 2016 around 70% of adults and 90% of young adults report using social networking sites daily compared with 12% in 2005 (Greenwood, Perrin & Duggan, 2016). Perloff (2014) highlights that along with the

increase in use of social media, there comes a need for increased research into its effects upon body image, arguing that it may produce more potent effects due to distinctive characteristics which set it apart from traditional media such as television, film and magazines. Perloff (2014) argues that the interactive, interpersonal nature of social media, alongside the rich modalities on offer, with easy 24-hour access to like-minded communities, has important implications for body image concerns. Unlike traditional media, consumers are also producers and generators of the content, and are involved in creating, editing, judging and comparing written and verbal messages, pictures and videos of themselves and others. Research examining the impact of social media use upon body dissatisfaction is in its infancy, but is growing in interest. A systematic review conducted by Holland and Tiggemann, (2016), concluded that the use of social networking sites was associated with negative body image outcomes and disordered eating, and in particular highlighted that specifically, use of social media relating to the viewing, uploading and engaging with photographs may be an area that is particularly problematic but lacking in research.

Editing and sharing photographs of oneself and viewing photos of others is a core feature of many popular social networking sites and applications, with users not just exposed to images of the 'beauty ideal' of models and celebrities, but also to idealised photographs of familiar and non-familiar peers. Individuals, including celebrities, who post self-images on social media tend to present the best version of themselves, by carefully editing and manipulating images to present the 'idealised' version of themselves and their lives (Chester & Bretherton, 2012; Krämer & Winter, 2008; Manago, Ward, Lemm, Reed, & Seabrook, 2015). An investigation by Meier & Gray, (2014) explored the specific features of Facebook that correlated with body image disturbance in adolescent females and found that overall use was not associated with negative body image outcomes, but increased exposure to appearance-centric photographs (those containing people as the main focus e.g. selfies) was significantly correlated with weight dissatisfaction, self-objectification, thin ideal internalisation and drive for thinness. Fardouly, Pinkus, & Vartanian, (2017) found female undergraduate students reported greater negative outcomes from upwards comparison on both body dissatisfaction and mood when the comparisons were made over social media than in person. Image centric social media sites are increasing in popularity with younger users, with platforms such as Snapchat and Instagram growing rapidly with teenagers (Kemp, 2018). Given that adolescent females have been highlighted as a group who are more prone to making social comparisons to peers, and a group who are avid users of social networking sites, this may make them a particularly vulnerable group to the development of body dissatisfaction and low mood following exposure to appearance focused social media imagery.

A study by McLean et al. (2015) found that young adolescent females who shared photographs of themselves on social media engaged in a higher over-evaluation of body weight and shape and demonstrated increased thin-ideal internalisation. In addition, those with increased emotional investment in their posted 'selfies', and those who engaged in increased digital manipulation of their photos displayed increased body related and eating concerns. In an experimental study, Kleemans et al. (2018) investigated the impact of manipulated Instagram photos of an unfamiliar peer on adolescent body image. They found that exposure to the manipulated images where the target had been made thinner, and their skin clearer, directly led to increased body dissatisfaction. They also found this effect to be stronger for those with increased social comparison tendencies. They also found young women had difficulty in detecting the editing and manipulation of others Instagram 'selfies', and that exposure to manipulated images generated greater body dissatisfaction than the original images.

Instagram has seen huge growth in user numbers, from 400 million users towards the end of 2015 to 800 million in 2018, 300 million of whom are active daily users of the application (Instagram-press.com, 2018). Instagram allows users to upload and share photographs and videos via their smartphone or computer for other people to see. Interaction between users comes in the format of 'liking' and commenting upon images uploaded, and 'following' individual accounts which can either be available for the public to view, or 'private' and only accessible by agreement from the account holder. The number of Instagram 'followers' one has is displayed to the public, with the number often seen as a crude measure of popularity, with celebrities 'celebrating' milestone numbers of followers, and companies providing access to more followers for a fee. There are increasing numbers of Instagram 'Influencers' who amass large numbers of followers and are paid to include products and services in their self-generated Instagram content (De Veirman et al., 2017). The platform allows users to not only upload and share their images but has a vast range of tools and settings available to allow quick editing and manipulation of images such as filters and cropping tools.

Social media sites such as Instagram therefore provide fertile ground for perpetuation of the 'ideal body' and an increased opportunity for comparison to others, appearance scrutiny and judgement (such as 'liking') from others including peers (Tiggemann & Miller, 2010). Peer to peer comparisons are thought to generate even stronger comparison outcomes versus dissimilar targets such as models/celebrities (Miller et al., 1988), potentially increasing the risk for body dissatisfaction given the unlimited opportunity social media users have to make such comparisons. However, there is some discrepancy as to whether social media use increases body dissatisfaction, or whether those with body dissatisfaction are more likely to engage

with social media and seek out such opportunities to compare themselves to others, with some researchers suggesting both explanations are valid (Perloff, 2014b)

To provide rationale and guidance for research, Perloff (2014b) proposed a transactional model to explain the relationships between social media and body dissatisfaction. The model suggests individual differences such as low self-esteem, propels vulnerable individuals to seek 'gratification' from social media use, such as validation and reassurance regarding their physical or social attractiveness. He suggests reassurance seeking via social media may take the form of compulsive checking or comparing of their own photos with others, however once accessing social media, body dissatisfaction may be aggravated due to the mediating role of peer to peer upward comparison. Those with low self-esteem may also be less likely to engage in protective downward comparisons, and may spend increased time ruminating about online comparisons and judgements (Perloff, 2014; Scissors *et al.*, 2016). Perloff (2014) concludes the resulting increase in body dissatisfaction creates a need for further validation and gratification via social media, building a vicious cycle of reinforcement.

Prieler & Choi (2014) expanded Perloff's model to recommend future research also investigate motivations for social media use to fully understand the mechanisms operating in the development and maintenance of body dissatisfaction. They argue that motivations for social media use are varied, e.g. for entertainment or socialising, rather than just for reassurance and validation purposes. These individuals are still exposed to images of their peers and others which may represent the 'ideal' in terms of physical attractiveness. The influence of such content upon body dissatisfaction varies depending upon for example, the individual's self-esteem. Here, such individual characteristics act as a moderator of the effect of social media on bodily satisfaction in comparison to Perloff's account of them as precedents (Prieler & Choi, 2014). Given that diminished self-esteem tends to be more prevalent in adolescent females in comparison with their male counterparts (Baldwin & Hoffmann, 2002) it may be important to consider the role this construct plays (if any) in either protecting or exposing young women to the impact of increased social media use.

One study which claims to be the first experimental investigation into the impact of attractive celebrity and peer images on women's body satisfaction and mood was conducted by Brown & Tiggemann (2016). Investigators randomly allocated 138 college women into three groups who viewed images of either attractive celebrities, attractive non-familiar peers, or travel images (control group). Participants completed measures of body dissatisfaction and mood pre- and post-image exposure. Those in the experimental conditions viewing the images of attractive celebrities and peers were found to have significantly higher state body

dissatisfaction and significantly lower mood compared to those in the travel image exposure group. There were no significant differences, however, between those in the peer image and celebrity image group. This may suggest that exposure to images of peers has a similar detrimental effect to the well evidenced negative impact of viewing the 'beauty ideal' promoted in mainstream media. The results however do not on face value lend support to social comparison theory which would suggest outcomes may be stronger when the comparison target is similar to the individual being exposed. However, the participants in this study were adult aged women. Given the developmental focus of social acceptance during adolescence and the corresponding increase in peer to peer social comparisons made by this group (Jones, 2001), it may be that different aspects of social media such as exposure to photographs of celebrities or peers may have a different impact upon adolescents compared to adults. As mentioned, young people have also been identified as one of the most prolific groups of social media users, meaning it would be pertinent to explore the impact of such exposure on body image outcomes given the associated risks of body dissatisfaction for this age group.

To summarise, body dissatisfaction is particularly prevalent in adolescents, and has been demonstrated as an increased risk factor for several negative physical and mental health outcomes. Traditional mass media exposure increases risk of developing body dissatisfaction, due to comparisons individuals draw between themselves and the 'ideal body' commonly portrayed in the media. With the explosion of social media use, exposure to such ideals has increased exponentially. Social media therefore provides fertile ground for similar upward appearance comparisons with models and celebrities previously accessed by engaging with traditional media, but also with peers. Individuals may seek out validation from others to avoid the negative consequences of body dissatisfaction, but due to greater opportunity for peer scrutiny, upward social comparison, and an increase in appearance focus, such efforts may only be rewarded with continued body dissatisfaction. The current study will aim to investigate whether exposure to 'everyday' Instagram images of attractive celebrities and non-familiar peers negatively affect body dissatisfaction and mood in an adolescent sample. Self-esteem will be examined as a potential moderator to the effects of exposure to such imagery on these variables. The aim is to build upon previous research by Brown & Tiggemann (2016) however it will do so with an adolescent sample, who may because of their developmental age have an increased tendency towards peer comparison, and who are avid consumers of image-centric social media platforms (Greenwood, Perrin & Duggan, 2016). The study therefore aims to investigate the following research questions:

**1<sup>a</sup>** Does exposure to appearance-focused images of attractive non-familiar peers and celebrities increase body dissatisfaction in comparison to appearance-neutral images of travel?

**1<sup>b</sup>** Does exposure to appearance-focused images of attractive non-familiar peers and celebrities increase negative mood in comparison to appearance-neutral images of travel?

**2<sup>a</sup>** Is there any difference in body dissatisfaction when viewing Instagram images of 'similar' individuals based upon age and gender (non-familiar peers) in comparison to viewing celebrities?

**2<sup>b</sup>** Is there any difference in negative mood when viewing Instagram images of 'similar' individuals based upon age and gender (none-familiar peers) in comparison to viewing celebrities?

**3** Does self-esteem moderate the link between body dissatisfaction and exposure to appearance focused social media content as suggested by Prieler & Choi, (2014)?



## Method

### Participants

274 participants were initially recruited into the study; however, 17 participants withdrew before fully completing the online experiment and outcomes. This was assumed as withdrawal of consent as per the participant information sheet, and so data gathered from these participants was removed. In addition, 32 participants failed to provide enough information to calculate Body Mass Index, and therefore this data could not be carried forward into the analyses. This resulted in a final count of 225 females aged between 16 and 18 years, with a mean age of 17.02 years (*SD* 0.58). The majority (82.42%) of participants identified themselves as White Scottish, 14.06% identified as White British, 2.34% identified as White Other, 0.78% identified as Pakistani, and 0.39% identified as Asian Other. Mean Body Mass Index for the sample was 21.05 (*SD* 3.05)

Initially, power calculations were conducted using G\*Power (Faul, Erdfelder, Lang, & Buchner, 2013) with the intention of utilising ANCOVA for data analysis. The initial study conducted by Brown & Tiggemann, (2016) was utilised as an estimate of effect size achievable (partial  $\eta^2 = 0.08$ ). G\*Power indicated that to achieve a 0.95 level of power with a medium effect size for ANCOVA with 2 covariates and 3 predictors, a total of 224 participants would be required. During subsequent data analysis, several of the assumptions for ANCOVA were violated, and so multiple hierarchical regression was utilised as an alternative.

Participants were recruited from Scottish secondary schools following consultation and agreement with the relevant ethics committees, both within the School of Health in Social Science, University of Edinburgh and the Local Education Authority (LEA) who represented each school. One LEA was initially approached to consider their nine secondary schools for participation. The LEA Ethics Representative met with the Children and Young Peoples Directorate consisting of Headteachers and stakeholders of each school to discuss the research proposal whereby the directorate committee selected two schools for participation, who were both interested in the research, and could facilitate the projected number of student numbers outlined within the proposal.

### Design

To retain consistency with previous research conducted with an adult population by Brown and Tiggemann, (2016), a between-subject experimental design was employed, with three levels of the independent variable (Instagram image type). Participants were randomly allocated to one of the three conditions: celebrity images; non-familiar peer images, or travel

images (control group). Randomisation was completed by the online software Qualtrics which hosted the experiment; and was restricted to ensure even allocation of participants to each of the three conditions. The dependent variables investigated were state body dissatisfaction and state negative mood. Previous research suggests Body Mass Index (BMI) links to body dissatisfaction (Lu & Hou, 2009), and so participants were therefore asked to give their current height and weight so that this could be controlled for within the analyses.

## **Materials**

### *Experimental stimuli*

Each condition of independent variable was comprised of 15 images, where the 15 images depicted five different target subjects, with three photographs of each target. The celebrity and non-familiar peer conditions were photographs of individuals, and had two photographs focused on each target's face, and one full body photograph. The travel images contained three photographs of different popular landmarks across five well known target locations. All the images were taken from Instagram and included the Instagram border. The information depicting the amount of 'likes' and comments was removed as well as the name of the account holder.

### *Selection of images for the non-familiar peer condition*

A focus group of females ( $n = 6$ ) of a similar age to the intended participants ( $M = 16.8$ ) and ethnicity (all identified as White Scottish) were recruited to support selection of Instagram images for the experiment. The researcher identified images for the non-familiar peer condition from Instagram by searching the site using the hashtag function and using the search terms #selfie and #sixteenyearsold #seventeenyearsold and #eighteenyearsold. Individuals were selected from these searches if they had public accounts, had several images on their account of their face and figure, and if they were considered 'attractive' based upon commonly reported western beauty ideals such as a slim and toned figure (Mills, Shannon, & Hogue, 2017). As the non-familiar peer condition was included to investigate whether comparison targets deemed similar to the participants would generate stronger outcomes, only White candidates were selected for this condition based upon an estimation that the majority of participants within the trial would also be White. This assumption was made based upon demographic information drawn from a school census covering the geographical area from where the schools were recruited (Scottish Government, 2016). In addition, individuals were only selected if they had fewer than 200 followers, and the profile indicated they were not from the UK, this was in place to protect the target individual's anonymity as far as possible and to ensure the effect of image was not confounded by some participants

knowing the person photographed. 12 individuals were selected via the Instagram search, and all were contacted to ask permission to use their images within the study via the private message function on Instagram. Two individuals gave consent. A further three individuals who were known to the researcher and met the above criteria gave full permission for their Instagram images to be used in the trial. Appropriate images for each individual were selected (two focused on their face and one full body photograph). These images were presented to the participants in the focus group individually. Each member of the focus group was asked to look at the three photographs of each target individual and rate their attractiveness on a five-point Likert scale ranging from 1 = 'very unattractive' to 5 = 'very attractive'. A mean score for each individual was calculated based upon ratings from each focus group member. A mean score of four or above indicated that the individual was considered attractive or very attractive by the focus group, and all five target individuals fell within this range. None of the target individuals were recognised by anyone within the focus group.

#### *Selection of images for the celebrity condition*

Instagram photographs of five female celebrities were selected for the experiment after a selection of 20 were shown to the focus group. The initial group of 20 were selected based upon most popular Instagram accounts of female celebrities with UK Instagram users. The celebrities were each rated on attractiveness using the same Likert scale as used in the peer condition. The five celebrities were selected based upon how closely they matched the attractiveness ratings of the five peer targets to reduce variability across the two conditions. The celebrities identified for inclusion were Selena Gomez, Perrie Edwards, Gigi Hadid, Kendall Jenner and Ariana Grande. Each of these celebrities were also correctly identified by name by all members of the focus group indicating that they were well known to individuals in the target age group. Again, two photographs of each celebrity's face and one full body shot were selected.

#### *Selection of images for the travel condition*

Instagram images of 5 cities across the world were selected (London, Rome, Sydney, Paris and New York) using the #travel hashtag search. Three photographs were selected of famous landmarks from each city and were mainly chosen due to having clear image quality. The main focus of each image was the landmark, and effort was taken not to include photographs where the main focus was not placed on individuals around or near the landmark to provide an appropriate control. Some images did include numerous people as a background feature of the photograph however this was in such a way that their features were generally indistinguishable. The focus group were asked to indicate whether they could name the city

based upon the three photographs selected and were asked which feature of the photograph caught their eye. No responses from these questions indicated that any people within the photographs formed the main focus of the image with participants tending to select a landscape feature such as the landmark or weather as the main focus.

## **Measures**

### *Demographic information*

Each participant was asked to indicate their age in years and months and to select their ethnic background. They were asked to self-report their height and weight which was subsequently used to calculate their Body Mass Index (BMI) alongside their age.

### *Social Networking Sites usage*

Each participant was asked to select from a list of the most popular social networking sites (SNS) and apps which they use or hold accounts with. The list included Facebook, Instagram, Snapchat, Pinterest, Twitter, Reddit, Imgur, Snapchat, Ask.fm, YouTube, Google+, Tumblr or 'I don't use or have accounts with any of the above'. A free text box was included to allow participants to indicate if they used any other SNS than those indicated. Participants were also asked to indicate how long on average they spent accessing SNS each day, with the following options available for selection: I never use social networking sites or apps; <10 mins per day; 10-30 mins per day; 30 mins to 1 hour per day; 1-2 hours per day; 2-3 hours per day; 3-4 hours per day; 4-5 hours per day; >5 hours per day; a few times a week but not every day. This detail was collected for demographic interest and baseline group comparison.

### *Self-esteem*

The Self Esteem Scale (Rosenberg, 1965) was utilised to collect a measure of the participant's global self-esteem and was administered prior to image exposure. The tool was initially created to obtain an estimation of self-worth within an adolescent sample and is used widely in academic literature (Blascovic & Tomaka, 1991). The scale comprises of 10 items asking participants to respond as to their agreement to statements pertaining to various aspects of self-worth on a four-point Likert scale from strongly agree, to strongly disagree. There is considerable evidence of its reliability and validity Test-retest reliability (.85) has been demonstrated over a two-week period (Sibler & Tippett, 1965) with internal consistency ranging from 0.77 to 0.88 and criterion validity of 0.55 (Rosenberg, 1965). As well as the dearth of research supporting the use of the RSE, this measure was chosen given its short length to keep burden of participation to a minimum. Within the current study, internal consistency was deemed good with a Cronbach's alpha coefficient of .90

### *Body dissatisfaction and negative mood*

Given the relatively short administration time between pre- and post-exposure measures and to maintain consistency with the research conducted with adults (Brown and Tiggemann 2016), state body dissatisfaction and negative mood were measured using visual analogue scales (VAS) before and after exposure to the images. VAS have been identified as a valid and reliable measure of both mood and body dissatisfaction (Brown & Tiggemann, 2016; Heinberg & Thompson, 1995; Slater *et al.*, 2017).

Three VAS items relating to body dissatisfaction were used, with participants asked to indicate using a marker across a sliding scale from 0 (not at all dissatisfied) to 100 (extremely dissatisfied), how dissatisfied they were with their weight; their appearance, and their facial features 'right now'. An overall score for body dissatisfaction was generated by totalling the score across the three items, creating an overall dissatisfaction score ranging from 0 (no body dissatisfaction) to 300 (extremely high body dissatisfaction). In the current study, the body dissatisfaction VAS demonstrated acceptable level of internal consistency with a Cronbach's alpha coefficient of .89.

Negative mood was measured both pre and post exposure to the Instagram images using visual analogue scales. Five mood dimensions were included (anxiety, depression, happiness, anger and confidence) and each participant was asked to move a marker between 0 (not at all) to 100 (extremely) in answer to the question 'how do you feel right now in relation to the following mood'. An overall measure of mood was calculated using the total score (some reverse coded). This produced a scale ranging from 0 (no negative mood) to 500 (extremely negative mood). In the current study, internal consistency using Cronbach's alpha demonstrated 'borderline' consistency at .69 (Kline, 2000. p.12). Consideration was made as to whether to remove the 'anger' item from the scale as without this item, the alpha score improved to .78. Field, (2018) suggests items with a corrected total correlation of less than .3 should be considered for removal. The correlation for the anger item in this study reached .32, additionally it was ultimately decided to retain the item in the analysis for consistency with previous research. It was noted however that some studies have removed this item from the measure but did not specify their reasons for doing so (e.g. Slater *et al.*, 2017).

### **Procedure**

Participants were invited by their school to attend one of the computer labs where they were given a website link to the online study hosted by Qualtrics. Upon logging in to the site, each participant was informed that they were being invited to take part in a study about 'Social media use: Travel, celebrities and people' (see Appendix B), and that they would be asked to

examine images they would typically see on social networking sites, specifically Instagram, and would also be asked questions about themselves. The information was deliberately vague to reduce potential participant bias where possible. Participants were advised they could stop at any time simply by discontinuing the survey without penalty. Participants were required to indicate whether they gave consent by checking a box to indicate that they were happy to continue, this function was only available after they had read the information sheet and indicated that they understood the requirements. Alongside the consent to participate was a check box for those who did not wish to continue which took the participant to the end of the survey and a thank you message. No participants chose this option.

Participants then completed the demographic questions, measure of SNS use, measure of trait self-esteem and the pre-exposure VAS for body dissatisfaction and negative mood. They were then instructed to pay attention to the images which would be presented, each for 10 seconds. In an attempt to ensure participants retained focus on the images, they were informed that they may be asked questions about any of the photographs shown. Following exposure to the Instagram images, participants completed the post exposure VAS for body dissatisfaction and negative mood. Following completion, participants were debriefed about the study and given contact details for the main researcher and research team. They were also offered information on where to seek support should they have found any of the content distressing, this included direction to suitable mental health websites for adolescents, as well as advising that they could seek out support via the appropriate guidance staff within each school who had been briefed as to the content and purpose of the study.

### **Data screening**

All analyses were conducted using SPSS 24.0. As per previous research and study design, a series of ANCOVA were planned in order to investigate the mean differences between the conditions of image type whilst including two covariates of pre-scores and BMI to control for individual differences.

Initial analyses were performed to assess suitability for ANCOVA of which there are a number of assumptions required before proceeding with analysis (Tanur & Huitema, 1982). Although ANCOVA is considered robust enough to deal with violations of normality with a sufficient sample size, equal groups and appropriate randomisation (D'Alonzo, 2004), the data did not meet the assumption of homogeneity of regression slopes, indicating a significant interaction between the independent variable and the covariate. Upon consideration, it was felt another method of analysis may be more appropriate as to avoid misinterpretation of findings.

Hierarchical multiple regression was subsequently utilised, and assumption testing completed for both body dissatisfaction outcomes and for negative mood. Linearity between the dependent and independent variables collectively was established by visual inspection of scatterplots depicting the studentized residuals against the unstandardized predicted values. Linearity between the dependent variables and each of the independent variables was established by visual inspection of partial regression plots. Homoscedasticity, as assessed by visual inspection of a plot of studentized residuals versus unstandardized predicted values. Multicollinearity was investigated by inspection of the VIF values. Normality of residuals was investigated by visual inspection of the Normal Q-Q Plot of studentized residuals.

Outliers were examined by checking maximum Mahalanobis distances and comparing them to critical values as identified by Tabachnick & Fidell (2013), in addition, Cook's Distance was referred to in order to check the impact of any cases identified. For the body dissatisfaction regression analyses, three problem outliers were observed in the data set which had a corresponding Cook's Distance value larger than 1.0, these were subsequently amended using the winsorizing protocol (Field, 2018) with scores changed to the next identified 'extreme' score plus 1. A small number of outliers were identified prior to the negative mood analyses however the Cook's Distance associated with the reported Mahalanobis Distance was less than 1.0 and so deemed not to be indicative of a major problem for the analysis as advised by Tabachnick & Fidell (2013, p. 75).

Finally, using a calculation provided by Tabachnick & Fidell, (2013) for a multiple regression with five predictor variables (BMI and pre-exposure scores as covariates, plus three levels of image type: travel; celebrity; and peer) 90 participants were required to power the analysis, which had been achieved.

For the main hierarchical regression relating to body dissatisfaction, post-exposure body dissatisfaction scores were entered into the regression as the dependent variable with BMI and pre-exposure dissatisfaction scores were entered into the model at step one as covariates. Dummy coded variables were created for the three levels of categorical independent variable (image type) as recommended by Field, (2013). The travel condition was coded as 0 to act as the indicator group. For the subsequent analysis comparing the difference in variance between the peer and celebrity conditions, the celebrity condition was coded as 0 to act as the indicator group by which the peer condition would be measured against. The dummy coded variables were entered into the model at step 2. The same procedure was used to analyse negative mood, with the pre- and post-negative mood scores replacing the pre- and post- dissatisfaction scores as described above.

The analysis exploring self-esteem as a potential moderator between image type and body dissatisfaction was conducted using the Hayes and Preacher PROCESS macro for SPSS along with the procedure outlined by Hayes (2018) using moderation model 1. Similarly to the previously described regression analysis, dummy coded variables were required given the independent variables were categorical (image type), in addition, the PROCESS macro requires confirmation that the X variable is multicategorical. Again, post-exposure body dissatisfaction scores were entered as the outcome variable, total self-esteem scores as the moderator, BMI and pre-scores were entered into the analysis as covariates, and the dummy coded variables (again using travel image groups as the indicator group) were entered as the X variable

## Results

### Characteristics of the sample

Each of the three exposure conditions were initially compared to identify for any statistically significant differences across baseline characteristics. Table 1 provides a summary. There were no statistically significant differences between the groups in relation to age  $F(2,222) = 2.080$ .  $p = 0.127$ ,  $\eta_p^2 = 0.18$ , initial body dissatisfaction  $F(2,222) = 2.123$ .  $p = 0.122$ ,  $\eta_p^2 = 0.19$ , initial negative mood  $F(2,222) = 2.304$ .  $p = .102$ ,  $\eta_p^2 = 0.20$  or self-esteem  $F(2,222) = 0.297$ .  $p = 0.74$ ,  $\eta_p^2 = 0.003$ . There was a significant difference in BMI across the three experimental groups  $F(2,222) = 4.276$ .  $p = 0.10$ ,  $\eta_p^2 = 0.041$ , with those in the celebrity condition reporting slightly lower BMI compared to the other two image groups.

**Table 2.1**

Means (SD) for: age, BMI, trait self-esteem, and initial pre-exposure scores by image condition.

Image Type	Measures				
	Age	BMI	Trait Self Esteem	Body dissatisfaction Pre-exposure	Negative mood Pre-exposure
Travel (N = 75)	17.12 (0.56)	21.48 (3.46)	15.85 (1.95)	144.44 (82.690)	198.61 (91.452)
Celebrity (N = 76)	17.01 (0.59)	20.19 (2.51)	15.95 (1.85)	142.12 (72.076)	176.70 (79.804)
Peer (N = 74)	16.93 (0.58)	21.50 (2.96)	16.11 (2.29)	165.59 (74.73)	205.09 (83.507)
Total (N =225)	17.02 (0.58)	21.05 (3.05)	15.97 (2.03)	150.61 (76.998)	193.34 (85.537)

### Social Networking Site usage

The majority of participants reported using and having accounts with Snapchat (96%), Facebook (92.89%), Instagram (91.56%), YouTube (85.78%), Twitter (53.78%) and Pinterest (52.89%). Less frequently used sites across the sample were Google+ (37.78%), Tumblr (13.78%), Ask.FM (7.56%) and Reddit (3.56%). No participants indicated that they did not use any of the above sites. The median amount of time spent accessing social networking sites was between 3-4 hours per day.

### Effect of image type on body dissatisfaction and negative mood

#### *Body dissatisfaction*

To investigate the first research question (1a) whether exposure to appearance focused images of attractive non-familiar peers and celebrities increased body dissatisfaction in comparison to appearance-neutral images of travel, hierarchical multiple regression was used. This was to assess the ability of exposure to appearance focused images (attractive celebrities

and unfamiliar peers) in predicting change in body dissatisfaction over and above appearance neutral images (travel photographs), whilst controlling for individual differences in pre-exposure body dissatisfaction and BMI. Preliminary analyses were conducted to ensure no violation of the assumptions of normality, linearity, multicollinearity ( $VIF < 1.3$ ) and homoscedasticity. Pre-exposure body dissatisfaction scores and BMI were added to the regression model in step 1. Together these variables accounted for 79% of the variance in body dissatisfaction.

As described, dummy variables were created to represent the image conditions (IV). The travel condition (appearance neutral) was used as the indicator group. The first dummy variable was created assigning travel and peer conditions as 0, with the celebrity image condition as 1. The second dummy variable assigned the travel and celebrity conditions as 0, with the peer image condition as 1.

After entry of the dummy variables into step 2 (see table 2.3), the variance explained by the model as a whole was 81.1%;  $F(4, 220) = 236.43, p < .001$ . The two appearance focused variables explained an additional 2.1% of the variance in body dissatisfaction after controlling for pre-exposure scores and BMI,  $R$  square change = .021,  $F$  change (2,220) = 12.416,  $p < .001$ . In the final model, the variance explained by both peer and celebrity exposure was statistically significant, with the peer condition recording a higher beta value ( $\beta = .16, p < .001$ ) than the celebrity condition ( $\beta = .13, p < .001$ ). The direction of the beta coefficients indicated that exposure to images of attractive peers and celebrities was associated with higher body dissatisfaction relative to those who viewed appearance neutral images of travel.

To investigate hypothesis 1<sup>b</sup>, as to whether exposure to non-familiar peer images would generate a significantly higher body dissatisfaction in comparison to celebrity images, another hierarchical multiple regression was carried out (see table 2.3), however this time the celebrity condition was used as the indicator group to allow direct comparison with the peer exposure group. As previous, pre-exposure scores and BMI were entered into the model at step 1. Two dummy variables were used, the initial one assigning a value of 0 to both the celebrity and peer image (now the indicator) exposure groups, and a 1 to the travel image exposure group. The second dummy variable assigned a 0 to the travel and celebrity image exposure group, and assigned a value of 1 to the peer image exposure group.

As reflected in the initial regression, the peer condition, after controlling for pre-exposure scores and BMI, obtained a positive beta value but this difference was not statistically significant ( $\beta = .03, p = .396$ ).

The results demonstrated that in comparison to appearance neutral travel images, those who were exposed to appearance-focused images of celebrities or peers experienced greater body dissatisfaction. Exposure to unfamiliar peer Instagram images did not account for increased body dissatisfaction in comparison to the celebrity Instagram image condition.

#### *Negative mood*

A multiple hierarchical regression was used to explore research question 2<sup>a</sup>, whether viewing appearance focused Instagram images of attractive celebrities and unfamiliar peers would account for increased negative mood in comparison to appearance neutral Instagram images of travel. Preliminary analyses were conducted to ensure no violation of the assumptions of normality, linearity, multicollinearity and homoscedasticity. Similar regressions were carried out to the body dissatisfaction analyses utilising the same dummy variables. Pre-exposure negative mood scores and BMI were added to the regression model in step 1 as covariates, these variables accounted for 63.3% of the variance in negative mood (see table 2.3). After entry of the dummy coded variables for celebrity and peer conditions vs. travel conditions at Step 2, the total variance explained by the model as a whole was 65.5%,  $F(4, 220) = 7.064$ ,  $p < .001$ . The two appearance focused variables explained an additional 2.2% of the variance in negative mood after controlling for pre-exposure scores and BMI,  $R$  square change = .022,  $F$  change (2, 220) = 7.064,  $p = .001$ . In the final model, the variance in negative mood explained by both peer and celebrity exposure was statistically significant, however this time, the celebrity condition attained a higher beta value ( $\beta = .17$ ,  $p < .001$ ) than the peer condition ( $\beta = .10$ ,  $p = .025$ ). Again the direction of the beta coefficients indicated that the exposure to the appearance focused conditions was associated with higher negative mood scores.

To investigate research question 2<sup>b</sup>, as to whether exposure to non-familiar peer images would generate a statistically significant increase in negative mood in comparison to celebrity images, a further hierarchical multiple regression was carried out. The celebrity condition represented the indicator group within the dummy variables to allow direct comparison with the peer exposure group. Similar to the body dissatisfaction analysis, pre-exposure scores and BMI were entered into the model at step 1 and the two dummy variables were entered into Step 2.

The celebrity condition, after controlling for pre-exposure scores and BMI obtained a higher beta value when compared to the peer condition, but this difference was not statistically significant ( $\beta = .67$ ,  $p = .15$ ), and therefore there was no significant difference between the two appearance based image groups following exposure.

**Table 2.3: Summary of hierarchical regression analysis for variables predicting body dissatisfaction and negative mood**

Variables	Step 1			Step 2		
	<i>B</i>	<i>SE B</i>	$\beta$	<i>B</i>	<i>SE B</i>	$\beta$
<b>Body dissatisfaction</b>						
Pre exposure scores	.96	.88	.89**	.94	.89	.87**
BMI	.14	.01	.01	.34	.03	.01
Celebrity ( <i>Travel used as indicator group</i> )				22.46	.25	.13**
Peer ( <i>Travel used as indicator group</i> )				27.92	.30	.16**
Peer vs. Celebrity ( <i>Celebrity used as indicator group</i> )				5.10	.05	.03
<i>R</i> <sup>2</sup>		.79			.21	
<i>F</i> for change in <i>R</i> <sup>2</sup>		417.51**			12.42**	
<b>Negative mood</b>						
Pre exposure scores	.86	.79	.79**	1.08	.80	.80**
BMI	.64	.03	.02	.87	.06	.03
Celebrity ( <i>Travel used as indicator group</i> )				33.71	.24	.17**
Peer ( <i>Travel used as indicator group</i> )				20.39	.15	.10*
Peer vs. Celebrity ( <i>Celebrity used as indicator group</i> )				12.91	.08	.067
<i>R</i> <sup>2</sup>		.63**			.65**	
<i>F</i> for change in <i>R</i> <sup>2</sup>		191.67**			7.06**	

\**p* < .05    \*\**p* < .01

### The role of trait self-esteem as a moderator

To investigate research question 3, whether trait self-esteem would moderate the effect of image type on both body dissatisfaction and negative mood, moderation analyses using the Hayes, (2018) PROCESS macro within SPSS. Significant relationships were found between self-esteem and pre-exposure body dissatisfaction ( $r = -.27$ ,  $p < .001$ ) and self-esteem and mood ( $r = -.27$ ,  $p < .001$ ). The procedure for moderation with multicategorical focal antecedents was utilised by indicating in the regression that the X variable (image type) was multicategorical (Hayes, 2018, pg 187). A significant interaction is found when the product term explains additional variance above the main effects.

The results showed that the interaction between self-esteem and image type did not explain significant additional variance in body dissatisfaction (celebrity:  $R^2_{change} = .0018$ ,  $F_{change}(1, 219) = 1.9044$ ,  $p = .16$ ; peer:  $R^2_{change} = .0033$ ,  $F_{change}(1, 219) = 3.6430$ ,  $p = .06$ ) or negative mood

(celebrity:  $R^2_{change} = .00$ ,  $F_{change}(1, 219) = .0159$ ,  $p = .90$ ; peer:  $R^2_{change} = .0001$ ,  $F_{change}(1, 219) = .0543$ ,  $p = .86$ ).

Therefore, the effect of celebrity and peer images on both body dissatisfaction was not moderated by self-esteem.



## Discussion and conclusion

The main aim of this study was to examine the impact of Instagram images on both body dissatisfaction and mood in adolescent females. With regards to our initial research questions, following exposure to appearance focused Instagram images of attractive celebrities and non-familiar peers, adolescent females experienced greater body dissatisfaction and negative mood in comparison to those who viewed image neutral Instagram images of travel. These findings replicate those found by Brown and Tiggemann (2016) in their original study with adult women, and are consistent with other recent studies examining the negative impact of Instagram use on female body image (Ahadzadeh, Pahlevan Sharif, & Ong, 2017; Hendrickse & Arpan, 2016; Lefevre, 2017; Slater et al., 2017).

In response to our research question surrounding the difference between exposure to celebrity and peer images, our findings indicated that non-familiar peer images did not attract greater levels of body dissatisfaction and low mood in comparison to celebrity images. These findings were again consistent with the Brown and Tiggeman (2016) study. This finding is not consistent however with one aspect of social comparison theory which would predict greater comparison with targets who are similar to the individual making the comparative evaluation (Festinger, 1954). Previous research has demonstrated stronger outcomes when the target for comparison is perceived as more similar to oneself (Leahey & Crowther, 2008; Miller et al., 1988; Mueller, Pearson, Muller, Frank, & Turner, 2010). However, as is the case with the current study, conflicting research has observed no such difference in outcomes between comparisons to media images or peers (Myers & Crowther, 2009). In a study conducted by Jones, (2001), physical appearance comparisons were made equally to peer and media targets, however adolescent girls tended to evaluate their personal and social attributes against their peers than media targets.

It may be that within the current study, the non-familiar peers were not identified by the participants as being 'similar'; and it may be prudent that similar research conducted in the future include a measure of 'relatedness' to the intended target or conduct research using exposure to familiar peers, who are known to the individual. A strength of utilising non-familiar peers however is that we can be relatively confident comparisons are made upon through appearance only, utilising familiar peers would potentially introduce comparisons to other attributes (such as personality or popularity) given the increase in personal knowledge the participant would have about the target.

One point for consideration given our sample was not familiar with the targets in the peer condition, is that it is likely those who viewed images in the celebrity group would have prior knowledge of the women they viewed. This may mean comparisons in this group were not made to appearance alone, and potentially incorporated knowledge of the target's social, romantic and financial life. The celebrities in the images were often pictured wearing designer labels or posed in what might be perceived as more interesting locations (hotel rooms, fashion shoots) compared to the targets in the peer condition. It may be prudent for future research to consider how location/clothing and awareness of the individual in question could introduce confounding variables, and whether comparisons are focused as exclusively as is possible on appearance rather than other factors.

Finally, in response to our final research question, self-esteem did not moderate the relationship between exposure to Instagram image and body image outcomes. This does not fit with the suggestions made by Prieler & Choi, (2014) who suggest that self-esteem may act as a 'buffer', protecting individuals from the negative impact of Instagram exposure on body dissatisfaction. It may be that self-esteem acts in a more indirect way, as identified by Ahadzadeh et al., (2017) who found that self-esteem moderated the influence of Instagram usage via an individual's self-schema, specifically that the mediating effect of an individual's appearance self-schema between Instagram use and body dissatisfaction was moderated by self-esteem. Given the variability in findings surrounding self-esteem and its relationship with Instagram use and body dissatisfaction, further research is required.

There are several limitations that need to be considered when interpreting the outcome of the present study in addition to those already mentioned. Firstly, the sample consisted of predominantly White Scottish females who were all recruited from secondary schools in rural locations, and therefore care needs to be taken when generalising findings to adolescents with differing demographical status. Previous research investigating the impact of both traditional media and social media on body image across different cultures have demonstrated inconsistent findings (Brooks, 2017; Lee, Lee, Choi, Kim, & Han, 2014; Walker & Shapiro, 2014). Similar research conducted across other cultures therefore would be important to consider.

In an effort to retain some ecological validity, Instagram images from real accounts were used, with the borders and titles retained. The images, however, did lack the interactive and more appraisal-based quality of Instagram photos normally accessed on the site. For example, the ability to like and comment on each photograph, and to observe how many 'likes' each image receives. Perloff (2014) argues that the interactive nature of social media and social

networking sites is likely one of the contributing aspects to increased body dissatisfaction outcomes in comparison to traditional mass media. Future research could explore whether these evaluative components make a difference to body dissatisfaction and negative mood outcomes. In addition, although the school environment is a place where young people can access their social media, the somewhat artificial environment of accessing this in a computer laboratory, and alongside their peers may have influenced the degree to which they fully engaged with the material being presented. However, the design did allow for control over contamination from confounding variables such as exposure to other forms of social media and appearance based imagery, and allowed some control over individual characteristics due to the random allocation into experimental or control conditions.

Although the percentage of variance explained by exposure to the appearance-based images was relatively small, the period of exposure was extremely short (around 10 minutes) compared to the average length of time that the individuals in the study reported using social networking sites (between 3 to 4 hours per day). It may be that the negative effects in body dissatisfaction and negative mood found observed in our study were short term, therefore future research might wish to consider a longitudinal design to investigate the longer-term impact of such exposure.

The possibility that demand effects might play a role in the outcomes of the present study also needs to be considered. Although attempts were made to keep the intentions and aims of the study vague to reduce these effects, it is possible that completing measures relating to self-esteem, mood and body dissatisfaction indicated to the participants the more specific nature of the investigation. In experimental research, Mills, Polivy, Herman, & Tiggemann, (2002) found that when investigating appearance comparisons on body image and self-esteem, upwards comparisons were more likely when the study aims were more obvious to the participants. The self-reporting of BMI may also have introduced some measurement error. Self-reporting rather than measurement on-site was requested as part of the agreement with the participating schools who felt that measuring may increase anxieties for some of the girls, and lead to difficulties with confidentiality and privacy. There were a number of 'refusals' to input BMI, whether this be a refusal to divulge height and weight or the participants being unaware of their measurements remains to be seen. Self-report BMI measurements have been shown to be liable to over and under-reporting for a number of reasons such as denial of weight problems (Chau, Dworkin, & Keller, 2016) however, BMI is still considered the most appropriate measure of body mass for children and adolescents (Krebs et al., 2007).

The present study adds to the current literature surrounding the impact of social networking and media, specifically Instagram use on body dissatisfaction and mood, by undertaking the study with an adolescent sample. Findings generally matched those obtained in young adult women. Continued research surrounding body dissatisfaction in girls and adolescents is particularly important given that it is an associated risk factor for disordered eating in girls as young as seven years old (Evans, Tovée, Boothroyd, & Drewett, 2013), and that young people aged 13 to 17 years old are considered to be at increased risk for developing eating disorders (NICE, 2017). Similarly, research with older women may also be of interest to investigate whether such findings are stable across the developmental timeline. It has been suggested that older women are more vulnerable to body dissatisfaction when using social networking as they are continually exposed to a youthful beauty standard (Holland & Tiggemann, 2016).

One difficulty in investigating specific social networking sites and apps is the rapid and constantly changing popularity of different sites, each with different characteristics. For example, during the undertaking of this study, the social networking application Snapchat has risen to prominence in the U.K., becoming one of the most utilised applications in young people, with almost 80% of people aged between 18 and 35 years old indicating that they are Snapchat users (Statista, 2018). This application overlays 'selfies' with automatic filters which can slim the face, blur the skin to reduce blemishes, widen and brighten eyes, and lengthen eyelashes. The unique selling point of Snapchat over and above other image-based platforms such as Instagram, is that messages sent between individuals 'self-destruct' after a matter of seconds offering different levels of privacy. Research into the psychological implications of such sites may afford further clarification upon the ingredients that contribute to negative body image and mood outcomes.

In relation to practical implications of this research, as suggested by Brown and Tiggemann (2016), female adolescents may need to be educated about the potential detrimental effects involved in using Instagram, media literacy programmes which have been found to reduce media influenced negative body image (see Levine & Murnen, 2009) could therefore be adapted to include information on 'new' social media as well as focusing on the impact of traditional mass media. Kleemans et al., (2018) recommend that sites such as Instagram might do more to negate such effects by including a disclaimer when opening an account with the site that provides users with a reminder that images they might see are likely to have been modified and manipulated in order to raise awareness prior to comparisons being made. Instagram have already made efforts to protect their users from harmful images by banning certain hashtags and search functions, for example thinspiration content, and although

perhaps not considered harmful, should research continue to expand and identify what may be cumulative effects of exposure to common content on Instagram, they may wish to consider how to further protect and inform users about the possible effects of using their application. In their investigation into the impact of fitspiration Instagram imagery on body satisfaction and negative mood, Slater (2017) found that exposure to images containing self-compassionate quotes increased levels of self-compassion and recommended the inclusion of body confident and self-compassionate content by social media platforms into the daily content accessed by women. Future research focusing upon protective interventions would be useful given the increasing evidence available about the harmful effects of Instagram use, and other social networking sites on body image and mood.

To conclude, with the explosion in popularity of social networking sites, young people now have much more opportunity to evaluate themselves and their appearance against not just celebrities, fashion models and the famous, but with their peers, both familiar and unfamiliar. The current study demonstrates a link between short term exposure to appearance based images on Instagram and increased body dissatisfaction and negative mood amongst adolescent females under experimental conditions. Given body dissatisfaction is a risk factor for a number of adverse outcomes such as disordered eating, and psychological distress, further research is recommended in expanding our understanding and developing interventions to combat such effects.



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# Appendices



## **Appendix A: Quality appraisal checklist for quantitative intervention studies and for quantitative studies reporting correlations and associations.**

(National Institute for Health and Clinical Excellence, 2006)

### **Scoring**

Checklist items are worded so that 1 of 5 responses is possible:

- ++ Indicates that for that particular aspect of study design, the study has been designed or conducted in such a way as to minimise the risk of bias.
- + Indicates that either the answer to the checklist question is not clear from the way the study is reported, or that the study may not have addressed all potential sources of bias for that particular aspect of study design.
- Should be reserved for those aspects of the study design in which significant sources of bias may persist.
- (NR) Not reported. Should be reserved for those aspects in which the study under review fails to report how they have (or might have) been considered.
- (NA) Not applicable. Should be reserved for those study design aspects that are not applicable given the study design under review (for example, allocation concealment would not be applicable for case control studies).

### **Summary Scoring**

Each study is then awarded an overall study quality grading for internal validity (IV) and a separate one for external validity (EV):

- ++ All or most of the checklist criteria have been fulfilled, where they have not been fulfilled the conclusions are very unlikely to alter.
- + Some of the checklist criteria have been fulfilled, where they have not been fulfilled, or not adequately described, the conclusions are unlikely to alter.
- Few or no checklist criteria have been fulfilled and the conclusions are likely or very likely to alter.

### Checklist for intervention studies

Study identification:(Include full citation details)		
Study design:		
Assessed by:		
<b>Section 1: Population</b>		
1.1 Is the source population or source area well described?	++ + - NR NA	Comments
1.2 Is the eligible population or area representative of the source population?	++ + - NR NA	Comments
1.3 Do the selected participants or areas represent the eligible population or area?	++ + - NR NA	Comments
<b>Section 2: Method of allocation to intervention (or comparison)</b>		
2.1 Allocation to intervention (or comparison). How was selection bias minimised?	++ + - NR NA	Comments
2.2 Were interventions (and comparisons) well described and appropriate?	++ + - NR NA	Comments
2.3 Was the allocation concealed?	++ + - NR NA	Comments
2.4 Were participants or investigators blind to exposure and comparison (Triple or double blinding score ++)	++ + - NR NA	Comments
2.5 Was the exposure to the interventions and comparison adequate?	++ + - NR NA	Comments

2.6 Was contamination acceptably low?	++ + - NR NA	Comments
2.7 Were other interventions similar in both age groups	++ + - NR NA	Comments
2.8 Were all participants accounted for at the study conclusion?	++ + - NR NA	Comments
<b>Section 3: Outcomes</b>		
3.1 Were outcomes measures reliable? How reliable are these?	++ + - NR NA	Comments
3.2 Were all the outcome measures completed?	++ + - NR NA	Comments
3.3 Were all important outcomes assessed?	++ + - NR NA	Comments
3.4 Were outcomes relevant?	++ + - NR NA	Comments
<b>Section 4: Analyses</b>		
4.1 Were exposure and comparison groups similar at baseline?	++ + - NR NA	Comments
4.2 Was Intention to Treat analysis (ITT) analysis conducted	++ + - NR NA	Comments
4.3 Was the study sufficiently powered to detect and intervention effect if one exists?	++ + -	Comments

	NR NA	
4.4 Were the estimates of effect size given or calculable	++ + - NR NA	Comments
4.5 Were the analytical methods appropriate?	++ + - NR NA	Comments
4.6 Was the precision of intervention effects given or calculable	++ + - NR NA	Comments
<b>Section 5 Summary</b>		
5.1 Are the study results internally valid (i.e. unbiased)?  How well did the study minimise sources of bias (i.e. adjusting for potential confounders)	++ + - NR NA	Comments
5.2 Are the findings generalisable to the source population (i.e. externally valid)?  Are there sufficient details given about the study to determine if the findings are generalisable to the source population?	++ + - NR NA	Comments

### Checklist for reporting correlations and associations

Study identification:(Include full citation details)		
Study design:		
Assessed by:		
<b>Section 1: Population</b>		
1.1 Is the source population or source area well described?	++ + - NR NA	Comments
1.2 Is the eligible population or area representative of the source population?	++ + - NR NA	Comments
1.3 Do the selected participants or areas represent the eligible population?	++ + - NR NA	Comments
<b>Section 2: Method of selection</b>		
2.1 Selection of exposure (and comparison if applicable). Was selection bias minimised and how?	++ + - NR NA	Comments
2.2 Was selection of explanatory variables based upon sound theoretical basis?	++ + - NR NA	Comments
2.3 Was the contamination acceptable low?	++ + - NR NA	Comments
2.4 How well were likely confounding factors identified and controlled for?	++ + - NR NA	Comments
<b>Section 3: Outcomes</b>		
3.1 Were outcomes measures and procedures reliable? Consider inter/intra-rater reliability/validity of measures/self-report?	++ + -	Comments

	NR NA	
3.2 Were all the outcome measures completed?	++ + - NR NA	Comments
3.3 Were all important outcomes assessed?	++ + - NR NA	Comments
<b>Section 4: Analyses</b>		
4.1 Was the study sufficiently powered to detect an intervention effect (if one exists)? Is power calculation presented?	++ + - NR NA	Comments
4.2 Were multiple explanatory variables considered in the analyses?	++ + - NR NA	Comments
4.3 Were the analytical methods appropriate? Were important differences/confounders adjusted for?	++ + - NR NA	Comments
4.4 Was the precision of association given or calculable? Were confidence intervals or p values for effect estimates given or possible to calculate? Were CIs wide or were they sufficiently precise to aid decision making?	++ + - NR NA	Comments
<b>Section 5 Summary</b>		
5.1 Are the study results internally valid (i.e. unbiased)?  How well did the study minimise sources of bias (i.e. adjusting for potential confounders)	++ + - NR NA	Comments
5.2 Are the findings generalisable to the source population (i.e. externally valid)?  Are there sufficient details given about the study to determine if the findings are generalisable to the source population?	++ + - NR NA	Comments

## **Appendix B: Participant Information Sheet**

### **SOCIAL MEDIA: TRAVEL, CELEBRITIES AND PEOPLE**

You will shortly be invited to complete an online questionnaire/experiment looking at various images that you might often see on websites such as Instagram and Facebook. Please read the information below to decide if you would like to take part.



#### **What is the project about?**

A lot of research is happening to allow us to understand how using social media (websites like Facebook and Instagram) affects us. When we use social media, we tend to see a lot more pictures and images of ourselves and other people than we ever have before. We hope this experiment will provide useful information on whether this affects how people feel about themselves.

#### **What will you have to do?**

The experiment will take about 15 to 20 minutes to complete. You will be asked some questions about yourself, and then asked to look at some images you might typically see on social media sites such as Instagram. Some questions you will be asked are of a personal nature about your attitudes and beliefs, mostly about yourself. You will be asked similar questions after looking at the images too.

#### **Who will see my answers?**

No one will know your responses to the questions, even the researchers. Your answers remain completely anonymous and you don't have to put your name anywhere. This is to allow you to be as honest as you can without worrying someone will know what you put. The anonymous data collected may be shared with other researchers, with summaries presented at conferences or in academic publications. It won't be possible for anyone to identify you from the answers you give, you will be one of almost 300 participants!

#### **What are the advantages of taking part?**

You might find it interesting and enjoy answering questions about yourself. Once completed, we hope the study will provide useful information about social media and the impact upon young women like yourself. This will be important in helping to generate advice and support, and help us to understand more about the lives of modern teenagers.

#### **Are there any disadvantages to taking part?**

It could be that you are not comfortable answering questions about yourself. It is unlikely that the questions should cause you distress, however if it does, there are details available at the end of the study about where to get advice or support, or even further information if you want it.

#### **Do you have to take part in the study?**

No, your participation is entirely voluntary, you don't have to take part and do not have to give a reason for doing so. If you agree to participate, you are free to stop at any time simply by stopping the survey.

#### **What happens now?**

Space has been allocated in your timetable for you to get to a computer and complete the survey. You access the survey by typing the link that will be available to you as directed by your teacher on the day.

### **For further information**

Michelle Kitson, the Chief Investigator will be glad to answer your questions about this study and can inform you about the full results once data collection is complete and the results have been analysed. You can contact her on:

[s1580021@sms.ed.ac.uk](mailto:s1580021@sms.ed.ac.uk)

The academic supervisor for the project, Emily Newman can also be contacted for further information at the following email address:

[Emily.Newman@ed.ac.uk](mailto:Emily.Newman@ed.ac.uk)

Although unlikely, in the event of experiencing any distress during completion of the online survey your guidance teacher will be able to discuss this with you. Alternatively, you may wish to contact Michelle Kitson using the details above. Any distress experienced is likely to be short lived and temporary.

You can find more information and support on issues that affect adolescent mental health at:

<https://youngminds.org.uk>

<https://www.headstogether.org.uk>

<https://www.seemescotland.org/young-people/young-peoples-mental-health>

## **Appendix C: University of Edinburgh Research Ethics Application Agreement**

University of Edinburgh, School of Health in Social Science



### **RESEARCH ETHICS APPLICATION (REA)**

The forms required when seeking ethical approval in the School of Health and Social Sciences have now been merged into this single electronic document. The sections you are required to complete will depend on the nature of your application. Please start to complete the form from the beginning and proceed as guided. On completion the **entire** document should be submitted electronically to your section's ethics administrator using the email addresses detailed on the final page.

#### **FORM OVERVIEW**

<b>FORM</b>	<b>COMPLETION</b>
Project registration form	: Compulsory for all applications
Document checklist	: Compulsory for all applications
Level 1 Self Audit form	: To be completed for all research studies that are not subject to review by an external UK based ethical committee.
Level 2 /3 ethical review form	: To be completed when indicated by responses on the Level 1 form.
Level 4 ethical review form	: applies to research which is potentially problematic in that it may incorporate an inherent physical or emotional risk to researchers or participants, or involve covert surveillance or covert data collection.

#### **PROJECT REGISTRATION FORM**

This form is the first stage in applying for University ethical approval and should be completed prior to the commencement of any research project. Applications submitted without appropriate documentation will be returned.

Ethical approval is required for all projects by staff or students conducting research, or similar. Applicants should familiarise themselves with the School's Research Ethics Policy prior to completion.

PR1 <b>Name of Applicant:</b> Michelle Kitson
PR2 <b>Name of Supervisor<sup>1</sup>:</b> Emily Newman
PR3 <b>Project Title:</b> Investigating the impact of Instagram exposure on mood and body dissatisfaction in adolescents
PR4 <b>Subject Area (section of school):</b> Clinical Psychology
PR5 <b>If student, type of assessed work that this application relates to:</b> DClinPsychol thesis
PR6 <b>Planned date of project submission:</b> May 2018
PR7 <b>Date ethics application submitted:</b> September 2017
PR8 <b>(Date complete information submitted if different):</b> N/A
PR9 <b>IRAS Approval Number if applicable:</b> N/A
<b><i>The following to be completed by ethics administrator</i></b>
PR10 <b>Date of initial response to applicant:</b>
PR11 <b>Date of final approval:</b>
PR12 <b>Amendments Requested Date:</b>
PR13 <b>Amendments Approved Date:</b>

<sup>1</sup> Not applicable to staff members.

PR14 <b>Reviewer 1</b>
PR15 <b>Reviewer 2</b> <i>Level 2/3/4 only</i>
<b>DOCUMENTATION CHECKLIST</b>

1) <sup>DC1</sup> Does your research project require extraction or collection of data abroad? (✓)

✓	<b>No</b> <i>If 'No' Skip to Q2</i>
	<b>Yes</b> Local Ethical review needed, please confirm (✓) electronic attachment of: Application to ethical review panel in country of data collection (in English) + copy of letter of approval

2) <sup>DC2</sup> For the purposes of this research study, will you access identifiable<sup>1</sup> information on any NHS patient? (✓)

✓	<b>No</b> <i>If 'No' Skip to Q3</i>
	<b>Yes</b> Please confirm (✓) electronic attachment of: <b>Caldicott Guardian</b> approval for use of NHS data (or confirmation that it is not required)

3) <sup>DC3</sup> Does the project require ethical review by an external UK committee e.g. NHS REC or Social Work?

✓	<b>No</b> <i>If 'No' Skip to Q4</i>
	<b>Yes</b> Please confirm (✓) electronic attachment of: NHS REC (IRAS) /other application form + copy of letter of approval
<b>NOTE:</b> You are <b><i>not</i></b> required to complete University ethical review forms. <b>Skip to Q6</b>	

4) <sup>DC4</sup> Unless you answered 'yes' to 3, you must also obtain ethical approval through the University of Edinburgh process. Please submit a Level 1 form (with 'Methods' summary) and, if indicated, a level 2/3/4 form as well.


SHSS Ethics paperwork	Forms: level		Summary of 'Methods'
	1	2/3/4	
Please indicate the SHSS Ethics forms completed herewith (✓):			

5) <sup>DC5</sup> If you have completed the Level 2/3/4 form please list any additional documentation provided in support of your application (E.g. Disclosure, consent form, participant information, GP letters etc., Data Storage Plan)

Documentation Name <small>These should reflect content</small>	(✓)	Documentation Name	(✓)
Participant information sheet	✓		
Qualtrics white paper	✓		

6) Signatures

Michelle Kitson \_\_\_\_\_ Michelle Kitson 18.09.2017  
**Applicant's Name**                      Applicant's Signature                      Date signed

Emily Newman  28.09.2017

<sup>1</sup> 'Identifiable information' refers to information that would allow you to know, or be able to deduce, the identity of a patient. The most common examples of this would be accessing medical records or similar, or accessing a database that includes patients' names.

Supervisor<sup>1</sup> Name

Supervisor's Signature

Date signed

Please return an electronic copy of your UoE HSS Ethics Application Form (in its entirety) to your Section's Ethics Officer, accompanied by electronic copies of additional documents indicated above. We do not accept paper documentation; please scan all documents into electronic formats. Please keep a copy of all documentation for your records.

### LEVEL 1 SELF AUDIT FORM

The audit is to be conducted by all staff and students conducting any type of empirical investigation, including research, audit or service evaluation.

The form should be completed by the principal investigator and, with the exception of staff, signed by a University supervisor.

#### <sup>SA1</sup> Primary Research Question:

Does exposure to Instagram images of attractive celebrities and attractive non-familiar peers negatively impact upon adolescent body satisfaction and mood?

Please tick	What type of research are you planning to do?
	Study of a novel intervention or randomised clinical trial to compare interventions in clinical practice
✓	Study utilising questionnaires, interviews or measures, including auto-ethnographic data.
	Study limited to working with routinely collected clinical data.
	Meta-analysis or systematic review.
	Research database containing non-identifiable information.

<sup>SA2</sup> Please provide a brief summary of your proposed study. Our interest is in areas of your methodology where ethical issues may arise so please focus your detail on areas such as recruitment, consent, describing your participants and the nature of their involvement, and data handling.

#### Project Summary:

The proposed study aims to investigate the impact of brief exposure to Instagram images on adolescent mood, and body dissatisfaction.

Participants will be females aged 16-17 and will be recruited through schools local to the Chief Examiner's health board. Power calculations suggest 288 participants will be required. Exclusion criteria includes non-English speaking individuals, non-consenting individuals.

A between-subject experimental design will be employed to investigate the impact of image type (non-familiar age and gender related peers, female celebrities and travel) on the independent variables of mood and body dissatisfaction.

Each potential participant will be given an information sheet and consent form (see attached) to sign prior to participation to say they understand the requirements of taking part in the study. The information sheet will indicate that the main aim of the study is to investigate how images we see on social media

<sup>1</sup> Not required for staff applications.

Project Summary:

The proposed study aims to investigate the impact of brief exposure to Instagram images on adolescent mood, and body dissatisfaction.

Participants will be females aged 16-17 and will be recruited through schools local to the Chief Examiner's health board. Power calculations suggest 288 participants will be required. Exclusion criteria includes non-English speaking individuals, non-consenting individuals.

A between-subject experimental design will be employed to investigate the impact of image type (non-familiar age and gender related peers, female celebrities and travel) on the independent variables of mood and body dissatisfaction.

Each potential participant will be given an information sheet and consent form (see attached) to sign prior to participation to say they understand the requirements of taking part in the study. The information sheet will indicate that the main aim of the study is to investigate how images we see on social media affect how we feel. Advantages and disadvantages to participating in the study will be discussed, and the Chief Investigator's contact details will be given should they have any questions. It is unlikely that participation would cause distress, however details of how to manage any potential distress are given on the information leaflet, as well as online at the end of the experiment.

Each participant will be asked to complete an online experiment which takes approximately 15 to 20 minutes. Following agreement with participating schools, this will take place in the school IT suites, with each student being allocated time out of their normal curriculum to attend. Each participant will log on to the study using a web address, where they will be asked to indicate that they have read the information sheet which will be delivered to all potential participants shortly before being invited to participate via their school. When first accessing the survey they will be asked to indicate whether they have read the participant information sheet, and will then be asked to give consent to participating by clicking a statement of agreement indicating that they consent and that they are aware they can stop at any time. They cannot progress with the study until consenting, and should they decline to give consent they will be directed to a page thanking them for their time and informing them they are free to leave the IT suite.

Once consent has been obtained they will be directed to the main section of the study automatically. Initially participants will be asked to indicate their current height and weight, and their ethnicity and age as well as how much time on average they spend using social media each day. They will also be asked to indicate which social media sites they use regularly (at least once a week).

They will complete a measure of body dissatisfaction, self-esteem and mood before being randomly allocated to one of three conditions. Condition 1 will involve observing 15 Instagram images of 'attractive' female age related peers. There will be 15 images in total presented for 10 seconds each and will involve 5 different females (3 images of each). The images will have been pre-selected by a focus group of non-participating females (n=6) within the same age group. The focus group will be presented with a range of 20 potential female subjects who have been found on Instagram using the #selfie descriptor and initially chosen due to similarities in age to the intended participants. The Chief Investigator will attempt to select images of subjects who are unlikely to be identified by participants in the study by ensuring they live in a different country, and that they have <200 Instagram followers. The Chief Investigator will attempt to seek agreement from the owner of the image to use them for the purposes of the study by contacting them via Instagram's private message facility.

Each focus group member will be asked to rate overall attractiveness of each subject using a 5 point Likert scale (1=very unattractive to 5= very attractive). The 5 subjects with the highest rating overall will be used within the study. They will also be asked to indicate whether they know the subject within the images, only those with 100% response of 'no' will be to ensure as much as possible that the targets confidentiality and anonymity is maintained.

Condition 2 and 3 follow the same procedure, however condition 2 will observe 15 images of 5 female celebrities who have similarly been chosen and matched with the peer group images according to attractiveness scores generated by the focus group, the focus group will also be asked to indicate who the celebrities are, only those with 100% recognition will be utilised within the study. Condition 3 (control condition) will involve participants observing 15 travel related Instagram images of 5 different locations (3 images of each location).

Following exposure to the images, each participant will be asked to complete the same measure of body dissatisfaction and mood. Upon completion, they will be shown information on how to manage any distress caused by participation, which includes direction to websites that support adolescents with mental health and wellbeing, as well as direction to their school guidance tutor or nurse for further support or discussion.

Participants do not input any personally identifiable information into the online study. The software is hosted by Qualtrics who guarantee the highest standard of data security, utilising European servers (please see white paper attached for more info).

The data from the experiment will be analysed using SPSS to investigate whether viewing peer images and celebrity images affects participants in a different way compared to the control condition (viewing travel images). Exploration of any differences between measures of those in the celebrity vs peer groups will also be undertaken. A moderation analysis will be conducted to investigate whether self-esteem has a moderating effect upon the impact of viewing images of 'attractive others' on mood and body dissatisfaction.

Please circle your answer as appropriate:

ETHICAL ISSUES			
SA3	<p><b>Bringing the University into disrepute</b></p> <p>Is there any aspect of the proposed research which might bring the University into disrepute? For example, could any aspect of the research be considered controversial or prejudiced?</p>	No	YES
SA4	<p><b>Protection of research subject confidentiality</b></p> <p><i>Will you make every effort to protect research subject confidentiality by conforming to the University of Edinburgh's guidance on data security, protection and confidentiality as specified in: <a href="http://www.ed.ac.uk/information-services/research-support/data-library/research-data-mgmt">www.ed.ac.uk/information-services/research-support/data-library/research-data-mgmt</a></i></p> <p><i>For example, there are mutually understood agreements about:</i></p> <ul style="list-style-type: none"> <li>(a) non-attribution of individual responses;</li> <li>(b) Individuals, and organisations where necessary, being anonymised in stored data, publications and presentations;</li> <li>(c) publication and feedback to participants and collaborators;</li> <li>(d) With respect to auto-ethnographic work it is recognised that the subject's anonymity cannot be maintained but the confidentiality of significant others must be addressed.</li> </ul>	NO	Yes

SA5	<p><b>Data protection and consent</b></p> <p><i>Will you make every effort to ensure the confidentiality of any data arising from the project by complying with the University of Edinburgh's Data Protection procedures (see <a href="http://www.ed.ac.uk/information-services/research-support/data-library/research-data-mgmt">http://www.ed.ac.uk/information-services/research-support/data-library/research-data-mgmt</a>).</i></p> <p>For example</p> <ul style="list-style-type: none"> <li>(a) Ensuring any participants recruited give consent regarding data collection, storage, archiving and destruction as appropriate;</li> <li>(c) Identifying information<sup>1</sup>, (e.g. consent forms) is held separately from data and is only accessible by the chief investigator and their supervisors;</li> <li>(e) There are no other special issues arising regarding confidentiality/consent.</li> <li>(f) That where NHS data is being accessed Caldicott Guardian approval has been obtained.</li> </ul> <p><b>IT IS NECESSARY TO GIVE THE HEAD OF SCHOOL'S NAME AS THE CONTACT PERSON IN CASE OF ANY COMPLAINT. PLEASE MAKE SURE THAT THIS LINK IS PROVIDED on any Information sheet/consent form: (<a href="http://www.ed.ac.uk/files/imports/fileManager/WEB%20Complaint%20Form.pdf">http://www.ed.ac.uk/files/imports/fileManager/WEB%20Complaint%20Form.pdf</a>)</b></p>	NO	Yes
SA6	<p><b>Duty to disseminate research findings</b></p> <p>Are there issues which will prevent all participants and relevant stakeholders having access to a clear, understandable and accurate summary of the research findings should they wish?</p>	No	YES
SA7	<p><b>Moral issues and Researcher/Institutional Conflicts of Interest</b></p> <p><i>Are there any SPECIAL MORAL ISSUES/CONFLICTS OF INTEREST?</i></p> <p>Examples include, but are not limited to:</p> <ul style="list-style-type: none"> <li>(a) Where the purposes of research are concealed;</li> <li>(b) Where respondents are unable to provide informed consent</li> <li>(c) Where there is financial or non-financial benefit for <i>anyone</i> involved in the research, or for their relative or friend.</li> <li>(d) Where research findings could impinge negatively or differentially upon participants or stakeholders (for example when selecting an unrepresentative sample of a larger population).</li> <li>(e) Where there is a dual relationship between the researcher and subject? E.g. Where the researcher is also the subject's practitioner or clinician.</li> <li>(f) Where research involves covert surveillance or covert data collection.</li> <li>(g) Where routinely collected data is used for research alongside novel data.</li> </ul> <p><b>NOVEL DATA COLLECTION SHOULD NOT BE CONFLATED WITH ROUTINELY COLLECTED DATA. WHERE BOTH ARE BEING USED THIS NEEDS TO BE MADE CLEAR IN ANY COVERING LETTER, PARTICIPANT INFORMATION SHEET AND CONSENT FORM IN ORDER FOR INFORMED CONSENT TO BE POSSIBLE.</b></p>	No	YES

<sup>1</sup> 'Identifiable information' refers to information that would allow you to know, or be able to deduce, the identity of a patient. The most common examples of this would be accessing medical records or similar, or accessing a database that includes patients' names.

SA8	<p><b>Potential physical or psychological harm, discomfort or stress</b></p> <p>Is there any foreseeable potential for:</p> <p>(a) significant psychological harm or stress for participants  (b) significant physical harm or discomfort for participants?  (c) significant risk to the researcher?</p> <p>Examples of issues/ topics that have the potential to cause psychological harm, discomfort or distress and should lead you to answer 'yes' to this question include, but are not limited to:  <i>Relationship breakdown; bullying; bereavement; mental health difficulties; trauma / PTSD; Violence or sexual violence; physical, sexual or emotional abuse in either children or adults; feedback of results from the project's assessments.</i></p>	No	YES
SA9	<p><b>Vulnerable participants</b></p> <p>Will you be <b>recruiting</b> any participants or interviewees who could be considered vulnerable?</p> <p>Examples of vulnerable groups, the inclusion of which should lead you to answer yes to this question include, but are not limited to:  Clients or patients of either the researcher OR the person recruiting subjects; Children &amp; young people; people who are in custody or care for example, offenders, looked after children or nursing home resident; persons with mental health difficulties including those accessing self-help groups; auto-ethnographic researchers examining distressing topics.</p>	No	YES

**Assessment outcome:**

SA10 **Have you circled any answers in **BOLD** typescript?** Please tick as appropriate

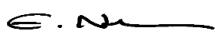
- No**  (i) Your responses on the completed self-audit confirm the ABSENCE OF REASONABLY FORESEEABLE ETHICAL RISKS.  
(ii) Please now read the guidance below and provide the required signatures.  
(iii) You are NOT REQUIRED to complete a level 2/3/4 application form.  
(iv) Please submit the UoE HSS Ethics Application Form electronic document (in its entirety) along with ALL additional required documentation, failure to do so will mean that your form is returned to you.
- Yes**  (i) Your responses on the completed self-audit indicate that we require further information to consider your application.  
(ii) Read the Guidance below and provide the required signatures.  
(ii) You **ARE REQUIRED** to complete a level 2/3/4 application form.  
(III) Please continue to the next part of this document where you will find the level 2/3/4 form

Subsequent to submission of this form, any alterations in the proposed methodology of the project should be reviewed by both the applicant and their supervisor. If the change to methodology results in a change to any answer on the form, then a resubmission to the Ethics subgroup is required.

The principal investigator is responsible for ensuring compliance with any additional ethical requirements that might apply, and/or for compliance with any additional requirements for review by external bodies.

**ALL** forms should be submitted in electronic format. Digital signatures or scanned in originals are acceptable. The applicant should keep a copy of all forms for inclusion in their thesis.

Michelle Kitson	<u>Michelle Kitson</u>	<u>26.09.2017</u>
Applicant's Name	Applicant's Signature	Date

	Emily Newman	28.09.2017
*Supervisor Signature <sup>1</sup>	Supervisor Name	Date

\*NOTE to Supervisor: Ethical review will be based only on the information contained in this form. If countersigning the check-list as truly warranting all 'No' answers, you are taking responsibility, on behalf of the HSS and UoE, that the research proposed truly poses no ethical risks.

#### LEVEL 2/3/4 ETHICAL REVIEW

- Complete only if indicated in the conclusion of your level 1 form.
- Applications will be monitored and audited to ensure that the School Ethics Policy and Procedures are being complied with and applicants contacted in cases where there may be particular concerns or queries.
- Research must not proceed before ethical approval has been granted. For this reason it is particularly important that applications are submitted well in advance of any required date of approval.

**If the answer to any of the questions below is 'yes', please elaborate and give details of how this issue is will be addressed to ensure that ethical standards are maintained. The response boxes will expand as you complete them. Forms that do not contain sufficient detail will be returned incurring delay.**

**BEFORE COMPLETING THE NEXT SECTION, PLEASE MAKE REFERENCE TO**

<http://www.dataprotection.ed.ac.uk/activities/DPPolicyFINAL.htm>

<http://www.ed.ac.uk/schools-departments/records-management-section/data-protection/guidance-policies/research/research>

---

<sup>1</sup> Not required for staff applications

## CONFIDENTIALITY AND HANDLING OF DATA

**ER1 What information about participants'/subjects' data will you collect and use?**

The participants age and ethnicity will be collected as well as height and weight to check homogeneity of the groups across the three conditions. No other personal data outside of the measures of self-esteem, body dissatisfaction and negative mood described above will be collected. The raw data will be gathered using the online Qualtrics system, and will be downloaded for statistical analysis on SPSS. This data will be stored on the university's datastore system using the Chief Investigator's account, and will later be stored on the academic supervisor's account for longer term storage.

**ER2 What is the risk category of the information? (See definitions contained in <http://www.ed.ac.uk/schools-departments/records-management-section/data-protection/guidance-policies/encrypting-sensitive/data>)**

Low risk, given that the information will not lead individual participants to be identified.

**ER3 Will the information include any of the following:**

- (a) racial or ethnic origin
- (b) political opinions
- (c) religious beliefs
- (d) trades union membership
- (e) physical or mental health
- (f) sexual life
- (g) commission of offences or alleged offences

- a) ethnicity
- e) mental health (aspects of – mood state, self esteem)

**ER4 Who will have access to the raw data?**

The Chief Investigator and academic supervisor only.

**ER5 What training will staff receive on their responsibilities for the safe handling of the data?**

The Chief Investigator is currently on the DCLinPsychol and therefore has taken part in the data management teaching throughout the research component of the course. This included completing the online MANTRA modules.

**ER6 How will the confidentiality of the data, including the identity of participants, be ensured? Is there a strategy in place to replace disclosive identifiers of an individual or entity from the data?**

No personally identifiable data will be collected from participants. All survey responses are collected via an online survey system where participants do not enter any personally identifiable information about themselves. As there is only one time point for data collection, no identifiers are required to match follow up data.

**ER7 Will the information be transferred to, shared with, supported by, or otherwise available to third parties outside the University?**

**NO If yes, explain why the third party needs to have access to the information and how the transfer of the information will be made secure. Attach a copy of the agreement you will use to regulate the transfer and use of data.**

**ER8 Describe the physical and IT security arrangements you will put in place for the data.**

IT security: As mentioned, Qualtrics offer secure data storage, with access to the data being password protected and stored within the Chief Investigator's individual Qualtrics account. Only the Chief Investigator has access to this information. For statistical analysis, the data will be downloaded for use in SPSS. The SPSS files will be stored on the Chief Investigator's university online datastore which is password protected. This will later be transferred to the academic supervisor's account for longer term storage. No personal computers will be used when analysing data, however an encrypted laptop provided by the Chief Investigator's health board will be used for analysing data via SPSS.

**ER9 Does the system have a security code of practice under the University's Information Security Policy? (see <http://www.ed.ac.uk/information-services/about/policies-and-regulations/security-policies/security-policy>)**

**YES/NO If NO, explain why one is not needed.**

**Datastore does have a code of practice. Qualtrics does not have code of practice however the University has recently purchased a subscription. The data will be destroyed from Qualtrics as soon as transfer to SPSS has been completed.**

**ER10 Will the data be used, accessed or stored away from the University premises?**

**YES If YES, describe the arrangements you have put in place to safeguard the data from accidental or deliberate access, amendment or deletion when it is not on University premises, including when it is in transit.**

The data will be stored in an online format on the University data store system. Analysis will take place away from University premises at times and an encrypted laptop provided by the Chief Investigator's NHS Board will be used for this purpose. Any work will be backed up onto the University's online cloud storage system.

**ER11 Specify where the data files/audio/videotapes etc. will be retained after the study, how long they will be retained and how they eventually will be disposed of?**

The data will be stored for a period of 5 years on the academic supervisor's university online datastore. This will be disposed of/deleted by the academic supervisor after this period.

**ER12 How do you intend for the results of the research to be used?**

The results will be gathered and summarised as part of a DClinPsychol thesis, and will also be prepared and submitted to relevant peer reviewed journals in the hope of publication. Results will also be disseminated through the participating local education authority area via presentation to the Education department, CAMHs team meetings and also to the participating schools.

**ER13 Will feedback of findings be given to participants/subjects?**

**YES If yes, how will this feedback be provided?**

This will be given via presentation to the participating schools. Individual feedback will not be offered.

**ER14 Using secondary data:**

**YES (a) Is this reuse compatible with what the data subjects were originally told about the use of their data? (e.g. were they told that it would be destroyed at the end of the study?)**

**NO (b) Is it likely that someone could be identified from this data? (It is extremely difficult to make something totally anonymous, so even with secondary data there may be a need to apply security and access restrictions to it).**

**For more information regarding data linkage in evaluating interventions for the benefit of the population's health please see: <http://www.gov.scot/Topics/Statistics/datalinkageframework>**

**Your application at this level is likely to require additional documentation, for example a Data Storage Plan, consent forms or participant information sheets. Please return to the Documentation Checklist on page 2 to list your supporting documentation.**

**SECURITY-SENSITIVE MATERIAL**

**ER15 Does your research fit into any of the following security-sensitive categories? If so, indicate which.**

**NO Commissioned by the military**

**NO Commissioned under an EU security call**

**NO Involve the acquisition of security clearances**

**NO Concern groups which may be construed as terrorist or extremist**

**IF YOU HAVE ANSWERED YES TO ANY OF THESE CONTINUE TO ER16. IF YOU HAVE ANSWERED NO TO ALL OF THESE QUESTIONS MOVE TO ER21.**

**ER16** The Terrorism Act (2006) outlaws the dissemination of records, statements and other documents that can be interpreted as promoting or endorsing terrorist acts.

NO Does your research involve the storage on a computer of such records, statements and other documents?

NO Might your research involve the electronic transmission (e.g. as an email attachment) of records or statements?

**IF YOU ANSWERED YES TO ANY OF THESE YOU ARE ADVISED TO STORE THE RELEVANT RECORDS OR STATEMENTS ELECTRONICALLY ON A SECURE UNIVERSITY FILE STORE. THE SAME APPLIES TO PAPER DOCUMENTS WITH THE SAME SORT OF CONTENT. THESE SHOULD BE SCANNED AND UPLOADED.**

**ACCESS TO THIS FILE STORE WILL BE PROTECTED BY A PASSWORD UNIQUE TO YOU AND YOUR SCHOOL RESEARCH ETHICS OFFICER. PLEASE INDICATE THAT YOU AGREE TO STORE ALL DOCUMENTS RELEVANT TO THESE QUESTIONS ON THAT FILE STORE:**

YES/NO

**ER17** Please indicate that you agree not to transmit electronically to any third party documents in the document store:

YES

**ER18** Will your research involve visits to websites that might be associated with extreme or terrorist organisations?

NO

**ER19** If you answer YES to ER18 you are advised that such sites may be subject to surveillance by the police. Accessing those sites from University IP addresses might lead to police enquiries. Please acknowledge that you understand this risk:

N/A

**ER20** By submitting to the research ethics process, you accept that your School Research Ethics Officer and the convenor of the University's Compliance Group will have access to a list of titles of documents (but not the content of documents) in your document store. Please acknowledge that you accept this.

YES

Countersigned by supervisor/manager:

Name:

Date:

#### RISKS TO, AND SAFETY OF, RESEARCHERS NAMED IN THIS APPLICATION

**ER21** Do any of those conducting the research named above need appropriate training to enable them to conduct the proposed research safely and in accordance with the ethical principles set out by the College?

NO	
ER22 <b>Are any of the researchers likely to be sent or go to any areas where their safety may be compromised, or they may need support to deal with difficult issues?</b>	
NO	
ER23 <b>Could researchers have any conflicts of interest?</b>	
NO	
<b>RISKS TO, AND SAFETY OF, PARTICIPANTS</b>	
ER24 <b>Are any of your participants children or protected adults (protected adults are those in receipt of registered care, health, community care or welfare services. Anyone who will have contact with children or protected adults requires approval from Disclosure Scotland at <a href="http://www.disclosurescotland.co.uk/">http://www.disclosurescotland.co.uk/</a></b>	
Do any of the researchers taking part in this study require Disclosure Scotland approval? (v)	
Not applicable	
Relevant researcher/s has current Disclosure Scotland approval through a current NHS employment contract	✓
Yes*	
*Ethical approval will be subject to documentation confirming Disclosure Scotland approval with this form.	
ER25 <b>Could the research induce any psychological stress or discomfort?</b>	
YES There may be a risk of inducing some discomfort given the nature of some of the measures which ask questions relating to self-esteem, mood and body dissatisfaction. However the measures have been kept to a minimum and details of what to do should any of the participants experience this will be outlined.	
ER26 <b>Does the research involve any physically invasive or potentially physically harmful procedures?</b>	
NO	
ER27 <b>Could this research adversely affect participants in any other way?</b>	
NO	
<b>RESEARCH DESIGN</b>	
ER28 <b>Does the research involves living human subjects specifically recruited for this research project</b> <i>If 'no', go to section 6</i>	

YES
<b>ER29 How many participants will be involved in the study?</b>
A total of 288 participants will be required to take part in the study
<b>ER30 What criteria will be used in deciding on inclusion/exclusion of participants?</b>
Participants will be female, and be between the ages of 16 and 17. Exclusion factors would be anyone unable or unwilling to provide consent to participate, and anyone without an adequate understanding of the English language.
<b>ER31 How will the sample be recruited? ( E.g. posters, letters, a direct approach- specify by whom.)</b>
The sample will be recruited through schools. The Chief Investigator has received clearance from the local education authority in relation to their ethics procedure. The depute head from each school involved are fully involved in the logistical planning of the study.
<b>ER32 Will the study involve groups or individuals who are in custody or care, such as students at school, self-help groups, residents of nursing home?</b>
YES – Students in school, aged 16 to 17.
<b>ER33 Will there be a control group?</b>
YES. The control group will view images of travel related Instagram pictures. Participants will be randomly allocated into one of the three groups by the software (Qualtrics).
<b>ER34 What information will be provided to participants prior to their consent? (e.g. information leaflet, briefing session)</b>
Shortly prior to the study, participant information sheets will be given to all suitable participants within the target schools. These will be in paper format. This will detail information about the study and the requirements should they wish to take part. They will be offered contact details (email address) for the Chief Investigator. Within each school, the Head of Pastoral Care/Guidance and Deputy Headteachers will be fully briefed on the study, the requirements and demands, and furnished with contact details for the Chief Investigator.
<b>ER35 Participants have a right to withdraw from the study at any time. Please tick to confirm that participants will be advised of their rights, including the right to continue receiving services if they withdraw from the study.</b>
<input checked="" type="checkbox"/> Y
<b>ER36 Will it be necessary for participants to take part in the study without their knowledge and consent? (e.g. covert observation of people in non-public places)</b>
NO
<b>ER37 Where consent is obtained, what steps will be taken to ensure that a written record is maintained?</b>
Consent will be gathered using a consent system embedded in the Qualtrics system. Each participant will initially be directed to the consent information and will only be allowed to continue with the study once they indicate that they have read the participant information, the consent conditions and agreed to participate. Those who indicate they have not read the information sheet will be able to access this by clicking a link before they decide whether to consent. Those who state they do not wish to take part in the study will be thanked for their time and directed to leave the IT suite.
<b>ER38 In the case of participants whose first language is not English, what arrangements are being made to ensure informed consent?</b>

Participants without a strong command of the English language will be excluded from the study.
<b>ER39 Will participants receive any financial or other benefit from their participation?</b>
NO
<b>ER40 Are any of the participants likely to be particularly vulnerable, such as elderly or disabled people, adults with incapacity, your own students, members of ethnic minorities, or in a professional or client relationship with the researcher?</b>
NO
<b>ER41 Will any of the participants be under 16 years of age?</b>
NO
<b>ER42 Will any of the participants be interviewed in situations which will compromise their ability to give informed consent, such as in prison, residential care, or the care of the local authority?</b>
NO
<b>BRINGING THE UNIVERSITY INTO DISREPUTE</b>
<b>ER43 If on the level one form you have answered YES that some aspect of the proposed research “might bring the University into disrepute”, please elaborate alongside how this might arise, and what steps will be taken by the researcher to mitigate and/or manage this, to minimise adverse consequences to the University.</b>

Subsequent to submission of this form, **both the applicant and their supervisor should review any alterations in the proposed methodology of the project.** If the change to methodology results in a change to any answer on the form, then a resubmission to the Ethics subgroup is **required.**


The principal investigator is responsible for ensuring compliance with any additional ethical requirements that might apply, and/or for compliance with any additional requirements for review by external bodies.

ALL forms should be submitted in electronic format. Digital signatures or scanned in originals are acceptable. The applicant should keep a copy of all forms for inclusion in their thesis.

\_\_Michelle Kitson\_\_\_\_\_  
Applicant’s Name

\_\_Michelle Kitson\_\_\_\_\_  
Applicant’s Signature

\_18.09.17\_\_\_\_\_  
Date

  
\*Supervisor Signature<sup>1</sup>

Emily Newman  
Supervisor Name

28.09.2017  
Date

<sup>1</sup> Not required for staff applications

\*NOTE to Supervisor: Ethical review will be based only on the information contained in this form. If countersigning the check-list as truly warranting all 'No' answers, you are taking responsibility, on behalf of the HSS and UoE, that the research proposed truly poses no ethical risks.


ER44 **ISSUES ARISING FROM THE PROPOSAL**

I can confirm that the above application has been reviewed by two independent reviewers. It is their opinion that:

a) The ethical issues listed below arise or require clarification:

1. It is stated that the student will attempt to contact the young person on Instagram to request permission to use their personal photographs in the research. The implication seems to be that where permission is not granted, the photographs will be used anyway. Whilst 'open' Instagram accounts are in the public domain, it is potentially unethical to use photographs of a young person, who has not consented, in a research study. The owner of the photographs should be given full information on the nature of the study first (i.e. that the study is focused on attractiveness ratings).
2. Project summary: It is unclear what is meant by the 'Chief examiner's health boards'. The applicant should provide evidence of Local authority permission in the application.
3. Full details should be provided on the focus group, i.e. how participants will be recruited and procedure.
4. The information sheet should provide details for the student, supervisor and an independent advisor (email and telephone)
5. A debrief sheet should be provided to participants which explains the study and provides details of support agencies.

The applicant should respond to these comments in section 8 below.

Signature: 

Position: Lecturer in Clinical Psychology, Ethics Tutor

Date: 24/10/17

ER45 **APPLICANT'S RESPONSE (If required)**

1. All attempts are being made to ensure that there is minimal chance of the Instagram account holder being identified in any way. Their names (the name of the account) are not being used or shown, each account that has been selected appears to be from a different country (identified in bio), and have less than 200 followers. Attempts are also being made to contact the individual who owns the account to ask for permission to use their photographs, however this can only be achieved via the private messaging facility – would this suffice in terms of gaining consent? There are some difficulties in verifying this information, given participants are guaranteed anonymity and that their details will not be stored anywhere (i.e. on consent forms), there is also an awareness that the individuals identified in the photos may not be that of the actual account holder and therefore consent by private messaging does not guarantee consent from the individual in the photographs. Any account holders who have indicated they do not wish to have their photographs used will obviously not be used.
2. Local authority (Scottish Borders Council) has agreed to participate in the project, see copy of email attached. Confirmation from R & D also provided (R & D approval not required).
3. The focus group has been recruited via opportunity sampling, an individual known to the applicant who meets the age and gender criteria for the study has indicated they would be interested in taking part and is able to gather a small group of people(n=6) from their school to take part in this element of the study. They will be offered a debrief of the study (verbally) and offered similar information to the main study participants – please see attached sheet titled 'Debrief Sheet – Focus Group'. The focus group will be asked to do the following:

The focus group will be shown Instagram photograph of 20 female celebrities and 20 non-familiar peers. The 20 celebrities have been chosen by the chief investigator due to the popularity of their Instagram accounts (using number of followers). Each focus group member will be asked to rate overall attractiveness of each subject using a 5 point Likert scale (1=very unattractive to 5= very attractive). The 5 celebrities with the highest attractiveness rating overall will be used within the study, the 5 non-familiar peers with the highest attractiveness rating will also be used within the study. The Chief Investigator will be present throughout the focus group's work, however their scores will be confidential, with participants being given a sheet of paper with numbers corresponding to the images on which to indicate their scores to hand in at the end. This will not identify which participant gave which scores.
4. The information sheet will now include contact details for the supervisor as well as Chief Investigator. An independent advisor will be sought promptly and included on the information sheet. Dr. Donna Paxton (NHS Borders CAMHS Clinical Psychologist) has agreed to also be included as the health board supervisor.
5. A debrief sheet has been created and will be offered to all participants who have taken part. Please see attached copy titled 'Debrief Sheet – Main Study'


Signature: Michelle Kitson

Date: 20/11/2017

ER46 **CONCLUSION TO ETHICAL REVIEW (if required)**

The applicant's response to our request for further clarification or amendments has now satisfied the requirements for ethical practice and the application has therefore been approved.

Approval given on basis of the approach via private message as noted in the amendment and associated email discussion in the [submitting.ethics@ed.ac.uk](mailto:submitting.ethics@ed.ac.uk) inbox

Signature: 

Position: Lecturer in Clinical Psychology, Ethics Tutor

Date: 20/12/17

**ER47 AMENDMENT/S: REQUEST FOR APPROVAL**

Subsequent to receipt of ethical approval above, I, the applicant, would like to request the following amendment/s to my original proposal.

Signature:

Date:

**ER48 CONCLUSION TO ETHICAL REVIEW OF AMENDMENT**

I can confirm that the above amendment has been reviewed by two independent reviewers. It is their opinion that:

- a. Ethical issues have been satisfactorily addressed and no further response from the applicant is necessary,
  - a. OR
  - b. The ethical issues listed below arise and the following steps are being taken to address them:

Signature:

Position:

Date:

Acronyms / Terms Used  
NHS: National Health Service

SHSS: School of Health in Social Science

IRAS: Integrated Research Applications System

Section: The SHSS is divided into Sections or subject areas, these are; Nursing Studies, Clinical Psychology, C-PASS.



## **Appendix D: Body Image Submission Guidance for Authors**



# **BODY IMAGE**

An International Journal of Research

## **AUTHOR INFORMATION PACK**

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**ISSN:** 1740-1445

### **DESCRIPTION**

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*Body Image* is an international, peer-reviewed journal that publishes high-quality, scientific articles on body image and human physical appearance. Body image is a multi-faceted concept that refers to persons' perceptions and attitudes about their own body, particularly but not exclusively its appearance. The journal invites contributions from a broad range of disciplines - psychological science, other social and behavioral sciences, and medical and health sciences. The journal publishes original research articles, brief research reports, theoretical and review papers, and science-based practitioner reports of interest. The journal gives an annual award for the best doctoral dissertation in this field.

Suitable topics for [submission](#) of manuscripts include:

- The effects of body image and physical characteristics (e.g., body size, attractiveness, physical disfigurements or disorders) on psychological functioning, interpersonal processes, and quality of life;
- Body image and physical appearance in the full range of medical and allied health contexts;
- Body image and physical appearance in diverse cultural contexts;
- Validation of assessments of the multidimensional body image construct;
- Factors that influence positive and negative body image development;

•Adaptive and maladaptive body image processes and their clinically relevant consequences on psychosocial functioning and quality of life;

•Relationship of body image to behavioral variables (e.g., exercise and other physical activity, eating and weight-control behaviors, grooming and appearance-modifying behaviors, and social behaviors); •Scientific evaluation of interventions to promote positive body image or to prevent or treat body image difficulties and disorders.

### **Benefits to authors**

We also provide many author benefits, such as free PDFs, a liberal copyright policy, special discounts on Elsevier publications and much more. Please click here for more information on our [author services](#).

Please see our [Guide for Authors](#) for information on article submission. If you require any further information or help, please visit our [Support Center](#)

### **IMPACT FACTOR**

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### **ABSTRACTING AND INDEXING**

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Scopus

CINAHL

PsycINFO

Current Contents/Social & Behavioral Sciences

Google Scholar

MEDLINE®

### **GUIDE FOR AUTHORS**

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#### *Types of Papers*

The journal publishes original research articles, brief research reports, theoretical and review papers, and science-based practitioner reports of interest. The journal also gives an annual award for the best doctoral dissertation in this field.

**Brief Research Reports.** These should not exceed 2,500 words (excluding abstract, references, tables, figures and appendices). Up to a total of two one-page tables, figures, and/or appendices are permitted. The number of references cannot exceed 25.

While regular-length papers have no explicit limits in terms of numbers of words, tables/figures, and references, authors are encouraged to keep their length below 35 total pages. A paper's length must be justified by its empirical strength and the significance of its contribution to the literature.

**The Seymour Fisher Outstanding Body Image Dissertation Annual Award**

The journal gives an annual award for the best doctoral dissertation in this field. [Click here](#) for more information.

#### *Submission checklist*

You can use this list to carry out a final check of your submission before you send it to the journal for review. Please check the relevant section in this Guide for Authors for more details.

Ensure that the following items are present:

One author has been designated as the corresponding author with contact details:

E-mail address

Full postal address

All necessary files have been uploaded:

*Manuscript.*

Include keywords

All figures (include relevant captions)

All tables (including titles, description, footnotes)

Ensure all figure and table citations in the text match the files provided

Indicate clearly if color should be used for any figures in print

*Graphical Abstracts / Highlights files* (where applicable)

*Supplemental files* (where applicable)

Further considerations

Manuscript has been 'spell checked' and 'grammar checked'

All references mentioned in the Reference List are cited in the text, and vice versa

Permission has been obtained for use of copyrighted material from other sources (including the Internet)

A competing interests statement is provided, even if the authors have no competing interests to declare

Journal policies detailed in this guide have been reviewed

Referee suggestions and contact details provided, based on journal requirements

For further information, visit our [Support Center](#).

## **BEFORE YOU BEGIN**

### *Ethics in publishing*

Please see our information pages on [Ethics in publishing](#) and [Ethical guidelines for journal publication](#).

### *Human and animal rights*

If the work involves the use of human subjects, the author should ensure that the work described has been carried out in accordance with [The Code of Ethics of the World Medical Association](#) (Declaration of Helsinki) for experiments involving humans; [Uniform Requirements for manuscripts submitted to Biomedical journals](#). Authors should include a statement in the manuscript that informed consent was obtained for experimentation with human subjects. The privacy rights of human subjects must always be observed.

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