Do They Like My Post?

A Three Arm Randomised Control Trial Investigating the Effect of Fitspiration and Self-love Social Media Content on Female Adults' Body Image in New Zealand

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Abstract

Poor body image is known to be associated with adverse effects on females' body satisfaction, self-esteem, mood and eating behaviours. Exposure to visual (image-based) social networking sites provide an opportunity for females to internalise beauty ideals and make appearance comparisons. Such behaviours have been correlated with body image disturbance; a risk factor for disordered eating, eating disorders and depression. A three-arm randomised control trial was conducted to examine whether exposure to fitness imagery related to appearance ("fitspiration"), compared to body positive imagery ("self-love") and neutral imagery impacted state body image, mood, and self-esteem. The study also investigated what social media activities increased vulnerability to the impact of social media on body image, mood, and self-esteem.

Female university students (n = 78) were randomised to receive brief exposure (15-minutes) to a fitspiration (n = 26), self-love (n = 26), or neutral Instagram feed (n = 26). The impact of exposure to social media content on state self-esteem, body dissatisfaction, and mood was assessed by comparing baseline and post social media exposure scores across the three groups. Factors that may influence this relationship were also explored to determine if these behaviours made individuals more vulnerable to the effects of social media exposure.

Results indicated that participants who were exposed to the fitspiration condition scored significantly worse on state mood and body dissatisfaction after viewing the social media feed, compared to participants in the self-love condition who showed significant improvements in state mood and body dissatisfaction after exposure. There were no significant changes in state self-esteem between the groups. Thematic analyses revealed that body dissatisfaction, unrealistic body ideals, and motivation to exercise were the most common themes identified by participants in the fitspiration group after exposure. Body gratitude, improved mindset, and self-acceptance were the most common themes identified by participants in the self-love group after exposure. Whereas motivation to be healthier and feeling relaxed were the most frequently identified themes by participants in the neutral group. Multiple regression analyses indicated that baseline body dissatisfaction and group of exposure were the greatest predictors of body dissatisfaction post exposure. Negative mood state

at baseline, state self-esteem, internalisation, and group of exposure were the most significant predictors of negative mood state post-exposure. Positive mood state and group of exposure were the strongest predictors of positive mood state post-exposure. None of the predictors in the model for state self-esteem and appearance self-esteem significantly explained state self-esteem and appearance self-esteem post-exposure.

The current study is the first to include a mixed-method design including quantitative and qualitative measures that explores body image using an objective measure of social media use. The results strengthen previous literature that suggest the maladaptive effects associated with social media on body image. More specifically, the findings confirm that brief exposure to fitspiration content worsens state body dissatisfaction and mood, compared to self-love content, which has been shown to improve state mood and body dissatisfaction. The findings have important implications for body image interventions, social media and health literacy, and social networking sites' ethics, policy design and implementation. Future research directions include replicating this study with more diverse populations, additional measures such as social desirability, and an Instagram page personalised to the participant to increase ecological validity, as well as allowing interactive behaviour such as liking and commenting behaviour to determine if these potentiate the impact of content exposure.

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List of Abbreviations

ABC	Appearance Based Content
ANOVA	Analysis of Variance
ASE	Appearance Self-Esteem
B.C.	Before Christ
BC	Body Comparison
BMI	Body Mass Index
COVID-19	Novel Coronavirus
DE	Disordered eating
EA	Emerging Adulthood
ED	Eating Disorders
EDE-Q	Eating Disorder Questionnaire
M	Mean
PACS	Physical Appearance Comparison Scale
POMS	Profile of Mood States
SATAQ-3	Sociocultural Attitudes Towards Appearance Questionnaire
SCT	Social Comparison Theory
SD	Standard Deviation
SE	Self-Esteem
SNS	Social Networking Sites
SPSS	Statistical Package for the Social Sciences
SR	Self-Report
SSE	State Self-esteem
ST	Screen Time
TSE	Trait Self-esteem
TIMBE	Tripartite Influence Model of Body image and Eating Disturbance
TMD	Total Mood Disturbance
USA	United States of America

Chapter 1: Social Networking Sites

1.1 Introduction

Social media use has become a critical component of daily life for individuals globally (Gruzd et al., 2018). In January 2019, 3.5 billion users were active on social media, with researchers anticipating this figure continuing to grow annually (Kemp, 2019). The popularity of social media sites within the past decade has stimulated researchers' investigation into the effects of social media on various emotional, psychological and physical variables (Carbonell & Panova, 2017; Kuss & Griffiths, 2017). Consistent with previous research that has shown the adverse impact of traditional media such as magazines, billboards and music videos on females' body image (Grabe et al., 2008), the effects of social networking sites and online activities on body image has received recent attention.

The first three chapters of this thesis provide an overview of the literature related to and rationale for this study. In the first chapter, social media and popular social networking sites will be discussed including digital features, and risks and benefits associated with the use of such sites. In the second chapter, the formation of body image is discussed in the context of popular body image theories and links to current beauty ideals and body image disturbance. In the third chapter, the effect of social media on body image will be examined. Emphasis will be placed on the characteristics of social media and individuals' more predisposed to social media-induced body image disturbance and maladaptive health behaviour.

1.2 Social Networking

The rapid technological advances and dissemination of the internet have made aspects such as communication, connection and a sense of group belonging increasingly convenient and accessible. The ability and relative ease of communicating with people despite geographical distance has attracted billions of users worldwide, making online communication an everyday activity in most individuals' lives (Boyd & Ellison, 2007; Huang et al., 2018; Shiau et al., 2018). A popular component of the internet that has contributed to its increased use, is social media which can encompass messaging

applications and social networking sites (Rozgonjuk et al., 2021). Social networking sites (SNS) consist of social media platforms that enable individuals to (1) share their personal information and perspectives; (2) show their connections with other users; and (3) view the content of other users through connections and online engagement (Boyd & Ellison, 2007). SNS include online platforms such as Instagram, Facebook, Snapchat, and TikTok and encourage users to consume content from other users and to create new content (Kaplan & Haenlein, 2010; Rahman, 2014).

People have become increasingly reliant on SNS as a source of peer approval (Chua & Chang, 2016) and a measure of social desirability (Koutamanis et al., 2015). According to a survey conducted in 2016, of the global population of 7.395 billion people, 2.307 billion people were active on social media (approximately one-third of the population; We Are Social, 2016). Compared to the previous year, there had been an increase of 219 million users and the number of mobile users of SNS had expanded by 283 million (Shiau et al., 2018). More recently, there were 4.55 billion social media users in October 2021 and this figure is expected to grow by approximately one million new users every day (Kemp, 2021). The large proportion of users and widespread use of social media suggests that social media engagement has become an acceptable and widely engaged in activity for many people (Gruzd et al., 2018; MediaKix, 2019).

Previous studies have suggested that society has become "dependent" on smartphones in that smartphones are now integral to daily life (Kim et al., 2019; Lee et al., 2016; Park et al., 2013; Ting et al., 2011; Zhang et al., 2018). More than half the world's population own a smartphone (Huang & Su, 2018) with the mean daily time adults spend on their phone increasing from 15 minutes in 2008 to 2 hours and 48 minutes in 2015 (Internet Trends Report, 2015)**.** Among adults in the USA who use their smartphones for at least 3 hours a day, 59% indicated that they are "reliant on social media" and access SNS at least once every hour (Internet Trends Report, 2015). Thus, the findings indicate a high level of use and integration into daily life.

Usage is perhaps even higher in younger populations (Lenhart et al., 2010). A recent survey (Statista, 2022) found that 92% of American teenagers accessed the internet daily with 56% claiming to connect several times daily and 24% reporting being connected constantly. Similar trends have been reflected in teenagers and young adults in the United Kingdom (Statista, 2020b). Thus, demonstrating the high and

widespread use of digital devices across age groups and populations.

Social media use has significantly risen in young adolescents with previous research suggesting a 1,000% increase in use between 2005 to 2013 (Duggan et al., 2015). More than 93% of American teenagers between the ages of 12 to 17 years were connected to SNS, with an estimated 73% of teenagers in the USA belonging to more than one SNS (Lenhart et al., 2010; Nesi & Prinstein, 2015). In addition, a report found that 95% of teenagers in the USA had access to a smartphone and that 45% stated they are "almost constantly" on the internet (Pew Research Center, 2019). A self-report survey by Ypulse in 2021 also found that younger generations (generation Z; those born in mid to late 1990's) estimated themselves to spend approximately 4.5 hours a day on social media, while Millennials (born from 1980 through to mid-1990's) estimated that they spend an average of 3.8 hours daily on social media (Ypulse, 2021). Such frequent and prominent use throughout the day highlights how ingrained the use of smartphones for online activity such as social media use has become in our day-to-day lives.

1.3 Common social networking sites

In order to comprehend the impact of SNS, it is important to have an understanding of the most popular visual social networking sites. These are discussed below.

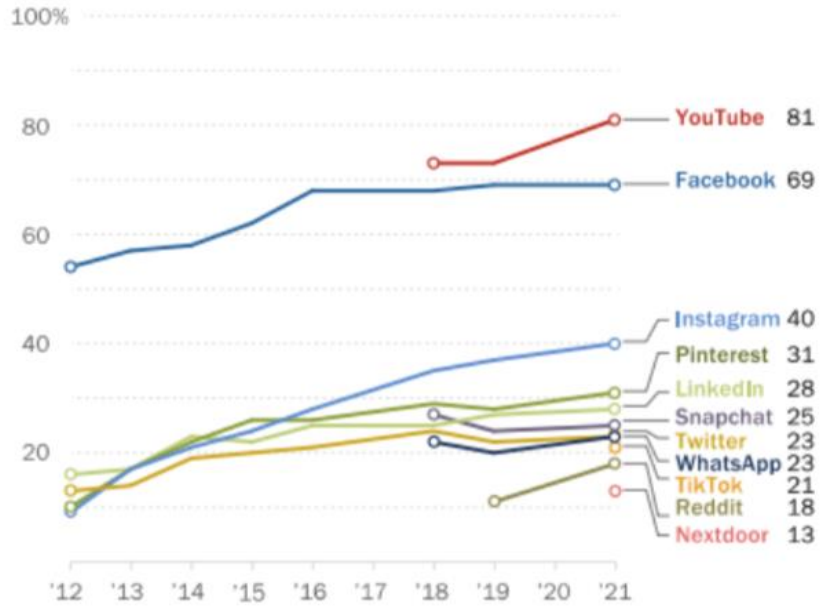
1.3.1 Facebook

Facebook is an American SNS that was founded by Mark Zuckerberg and colleagues in 2004 (Valenzuela et al., 2009). Facebook allows registered users to create personal and business profiles by presenting personally selected information about themselves through text, photographs, and videos. Depending on users' privacy settings, their profile may be accessible by their friends, friends of friends, or the general public. Facebook also allows users to receive notifications when another user interacts with or 'likes' their online activities and any updates from the pages they engage with or follow. As presented in Figure 1, Facebook was the most popular SNS for users of all ages (Blachnio et al., 2015; Marino et al., 2016; Shiau et al., 2018). In 2017, the number of Facebook users exceeded 2 billion, which is approximately a quarter of the world's total population (Huang & Su, 2018). In 2021, this figure had

risen to 2.8 billion users (Facebook Investor Relations, 2021). Figures from 2018 reported that 28% of students spent two or more hours on Facebook daily, 16% spent more than three hours on the application, and 32% spent over four hours (Shiau et al., 2018). Despite its high worldwide user engagement, the growth of Facebook has plateaued, especially in youth and younger adults who are now favouring other platforms such as Instagram (Auxier et al., 2020; Duncan, 2016; Lang, 2015).

Figure 1

Percentage of Adult Social Media Platform Users in the United States of America from 2012 to 2021.



Note. Estimates correspond to the percentage of active users of adults who participated in the Pew Research Center (2021) telephone poll. Sourced from Pew Research Center (2021).

1.3.2 Instagram

Instagram is an American photograph and video sharing platform (Huang & Su, 2018). The name ‘Instagram’ includes a combination of the words "instant” referring to the ability to share information and images instantly, and "telegram". Instagram was launched by Kevin Systrom and Mike Krieger in 2010. Despite Instagram's similarity to Facebook (Wilson et al., 2012), Instagram’s initial point of difference was the multiple built-in photo filters that allowed high-quality visual effects. These filters

enable users to manipulate their photographs to make their photos more appealing to online audiences. Like Facebook, Instagram has a direct messaging feature and allows others to like and comment on other users' photographs and videos. One initial key difference from other visual networking sites is the use of "hashtags" such as "#fitspiration" and "#thinspiration" that highlight and group together a topic of interest (Highfield & Leaver, 2015). Hashtags can be applied to any word (or combination of letters) and allow for global sharing of specific content and the grouping of similar posts to allow users to browse distinct topics.

Furthermore, dependent on users' online engagement, the explore tab on Instagram introduces content consistent with their previous use and popular content without users specifically searching it. Therefore, users can receive an influx of personalised content that is based on their previous online behaviour, as well as being exposed to content beyond, yet similar to users' interests and followings. Thus, users have some but not complete control over the content they are exposed to.

Instagram is one of the fastest-growing SNS (Huang & Su, 2018; Lup et al., 2015; Rozgonjuk et al., 2021) and is reported to be the leading visual communication site. As illustrated by the sharp increase in users in Figure 1, Instagram reached 27 million users in 2012. However, only six years after launching, Instagram had 500 million users (Statista, 2016) and this figure has continued to increase to over a billion active users in 2019 (Business of Apps, 2021). Instagram is a key SNS for youth, with visual communication (communication through sharing images) becoming the preferred form of communication for adolescents and young adults (Katz & Crocker, 2015; Kofoed & Larsen, 2016; Lobinger, 2016). In fact, greater than 70% of individuals ages 12 to 24 are Instagram users (Huang & Su., 2018). In the USA, approximately 60% of Instagram users were aged between 18 and 29 years, with the majority being female (Social Media Fact Sheet, 2018). This trend is also reflected in Australia and New Zealand, where more young women than young men use Instagram and most users are aged between 18 to 34 years (NapleonCat, 2021a; NapleonCat, 2021b).

1.3.3 Snapchat

Snapchat is another visual-based application and was released in 2011. Snapchat is a time-limited instant communication service (Makki et al., 2017) that allows users to send videos, photographs, and messages to selected friends, and post

content viewable by users' online friendship network (Habib et al., 2019; Piwek & Joinson, 2016). Videos and photographs are referred to as ‘snaps’ and are ephemeral in that it is viewable for a maximum of 10 seconds (Roesner et al., 2014). Snapchat had 265 million users in 2020, which increased to 300 million users worldwide in 2021 (Rozgonjuk et al., 2021). Research findings have also indicated that Snapchat is used frequently among young adults. Of individuals aged 18 to 29 years, 71% used Instagram, 65% used Snapchat, and approximately 50% used TikTok (Pew Research Center, 2021). Thus, second to Instagram, Snapchat appears to be another emerging platform that is commonly used by youth across the world.

1.3.4 TikTok

TikTok is a creative short video social software that was launched in 2016 by Zhang Yiming. TikTok involves the creation and dissemination of short videos with a maximum duration of three minutes. It enables individuals to make video edits, select special effects (e.g., filters) and background music. TikTok users commonly identify with popular consumption culture and are predominantly under 24 years of age with secondary or tertiary education (Zuo et al., 2019). TikTok has created a music community that showcases popular culture while allowing users to have distinct individual trends. Youth culture content on TikTok often includes fashion, relationships, and leisure activities, which makes the platform of interest to a diverse range of users (Xu et al., 2019; Zuo et al., 2019). Comparable to the above SNS, TikTok use has grown significantly in recent years. TikTok had 1.2 billion monthly active users in 2021 and is estimated to reach 1.5 billion active users at the end of 2022 (Business of Apps, 2022). In February 2020, TikTok was the most frequently downloaded SNS with an estimated 113 million installations (Mediakix, 2021). With the current coronavirus (COVID-19) pandemic, downloads increased to 115.2 million during March 2020 alone. In comparison, Instagram only had 111.5 million installations per quarter in 2019, thus indicating the surge in popularity of TikTok. The rapid uptake of TikTok also suggests that the popularity of SNS platforms is under constant shift.

1.4 Benefits of Social Networking

As demonstrated by the significant number of users worldwide, social media has become an intermediary for interaction between individuals and with organisations

throughout the world (Khan et al., 2014). SNS can benefit organisations through increasing consumer relations and developing competitive advantages through peer promotion (Anderson, 2006; Singla & Durga, 2015; Tapscott & Williams, 2006). Moreover, governments can utilise SNS for recruitment, information sharing, disseminating vital information and news, and establishing transparency (e.g., policy, election campaigns) (Dorris, 2008; Jaeger & Bertot, 2010; Lathrop & Ruma, 2010). Thereby, social media is advantageous to governments and citizens by increasing opportunities to collaborate ideas, critique and provide feedback, enhancing democratisation and governmental trust (Chun et al., 2010; Picazo-Vela et al., 2012).

SNS also benefits individuals through the progression and maintenance of interpersonal connections by providing an opportunity to strengthen existing relations and discover new relationships (Reid & Weigle, 2014). Previous studies have indicated that increased social connectedness on visual SNS is associated with lowered levels of loneliness and increased levels of satisfaction and happiness. However, a high number of followers and low number of offline friends may hinder self-worth through an increased dependency on online social approval that is not reinforced offline (Lup et al., 2015; Stapleton et al., 2017; Yang, 2016).

SNS also provides young adults with the opportunity to practice essential developmental skills such as establishing and modifying self-presentation, self-identity, self-disclosure and social skills (Valkenburg & Peter, 2011). Furthermore, individuals who are particularly introverted, shy or anxious have been shown to benefit from SNS due to online interactions having less emphasis on physical appearance (McCarty et al., 2011). These benefits also extend to those adolescents who may feel disconnected from mainstream culture by providing an opportunity to connect with comparable others and through the expression of individuality and artistry (Duffy & Wissinger, 2017; Fox & Warber, 2014; O'Keeffe et al., 2011). Thereby, SNS may strengthen communication and act as a source of comfort for some users whilst allowing identity exploration and expression for others (Gündüz, 2017; Meikle, 2016; Voorn & Kommers, 2013).

1.5 Risks of Social Networking Sites

Despite the extensive adoption of SNS and their potential benefits, there is an increasing concern regarding the use of social media. Numerous concerns relate to the

potential unethical nature of data collection and records management, and privacy and security issues (Bertot et al., 2012, Bryer and Zavattaro, 2011; Dadashzadeh, 2010; Landsbergen, 2010). Ethical concerns have been raised regarding digital media and agencies' use of mass data to make assumptions about the opinions, intentions, emotions, behaviours, and characteristics of the general population (Olteanu et al., 2019). For example, Facebook's data use policy and agreement discloses the use of data for internal operations such as data analysis, testing, troubleshooting, research and service improvement; thereby identifying users as potential experimental subjects. Regardless of users' technically 'consenting' to this, such data use policy is unlike the ethical requirements that University conducted research gains approval for and is therefore not as ethically rigourous (Jouhki et al., 2016). Irrespective of the significant sample size and privacy issues that coincide with Facebook's use of online data for research (Kramer et al., 2014), 'formal consent' is largely unapparent, which has heightened ethical controversy (Ananny, 2015; Smith et al., 2016; Pejovic & Musolesi, 2015; Smith et al., 2016). Therefore, the nature of SNS driven research questions the ethical responsibility of the protection of privacy, autonomy, and user control (Hallinan et al., 2019; Kramer et al., 2014).

Though mass data has the potential to better inform government services, enhance civic participation, solicit innovative ideas, and improve decision-making and problem-solving (Bertot et al., 2012; Rice et al., 2013; Zhang et al., 2010), SNS use of mass data has raised concerns about the direct benefit to the general public's health and overall wellbeing (i.e., mental, physical, social, and financial). For example, mass data captured from SNS being misused for strategic marketing and business profit maximisation rather than the overall benefits to the population (Asaad & Gomez, 2011; Hensel & Deis, 2010). With the use of algorithms, mass data can fuel greater exposure to content and products associated with mainstream culture. Such engagement could prompt alterations in mood and manifest into unessential or even harmful purchases (e.g., nicotine-based products) that may have been prevented without the sponsored advertisements and content associated with SNS strategies. Further concerns also challenge government officials and agencies' ambiguous use of public record-like data and whether holding such information is beneficial to the public (Berlot et al., 2012). Thereby, the use of mass SNS data does not invariably benefit citizens and could be deemed as having an exterior motive (Khan et al., 2014).

Though SNS have been associated with increased creativity (Duffy & Wissinger, 2017), social acceptance, social belonging, and a sense of connection (Sheldon et al., 2011; Yu et al., 2010), there may be negative consequences associated with digital interactions (Valkenburg & Peter, 2011; Twenge et al., 2019). Digital interactions may engender superficiality, detachment, and digital disinhibition (behaviours expressed in the anonymity of cyberspace that would not be expressed in the real world; Aitken, 2016). For example, SNS may lower accountability for users' actions through individuals receiving fewer consequences for being impolite and abusive compared how such behaviour would be responded to in real-life circumstances (Reid & Weigle, 2014). Previous studies have found that bullying and stalking behaviour more commonly occur on SNS compared to the real world with two-thirds of university students using Facebook to monitor, cyberstalk, or harass ex-partners (Lyndon, Bonds-Raacke, & Cratty, 2011). Moreover, 67% of 18- to 29-year-olds have experienced some type of online harassment, and 41% have experienced severe harassment such as threats of physical harm, chronic harassment, sexual harassment, or stalking (Duggan, 2017).

Adolescence and early adulthood have shown to be a period of problematic smartphone and social media use (Andreassen, 2015; Smetaniuk, 2014). In part, this could be attributed to the high degree of free time and reduced parental supervision, and strong identification with imagery from SNS and online peers. This population has also been defined as 'digital natives' in that they have unlikely experienced life without the internet (Prensky, 2001; Turner, 2015) leading to greater integration of technology use into their lives. However, increased engagement and interaction online could compromise the formation of natural interpersonal and psychosocial skills (Coyne et al., 2013) if most of the engagement is online. Given the concerns raised in the prior paragraph, socialisation that is shaped by online behaviour may not translate well into real-world social skills.

Another concern regarding social media is the activation of physiological pathways that can promote instantaneous gratification, and in the long-term, addiction (Greenfield et al., 2017; Meshi et al., 2013). An innate need for social connection and gratification is a strong contributor to SNS use (Dunne et al., 2010). Study participants have reported that social needs are the largest contributor for their SNS use (Wang et

al., 2012a). Despite this, social media use has been found to fail to predict having short-term social needs met and to feel gratified socially (Lai & Turban, 2008; Wang et al., 2012b). Laboratory findings also indicate that individuals with higher Facebook use experience more pronounced activation of the nucleus accumbens (a brain region associated with reward and pleasure processing) when they receive positive social feedback about their reputation in terms of likes, comments and following data (Di Chiara et al., 2004; Greenfield et al., 2017; Meshi et al., 2013). The activation of physiological regions associated with action-motivation and reward pathways is concerning, given that greater gratification reinforces ongoing SNS use, and frequent use has been associated with higher impulsivity, sensation-seeking, low inhibitory control, and poor decision making (Billieux & Van der Linden, 2012; Wilmer & Chein, 2016). Frequent activation of the nucleus accumbens is therefore associated with sensations and behaviours congruent with what fuels addictive tendencies (Dalley et al., 2011; Schofield et al., 2013). Thus, addiction appears to be a potential risk and consequence of persistent social media use.

Mental health disturbances such as depression, body image concerns, and maladaptive eating patterns have also been identified to be an indirect product of social media activity. A previous study found that social media-induced 'depressive symptoms' are more likely to occur parallel with larger social networks and frequent online engagement (e.g., monitoring friends' status and likes) (Blease, 2015). Higher SNS use has also been correlated with depression and negatively associated with happiness and wellbeing (Lin et al., 2016; Pittman & Reich, 2016). Moreover, social media platforms have been associated with social comparison and self-objectification, which is predictive of lowered self-esteem and higher body shame (Hanna et al., 2017). This is consistent with an extensive body of literature that highlights the adverse effect of social media on body image and eating disorder symptomatology (Grabe et al., 2008; Harrison & Hefner, 2006; Perloff, 2014; Saiphoo & Vahedi, 2019).

The popularisation of self-harm, substance use, and risky behaviours also appears to be a by-product of SNS. Adolescents who struggle with anxiety, depression, self-harming behaviours, and eating disorders commonly feel marginalised (Reid & Weigle, 2014). Discomfort communicating these issues with parents and peers can result in the development of virtual support communities for users engaging in self-

harm behaviours or disordered eating to justify interaction and be reinforced for engaging in such behaviours (Messina & Iwasaki, 2011; Rouleau & von Ranson; Witlock et al., 2006). Similarly, substance abuse and risky sexual behaviours are normalised and popularised on SNS (Moreno et al., 2009a). An analysis of 500 'MySpace' profile pages of 18-year-old college students showed that 54% referenced risky behaviours; 24% referenced sex; 41% referenced substance abuse; and 14% referenced violence (Moreno et al., 2009b). Thereby, social media could act as a 'super peer' normalising risky behaviours and motivating emerging adolescents to engage in risky behaviours, especially when the behaviours are perceived as free of negative consequences (Moreno, 2010).

1.5.1 Risks Associated with Exposure to Fitspiration Content

Recent content analyses suggest that SNS, specifically, Instagram has become the dominant foundation for "fitspiration" posts. Fitspiration is content related to 'fit' yet 'thin' physiques with subsequent health information that often communicate such figures to be both healthy and attainable (Harris, 2021). However, the process online influencers and subsequent users have undergone to achieve these fit and thin body ideals often appear to be inconsistent with the information they provide (Pilgrim & Bohnet-Joschco, 2019). Some users may legitimately be engaging in healthy fitness behaviour, while others may present 'fit figures' that have been unhealthily attained through methods such as restrictive diets or cosmetic surgery (Cataldo et al., 2021; Holland & Tiggemann, 2016) Therefore, the underlying premise of fitspiration content appears inconsistent with the image it portrays and could misinform users. Though some individuals may be able to distinguish between profiles of people with and without appropriate qualification and the healthy or unhealthy figures and information they present, the rapid dissemination of fitspiration, thinspiration, and content consistent with the thin yet curvaceous beauty ideal makes it challenging for all users to discriminate between reliable sources and health information (Boepple et al., 2016; Boepple and Thompson, 2015; Deighton-Smith and Bell, 2017; Tiggemann and Zaccardo, 2018).

Research findings have demonstrated that exposure to fitspiration content may result in adverse effects in vulnerable audiences' body image (Lewallen & Behm-Morawitz, 2016; Tiggemann & Zaccardo, 2016). One randomised controlled trial

showed that compared to the control group (travel images), participants in the fitspiration condition reported higher body dissatisfaction, worsened mood,and reduced state appearance self–esteem (Tiggemann & Zaccardo, 2015). Similarly, another experimental study randomised woman to view magazine advertisements of (1) thin women, (2) thin women with attractive men, or (3) images that include people (Harper & Tiggemann, 2007). The researchers found increases in negative mood, body dissatisfaction, and weight-related appearance anxiety in women who viewed thin women compared to participants in the control group who viewed non-human images. Thus, these studies highlighted the significant negative impact of exposure to thin ideals such as fitspiration.

1.6 The Technology Behind Social Networking

An algorithm is a computer defined series of steps that operate on digital data to produce a specific outcome (Gillespie, 2014). When individuals browse, shop, interact, and play online it leaves a digital trail that is used to inform algorithms that make future decisions on the user's behalf (Agung & Darma, 2019). Algorithmic rankings determine who and what gains visibility on social media platforms by establishing the conditions through which online users are seen. Thus, prescribing participatory norms by reflecting and prioritises new data and trends (Bucher, 2012). For example, Instagram-based algorithms categorise data based on previous browsing behaviour; thus, organising exposure to future content based on relevancy of a topic linked to past browsing behaviour rather than the recency of published content. The algorithm therefore maximises user engagement with content rather than presenting a more varied perspective. When users observe content, certain users/content creators attain visibility to the viewer; thus, users create the participatory norm and algorithms reward users with increased visibility.

Though algorithms play a critical role in dictating users' experiences (Eslami et al., 2015; Radar et al., 2018), there is little algorithm awareness. Algorithm awareness is defined as an individual's awareness of how their online social networking data is used to inform algorithms and exposure to selected digital content (Eslami et al., 2015). One study found that 62.5% of participants were unaware of the 'news feed curation', which is problematic as participants in the study wrongly attributed the composition of their feeds to their friends (Eslami et al., 2015). Thus, activating the power of social

norms. Alternatively, a study by Rader and Gray (2015) also found that 75% of participants disbelieved that they were exposed to all of their friends' content; thereby, indicating a level of awareness to newsfeed curation. However, these findings do not communicate or generalise the exact knowledge of SNS storing online data to inform online feeds. Therefore, the lack of algorithmic awareness may lead to SNS users believing they are being presented with accurate and balanced information when in fact they are receiving biased information based on what the SNS believes they want to or should see.

1.7 Chapter Summary

The advancement of digital technology and the consequential use of smartphones has led to the increased use of applications such as SNS. Common SNS such as Facebook, Snapchat, Instagram, and TikTok share online features such as liking and commenting functions, which can signal what is attractive and socially desirable to online users. However, the technology behind SNS, specifically the technology that governs high user engagement and the curation of specific content can lead to adverse psychological consequences that can negatively impact an individual's wellbeing.

Chapter 2: Body Image and Body Dissatisfaction

2.1 Introduction

Body image is a multidimensional construct that consists of an individual's cognitions, emotions, and behaviours regarding their physical appearance (Cash, 2004; Muth & Cash, 1997). Body dissatisfaction refers to the negative perceptions one has towards one's figure, resulting from a perceived discrepancy between one's desired body and their body image (Cash, 1990). Body dissatisfaction has reached problematic levels among females worldwide (Cruz-Sáez et al., 2020) with approximately 50% of girls and undergraduate women report being dissatisfied with their physical appearance (Bearman et al., 2006; Monteath & McCabe, 1997). Prospective and longitudinal studies have identified body dissatisfaction as a persistent and precipitating factor for eating disorders in both community and clinical samples (Fairburn et al., 2003; Stice and Shaw, 2002), and as a significant predictor of low self-esteem (Johnson and Wardle, 2005; Paxton et al., 2006; Van den Berg et al., 2002), depression, distress (Cruz-Sáez et al., 2015; Dooley et al., 2015; Murray et al., 2018), and obesity (Grabe, Hyde, & Lindberg, 2007; Neumark- Sztianer, Tiggemann, 2005). Thus, body satisfaction has emerged as a core influencer of women's physical and mental health (Cruz-Sáez et al., 2020). This chapter will describe the components of body image and discuss the sociocultural factors that predispose women to body image disturbance. It will then discuss the influence of historical female body ideals in relation to present female body image disturbance.

2.2 Body image

Researchers have established two conceptually distinct elements of body image (Cash, 2002). The first element of body image is body image evaluation, which reflects people's evaluative cognitions and beliefs regarding their appearance. The second element is body image investment, which conceptualises the behaviours individuals engage in to maintain or enhance their physical appearance. There are also two key components of body image investment. The first component being motivational salience, which refers to the purposeful management of one's physical appearance for aesthetics (e.g., dieting or exercising to change one's body shape), and self-evaluative

salience, referring to the extent to which an individual classifies appearance as a self-defining feature (Cash, 2002; Cash & SzYmanski, 1995). Therefore, these evaluative cognitions and behaviours influence an individual's body image and related behaviour. As noted previously, body-related perceptions hold significant value as body dissatisfaction has been identified as a precipitating factor for mental (Mond et al., 2011; Paxton et al., 2006; Peterson et al., 2017; Stice, 2011) and physical health difficulties (Mond et al., 2013; Neumark-Sztainer et al., 2006a; Stice, 2012) such as depression, dieting behaviour, and eating disorders (Jebeile et al., 2021; Stice, 2017). Therefore, one's body image, specifically body dissatisfaction, appears to be a vital marker and predictor of an individual's wellbeing.

2.3 Sociocultural Factors of Body Image

Research has consistently identified women (more so than men) to be at risk of appearance-related comparisons, body image concerns, maladaptive eating patterns (Lipson & Sonneville, 2017), and the development of clinical eating disorders (Eisenberg et al., 2011). There are various explanations to why this may be. Western societies' current body image appears to be heavily influenced by 'diet culture.' Diet culture is defined as a set of beliefs that equates to thinness, shape, and other appearance features thought to be related to health and moral virtue (as known as the thin-ideal). According to current beauty standards and the perception of the "ideal" weight, the ideal female figure and weight is unobtainable for most of the population. One study measured the ideal body shape and size through females using the DAZ studio image manipulation programme that included a three-dimensional figure that could be altered along ninety-four dimensions to create the exact size and shape participants' desire (Crossley et al., 2012). The researchers found that the ideal female body set by women (BMI = 18.9 kg/m2) was consistent to the ideal female partner set by men (BMI = 18.8 kg/m2), which were both at the lower end of the 'healthy weight' category (18.5 to 24.0 kg/m2) (Centers for Disease Control and Prevention, 2021). To contextualise this to New Zealand, results from the New Zealand Health Survey in 2021 would put the study's ideal BMI to be significantly thinner than the average European and Māori female in New Zealand (28.1 and 31.3 kg/m2, respectively) (Lewis, 2018; Ministry of Health, 2021). Similarly, another study examined differences in current, accepted, and ideal female figures, and reported that the most frequently identified ideal was

underweight (15 to 18.5 kg/m2) (Swami et al., 2008). Though, variations in ideal female BMI differ between studies (Ahern et al., 2011; Swami et al., 2008), the findings reiterate the incongruence between the bodies of females in the general population and an ideal female figure.

Researchers and feminist scholars have argued that female body ideals can be perceived as a product of patriarchy and male supremacy in that female body ideals embody males' sexualisation of females popular during that period (Borowsky et al., 2015; Cash et al., 1997). Consequently, cultural expectations and norms motivate young females and women to be psychologically invested and attentive to their physical appearance, which can undermine their well-being and precipitate eating disturbance, depression, and other psychological difficulties (Cash & Pruzinsky, 1990; Gilbert & Thompson, 1996; Rothblum, 1994). This interaction of these factors is consistent with a sociocultural perspective (Jackson, 1992), in that women's physical aesthetics are influential in dating, mating, and other facets of heterosocial relations (Cash, 1990; Chen & Brown, 2005; Feingold, 1990; Puhl & King, 2013). Therefore, compared to males, females appear to be considerably more psychologically invested in their physical appearance due to sociocultural pressure to be so (Cash & Brown, 1989; Cash & Hicks, 1990; Pliner et al., 1990a; Pliner et al., 1990b; Sullivan & Harnish, 1990).

The thin-ideal is a predominantly Western notion that portrays thinness as the ideal physical appearance that confers greater worth or value of women (Mckay et al., 2017; Rice, 2010). Throughout magazines, movies, and television programmes, thinness is repeatedly emphasised and rewarded for women (Fouts & Burggraf, 1999). For instance, thin characters are overrepresented while overweight characters are underrepresented (Fouts & Burggraf, 2000; Greenberg et al., 2003). This ideal is largely pervasive, with cartoon characters, fashion models, movie and television actresses, Playboy centrefolds, and Miss America Pageant winners having become thinner across the past decades (Garner et al., 1980a; Garner et al., 1980b; Klein & Shiffman, 2005; Morris et al, 1989; Silverstein et al., 1986; Spitzer, Henderson, & Zivian, 1999). The media's depiction of thin-ideals has resulted in females perceiving thin-ideals as both normative and central to attractiveness. However, because media representations of female's figures are often skewed, an ideal has emerged that is unnatural and unattainable in a healthy manner for most females (Siibak, 2009).

Previous studies indicate that women may be socially rewarded for their thinness and punished if they do not conform to the thin-ideal. Western diet culture communicates that weight equates health and that weight loss improves social status (Faw et al., 2021; Hunger et al., 2015); thus, individuals with larger bodies may experience stigma and prejudice because of not subscribing to diet culture (Hunger et al., 2015). For example, one study found that obese women are significantly less likely to engage in tertiary education, regardless of controlling for socioeconomic status and scholastic ability. Conversely, obesity was not found to be a predictor of tertiary education among young males (Crosnoe, 2007). Thus, indicating that weight stigma may be less directed towards males. This finding could also indicate that females are more hypervigilant towards appearance stigma and body shame during tertiary education (Puhl et al., 2009), a time where individuals have been shown to be more susceptible to weight stigma and the influences of social desirability (Vartanian & Shaprow, 2008). Women may also experience career-related consequences for being 'overweight.' A study with females defined as medically obese (Giel et al., 2012) found that managers hiring employees were more likely to disqualify obese women from being hired and underestimated the occupational prestige of them. Female employees who are obese have also been found to receive lower salaries than thinner counterparts who performed the same work (Judge & Cable, 2011). Similarly, a previous study found that obese women can earn 6% less than healthy weight women (Baum & Ford, 2004). Thereby, demonstrating the potential financial and academic consequences that females who do not subscribe to the thin-ideal face.

Previous research also indicates the importance of appearance in intimate partner preferences (Kardashev et al., 2020; Luo & Zhang, 2009; Malach Pines, 2002; Maner et al., 2003). Men tend to base their romantic preferences on thinner physical appearance and lower weight (Chen & Brown, 2005). Moreover, studies have found males, more so than females, to place greater emphasis on physical characteristics of their romantic partner (Karandashev, 2017; Karandashev et al., 2020; Luo & Zhang, 2009; Maner et al., 2003); paying greater attention to skin tone, hair length, health (Swami & Furnham, 2008), body shape symmetry, and weight (Kardashev et al., 2020). Thus, the above findings are suggestive of the social consequences females are presented with if their appearance is inconsistent with cultural beauty ideals.

2.3.1 Changes in Body Image Ideals Over Time

Body image concerns appear to reflect sociocultural changes and pressure to attain current beauty ideals. The so-called 'perfect' female figure has undergone significant changes (Bonafini et al., 2011) since such ideals were recorded. The metamorphosis of the ideal female figure follows the ever-changing role of women in Western society from being perceived as motherly to career-driven and mistress-like. In Paleolithic art, statuettes such as Venus of Frasassi, a mother-like goddess from 20,000 Before Christ (B.C.) emphasised a large stomach and breasts which expressed fertility. Such statuettes were known as goddesses of sexual love and beauty that simultaneously portrayed females as an erotic emblem and creator of life. It has been estimated by researchers that Venus' figure had a body mass index (BMI) beyond 30 kgm^{-2} which would currently be considered medically obese (Centers for Disease Control and prevention, 2021). This body type is significantly different to the previously discussed Western notion of beauty if based purely on BMI. Greater body mass was also previously associated with greater wealth and vitality compared to contemporary times. The 'Gibson Girl' emerged in the late 19th century and portrayed a woman that combines the previous voluptuous figure with the 'steel engraving lady' to reflect a female with slim legs, a tiny waist, and curvaceous hips (Vester, 2010). In the early 1900s, the ideal female resembled either a voluptuous and full figure or a slim frame with larger hips and breasts (Haas, 2008). As time progressed in Western Europe and North America, the idealised female figure became taller with smaller hips with a tiny, corseted waist, and delicate hands and feet (Sarwar & Crerand, 2004). Thus, moving from a curvy body and sign of fertility to a slimmer and delicate form.

In the 1920s there was a profound change to an exclusive focus on thinness or boy-like appearances that required minimal dietary intake (Patterson, 2010)) and which was likely reflective of the food scarcity of the Great Depression. The dissemination of wider-spread mass media further facilitated beauty ideals in Northern America and Western Europe as the new ideal was presented in films, magazines, and Hollywood celebrities. By the mid-1960s, thinness was the new female beauty ideal and was inspired by icons such as 'supermodel Twiggy', who reflected a clinically underweight figure.

The above trend is apparent cross-culturally. Miss America Pageant judges

appeared to adopt this exclusive focus on thinness and the body type ideal, as a considerable amount of pageant winners' BMI became classified as underweight (<18.5kgm-2) from 1922 through to 1999 (Rubinstein & Caballero, 2000). Coinciding with the dissemination of Western media (through the introduction of the television) in the Pacific Islands in the 1990's, similar body ideal trends became prevalent in indigenous non-Western cultures. These cultures had previously admired features such as fuller legs and more jubu vina (robust) figures and such views were considered to be a protective factor for body image concerns and eating disturbance (Becker, 1995; Becker, 2004, Becker & Hamburg, 1996). However, the introduction of mass media appeared to drive an increase in body image concerns and disordered eating in these nations as Western ideals were popularised.

A more muscular but curvy ideal emerged in the late 1990's (Haas, 2008), which has been thought to be driven by the fitness industry and the proliferation of social media and social media influencers such as Kim Kardashian. This new ideal represents an hourglass figure with larger breasts and buttocks whilst simultaneously featuring a toned stomach with lean arms and legs (Farhin, 2018; Sandy, 2020; Setiawan, 2020). This metamorphosis of the ideal female confirms the historical shift in female body ideals and expectations in Western society and emphasises how women's appearance ideals symbolise sexuality and placement of women in society at the time (McKinley, 2017).

2.4 Theories of Body Image Development

According to sociocultural theories, when females are exposed to social, environmental and cultural influences (e.g., family, friends, western media) that promote the desired body image, it impacts how women perceive their physical appearance (i.e., body image). There are number of models that describe how body image manifests based on the above factors that are further discussed below.

2.4.1 Tripartite Influence Model of Body Image and Eating Disturbance

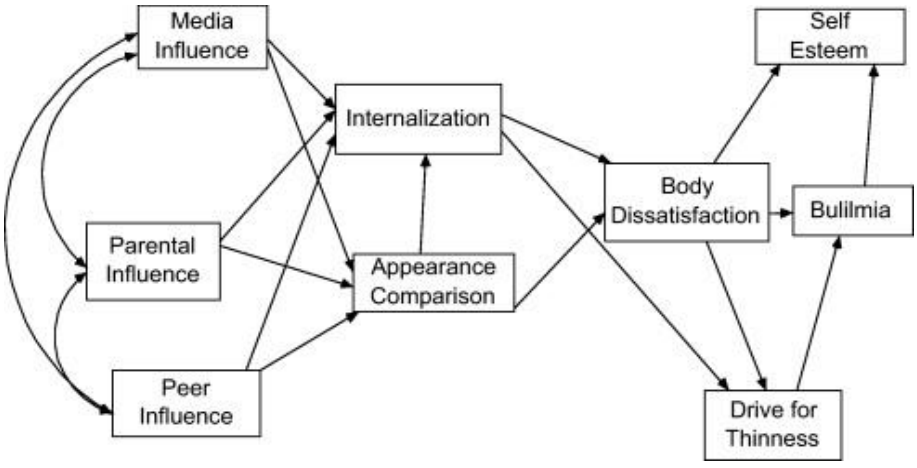
The most broadly examined sociocultural model is the tripartite influence model of body image and eating disturbance (TIMBE) (Thompson et al., 1999). The TIMBE proposes two mediational mechanisms that drive disturbance to body image and eating: 1) the internalisation of sociocultural ideals (e.g., the Western thin body ideal), and 2)

recurring appearance-based social comparisons. The TIMBE emphasises that when individuals engage in the internalisation of body ideals and compare themselves to peers or images who have with desired characteristics, they likely experience reduced body satisfaction (Figure 2) (Stice & Shaw, 1994). According to the TIMBE model, changes in body satisfaction can influence self-esteem, eating disorder related behaviours and a drive for thinness. This can occur through alterations in eating patterns, such as restricting their dietary intake and purging (i.e., force expulsion of food) to achieve a body more consistent with sociocultural appearance ideals (Abbas & Karadavut, 2017). Since media is commonly appearance focused (Stein et al., 2021) in that user driven media often posts (mostly) 'attractive, modified photographs (Shafie et al., 2012), unrealistic body ideals and standards are constantly communicated (Rodgers & Melioli, 2015). This can further perpetuate appearance ideals through more frequent opportunities to engage in internalisation and comparisons to body ideals (Chua & Chang, 2016; Cohen et al., 2018; Haferkamp & Krämer, 2011; Lee et al., 2014).

Figure 2

Tripartite Influence Model of Body Image and Eating Disturbance

(Thompson et al., 1999)



The Tripartite influence model of body image and eating disturbance highlights the interaction between sociocultural influences and the two mediational pathways: internalisation and appearance comparisons, which influences body dissatisfaction, a drive for thinness, bulimia behaviours, and self-esteem (Thompson et al., 1999).

Sociocultural influences such as parents play a pivotal role in body image and disordered eating formation. A previous study indicated that parents' negative comments such as pressure to diet or restrict dietary intake, lose weight or exercise, and parents' maladaptive eating habits are correlated with more frequent appearance comparisons and low body image in youth (Abracczinskas et al., 2012). Therefore, when media, peer groups, and family repeatedly disseminate culturally developed beauty ideals, young women may internalise and compare their figures to unrealistic body ideals. As suggested in the TIMBE model, internalisation of the thin-ideal mediates the effect of social media on body dissatisfaction, which is concerning as body dissatisfaction precedes a desire to lose weight and maladaptive behaviours (e.g., disordered eating) (Douglas et al., 2019).

2.4.2 Social Cognitive Theory

Physical appearance is an important component of personal identity and its relation to an individual's self-perception starts early in life (Walker et al., 2019). The social cognitive theory (Bandura, 1997) can be used to explain the development of body image. According to social cognitive theory, a child's body image is manifested through environmental learning and observation of body image models such as the media, peers, and family. Observable information, acceptable behaviour, and images of physical attractiveness are culturally defined in the media (Cash, 1990). Physical appearance factors undefined by the media, peers, parents, and strangers are defined through maturation, consistency with the cultural beauty ideal and social feedback regarding one's physical appearance (Rieves & Cash, 1996). The development of body image also occurs through vicarious reinforcement by observing people receive a reward such as praise for losing weight (positive reinforcement) or punishment such as critical comments about weight gain (negative reinforcement). For example, when a young female observes a photoshopped or modified image of a peer posing and appearing a certain way receiving positive comments and a high number of SNS likes, she will likely identify that specific behaviour (e.g., posing, wearing makeup) or physical features (e.g., small waist) as desirable and attempt to replicate it. However, when there is an inconsistency between herself and the image of the model, she may experience a reduction in self-esteem, which may be exacerbated when she does not receive the same result or positive reinforcement from others. In turn, the inconsistency between a model

and an individual can be followed by other behaviours (e.g., disordered eating, photoshop editing, exercise) to produce an approximation to the model's specific features or behaviours that were rewarded.

Empirical findings support the process by which body image develops in social cognitive theory. Multiple studies have indicated that vicarious learning by teasing (i.e., a punishment) from an individuals' peer group is correlated with low body image (Edlund et al., 1999; Oliver & Thelen, 1996; Shisslak et al., 1998; Stormer & Thompson, 1996). Studies have also found that verbal critique from one's mother are associated with body image disturbance in young adults and adolescents, especially for girls (Baker et al., 2000; Moreno & Thelen, 1993; Pike & Rodin, 1991; Smolak et al., 1999; Striegel-Moore & Kearney-Cooke, 1994; Thelen & Cormier, 1995). The above findings suggest that negative reinforcement from a range of body image sources such as peers, family and friends can influence body image.

2.4.3 The Objectification Theory and Body Image

Cultural objectification refers to the tendency for women and girls' social worth to be dependent on the extent to which they appeal sexually (De Oliveira Coelho et al., 2010). The objectification theory posits that because females are socialised by gender norms, gender expectations, and the media, they are socialised to view themselves and their value based on how society evaluates their physical appearance (Grabe et al., 2009; Szymanski et al., 2011). Females who internalise thinness and objectify themselves through their attempt to attain and reflect the ideal figure may likely experience body shame, low self-esteem, anxiety, depression, reduced cognitive performance, and be at heightened risk for the development of eating disorders (Moradi & Huang, 2008; Noll & Fredrickson, 1998).

Previous research on females' self-presentation has also suggested that women are more inclined to present themselves to reflect appearance ideals consistent with social and gender expectations. Compared to men, women edit their photos more (Fox & Vendemia, 2016; Lonergan et al., 2019) and pay greater attention to their physical appearance online (Haferkamp et al., 2012). This is likely due to gender norms and expectations that have socialised females from a young age to present themselves in a manner that reflects beauty ideals to serve a specific function (i.e., gain a partner).

Therefore, women (compared to men) are more often socialised to enhance their appearance (i.e., through the introduction of make-up at an appropriate age, wearing corsets, or photo editing) to reflect what males and society deem as ‘attractive’.

Similarly, research on female appearance evaluations and online posing behaviour is consistent with the objectification theory. Previous studies have indicated that females are more likely than males to wear revealing clothing or pose in a sexualised manner (Kapidzic & Herring, 2011; Setiawan, 2020). This is also unsurprising when media influencers such as Cardi B's song 'WAP' featured on the Top 100 Billboard in 2020 (Billboard, 2020), and contains explicit content that continually objectifies women, therefore, encouraging this objectification. Artists such as Nikki Minaj and Cardi B often sexualise females through lyrics and music videos that highlight specific physical features such as large bottoms and breasts, and behaviours such as twerking and sexual acts (Du Plooy et al., 2018; James, 2021). Mainstream music can therefore act as a pathway for the reinforcement of self-objectification to occur by (Bartky, 1990). Thus, when music artists and idealised celebrities who have undergone cosmetic surgery (e.g., Kim Kardashian) (Tijerina et al., 2019) portray such ideals, young women begin to desire and internalise these ideals. In turn, these norms influence a user's body image and the behaviours they adopt (posting objectified selfies or images) to gain cultural and peer approval (Bell et al., 2018); especially as celebrities and social influencers have a profound influence on the general population’s decisions in terms of consumer product choice, fashion, healthcare and aesthetics (Tijerina et al., 2019). Therefore, cultural objectification and expectation may be one means by which the current beauty ideal is internalised, and body image is developed.

2.4.4 Social Comparison Theory

The social comparison theory (SCT; Festinger, 1954) has received increased attention from body image scholars (e.g., Ahadzadeh et al., 2017; Chae, 2017; Kleemans et al., 2018; Tiggemann et al., 2018). The SCT emphasises that body image can develop through social comparison; the tendency to compare oneself to those around them. Social comparisons are thought to be explained by human beings being fundamentally driven to compare themselves to others to acquire self-knowledge in a specific domain. Comparisons across distinct domains may serve functions such as fulfilling affiliation needs (Schachter, 1959), being motivated or inspired (Lockwood

& Kunda, 2002), making vital decisions, regulating physical appearance, emotions, and wellbeing (Taylor & Brown, 1988). However, appearance comparisons are a powerful type of social comparison, especially in emerging adulthood, wherein comparisons may occur based on appearance only (Gangi & Koterba, 2017; Groesz et al., 2002).

According to the SCT, an individual's self-evaluation of their appearance (i.e., body image) occurs through upwards and downwards comparisons. Upward comparison occurs when individuals compare themselves to 'superior' others who have positive or desired characteristics. Whereas downward comparisons occur when individuals compare themselves to people whom they believe to have inferior characteristics (Wood, 1989). Therefore, downward comparisons may consist of comparisons to individuals of low status, which serves as a defensive mechanism that reinforces self-esteem (Wills, 1981). However, upward comparisons may consist of comparisons with more successful, attractive, or better-natured others that may highlight a discrepancy between oneself and others (Bessenoff, 2006). Thereby, upward comparisons may precede diminished psychological wellbeing, self-worth, and body image (Bessenoff, 2006; Suls & Wheeler, 2000).

Research suggests that upward and downward comparisons may be correlated with outcomes that are related to negative body image (i.e., body dissatisfaction). Scholars believe downward comparisons are a protective factor against body dissatisfaction (through enhancing one's self-esteem) as individuals use a less idealised figure as a target (Paxton & McLean, 2010; Wood et al., 1994). Previous literature has also shown a strong association between upward appearance-related comparisons and greater body dissatisfaction (Jones & Buckingham, 2005; Want, 2009). Interestingly, empirical studies have generally indicated that downward comparisons are either unrelated to body satisfaction and eating pathology (Fitzsimmons-Craft, 2017; Lin & Kulik, 2002) or predictive of greater eating and weight concerns (Rancourt et al., 2015). Contrary to this, one study indicated that downward comparisons had a statistically significant association with drive for thinness ($p = .048$) and dietary restraint ($p = .015$) (Lin & Soby, 2016). However, this effect was stronger when experienced in conjunction with upward comparisons (Lin & Soby, 2016) ($p < .001$). The above findings emphasise the significance of both upward and downward appearance comparisons on body image, however the context in which these comparisons have

occurred (i.e., comparisons related to appearance, status, careers, possessions) ought to determine the directionality of each comparison.

Early adolescence is associated with heightened appearance comparisons for both males and females (Chen & Jackson, 2009; Pinkasavage et al., 2015; Strahan et al., 2006), and appearance comparisons appear to be associated with more detrimental effects in females. Previous research has indicated that women are more likely to engage in appearance comparisons to individuals they deem more attractive (i.e., upward comparisons) than someone equally (i.e., lateral comparison) or less attractive (i.e., downward comparison) than them (Leahey et al., 2011; Ridolfi et al., 2011). This pattern is concerning as research repeatedly suggests that upward appearance comparisons are associated with maladaptive effects on women's body image (Leahey et al., 2011; Myers et al., 2012; Ridolfi et al., 2011). Given that women are more likely to engage in appearance comparisons, and that appearance comparisons have been associated with decreased body dissatisfaction, it appears essential to consider pathways by which appearance comparisons can be made and can influence females' body image (Haller, 2020).

2.4.5 Cultivation Theory

According to the cultivation theory (Gerbner & Gross, 1994), repeated exposure to desirable images leads to viewers adopting these ideals into their personal schema. Chronic exposure to thin ideals may lead individuals to believe that thinness or thinness with body curvature is both realistic and attainable. The cultivation theory elucidates the relationship between chronic exposure to social media, body dissatisfaction (Bissel & Hays, 2010), and poor self-esteem (Schooler et al., 2004). Compared to the TIMBE model (Thompson et al., 1999), the sociocultural theory (Smolak & Levine, 1996) and the self-objectification theory (Fredrickson & Roberts, 1997), the cultivation theory elucidate the behavioural and psychological outcomes (Van den Berg et al., 2002) of online visual content through internalisation of thin-ideal (Bearman et al., 2006). According to body image scholars, the cultivation theory explains why social media users experience body dissatisfaction and accounts for the subsequent behavioural impacts of changes in body image (i.e., the progression to disordered eating) (Hammermesiter et al., 2005; Shanahan et al., 1999). When social media prompts specific beauty ideals and fitness behaviour, users are encouraged to believe that these

depictions constitute the societal norm. Online audiences may then adopt these beauty ideals into their attitudinal repertoire (i.e., through internalising the thin-ideal). Following the internalisation and comparison to the thin-ideal, any perceived inconsistencies between individuals' physical appearance and the cultivated beauty ideal may elicit behavioural responses to conform to media transmitted beauty standards.

The process of body image formation can be described by different levels of cultivation. First-order effects reflect the changes in an individual's estimates of real-life events as they arise from mass media consumption (e.g., the realisation that one's offline body is incongruent with online profiles) (Hawkins & Pingree, 1982). Second-order effects resemble shifts in the user's attitude and value system, such as perceptions of attractiveness, internalisation of thin-ideals, and drive for thinness. Lastly, third-order effects, an addition and modification of the cultivation theory (Nabi & Sullivan, 2001), reflects alterations in users' behaviour as a response to the first two order effects. An example of third-order effects includes restricting dietary consumption, engaging in excessive exercise, modifying appearance images, or "buying into" plastic surgery as a response to perceived appearance inconsistencies; reflecting a physical and psychological shift in attitudes and values related to body image. Thus, the cultivation theory details a hierarchical phenomenon that demonstrates how exposure to the thin ideal precedes diminished body image and eating disturbance.

2.5 Chapter Summary

There has been a substantial shift in what is deemed attractive in Western culture over time. A range of theories and supporting empirical evidence has illustrated how sociocultural pressure to conform to the current beauty ideal appears to be a product of mainstream Western social media, and more specifically, what the dominant culture deems as ‘attractive’. Together, the above theories have highlighted the potential mechanisms by which body image may be influenced. SNS is likely to be key in the dissemination of beauty ideals both given its widespread use, and its role in creative social norms. Given this, the next chapter discusses how social media fits into these models and influences body image.

Chapter 3: Impact of Social Media, Online Behaviour and Body Image

3.1 Introduction

As noted previously, an individual's concept of the ideal physique does not develop through simple contemplation, instead, the consumption of mass media and social interactions help shape an individual's beauty ideal (Stein et al, 2021). A significant body of 20th-century media research has found that mass media such as images on television shows, movies, and printed magazine impacts individuals' body image (Grabe et al., 2008). The shift in traditional media to digital media such as SNS has provoked changes in how individuals interact, the availability of the material, and the type of material they share (Vogel et al., 2014).

This chapter will discuss the current research that highlights the association between social media and body image. This will be linked to psychological theories to describe the pathway between SNS exposure and body image. The chapter will then investigate the features of social media that may pose the greatest risk to body image. Finally, this chapter will discuss which individuals are most vulnerable to the influence of social media on body image and go on to examine the health risks associated with the engagement of specific social media activity.

3.2 Social Media and Body Image

Social networking sites enable access to various online features such as peer likes and comments that can provide frequent opportunities for the critique and comparison to others. Features of social media may provoke online appearance-based comparisons, which has been shown to predict individuals' social and personal worth (Huang & Su, 2018). The impact of likes and comments has been illustrated in a study examining the effect of the removal of Instagram likes on Australian females ages 18 to 55 years (Prichard et al., 2021). The study found that most participants were in favour of the removal of likes (66.7%) with only a small proportion against the removal of likes (9.9%). Interestingly, those who did not support the removal of likes engaged in

significantly higher appearance comparisons based on the number of likes they received, than those who were in favour of the removal of the number of likes. Importantly, the researchers also found that internalisation of the thin-ideal mediated the relationship between investment in and comparison with likes, and with body dissatisfaction. Therefore, the findings indicated that the removal of the visibility of the number of likes may facilitate a reduction in negative self-focus through lowering comparisons and competitiveness, and through this has the potential to improve body satisfaction. Given these factors, it appears important to examine the characteristics and specific features of social media and how these components impact users' online behaviour, psychological wellbeing, and body image.

As previously mentioned, image based SNS such as Instagram, Snapchat, TikTok, and Facebook have become young adults' desired form of online communication and have been identified as a dominant source of exposure to appearance centred images (Haller, 2020). In 2019, approximately 350 million new images were uploaded to Facebook every day (Insider, 2013), highlighting the abundance of images users are exposed to daily. Given that smartphone users have access to the internet or mobile data (Khan et al., 2014), SNS smartphone applications can be downloaded for free and are easily accessible. Along with this, mobile service providers often offer free access to SNS sites as part of their plans (Vodaphone, 2022). Therefore, users may have seemingly unlimited access to images at the touch of a button (Khan, 2014; Reid & Weigle, 2014). This near costless accessibility of social media platforms generates more user engagement and consequently exposure to a large proportion of visual-based content.

Peer status is of importance to both adolescents and young adults. During these developmental periods, there is often an increased dependency on peer feedback, increased sensitivity to social rewards, and motivation to secure a position within the peer hierarchy (Harter et al., 1996; Somerville, 2013). The digital features of SNS may provide a means by which users gain social feedback of their status. Status seeking has been defined as attempts to receive indicators that signal status such as likes and comments which provide quantifiable public cues and validation of peer status (Nesi & Prinstein, 2018). Specifically, researchers have found that photo-based activities such as liking, sharing, and commenting to be the most important to body image disturbance

(Holland & Tiggemann, 2016; Meier & Gray, 2014). When individuals receive few likes, they may perceive this as insufficient validation, which can trigger psychological consequences such as depressive symptoms and negative self-evaluation of oneself and one's body (i.e., lowered self-esteem and body image); both of which have been identified as risk factors for depression (Hankin & Abramson, 2001; Masten et al., 2011; Slavich, et al., 2010). These findings are illustrated in a recent study that found that insufficient validation on social media was a powerful emotional cue that threatened adolescents' social status and elicited emotional distress (Stsiampkouskaya et al., 2021). This was linked to feelings of rejection emerging from insufficient positive validation during social media interactions. The study also found that these feelings were correlated with risk factors for depression in adolescence and higher incidences of depressive symptoms at eight months follow-up. In addition, a national survey of youth found that 56% of participants reported obtaining a low number of likes on social media posts as being a negative experience (Rideout & Fox, 2018).

Online social feedback has also been found to elicit social comparisons between users through acting as a medium by which users can rate the desirability and attractiveness of their photos based on the number of comments and likes (Stein, 2021). Supporting this, previous studies have indicated that positive evaluative feedback (e.g., likes and comments) highlights the phenomena of online social comparisons (Appel et al., 2016; Nesi & Prinstein, 2015), especially among psychologically vulnerable individuals such as users with pre-existing low self-esteem (Appel et al., 2015; Blease, 2015; Burrow & Rainone, 2017; Forest & Wood, 2012). These findings are consistent with the adolescent social-affective learning model (Crone & Dahl, 2012) and the need-threat theory literature (Jamieson et al., 2010; Sebastian et al., 2010) in the sense that digital evaluative feedback that publicly signals undesirable social status elicits negative internalising-type affective responses that are risk factors for depression. The above results are also supported by previous literature indicating that adolescents' affective sensitivity to peer rejection events have been associated with prospective risk for depression (Masten et al., 2011; Silk et al., 2014; Slavich et al., 2010). Therefore, the above findings reiterate the importance of features such as likes and comments as cues of digital social feedback that can influence individuals' psychological health.

Previous studies indicate that social media responses may impact females' body

satisfaction (Prichard et al., 2021; Webb & Zimmer-Gembeck, 2014). One such study examined the effect of viewing appearance related Instagram comments compared to place-related comments on undergraduate females' body image (Tiggemann & Barbato, 2018). Interestingly, exposure to appearance comments such as "great legs" or "you look amazing" led to greater body dissatisfaction in the viewer compared to exposure to destination comments such as "Venice looks amazing". These findings also extended previous literature that indicated the maladaptive effects of positive appearance commentary on others in various (off-line) contexts on females' body image (Calogero et al., 2009; Slater & Tiggemann, 2014; Tiggemann & Boundy, 2008). Similarly, in-person appearance conversations among friends play a pivotal role in the reinforcement of appearance ideals (Clark & Tiggemann, 2006; Jones et al., 2004). Therefore, both positive and negative appearance-based comments could give rise to body dissatisfaction and self-objectification (Slater & Tiggemann, 2014; Tiggemann & Barbato, 2018). Furthermore, recent research has indicated that social media likes, and comments not only impact the psychological state of the individual, but likely dictate users' subsequent online behaviour (Stsiampkouskaya et al., 2021).

As indicated previously, positive comments and greater likes are perceived as a desirable reaction from virtual audiences and are correlated with more pronounced emotional reactions in users. According to the emotional regulation framework (Baumeister et al., 2007), it is expected that emotional changes would impact users' subsequent online behaviours. For instance, it is predicted that individuals would post more frequently or post content consistent with the previous post after receiving greater positive online engagement and social feedback. Subsequently, it has been found that there was a shorter period between subsequent posts when users felt excited and enthusiastic following a higher number of positive comments and likes than anticipated. In contrast, there was a prolonged pause between posts when users felt less enthusiastic and excited following fewer likes and comments (Stsiampkouskaya et al., 2021). The researchers also found that there was a higher likelihood for users to share a different type of photograph in their subsequent post when they felt sad and upset after receiving less engagement than they anticipated. Moreover, when users received greater likes and comments than anticipated, there was a higher likelihood of sharing photographs consistent with the previous post. Therefore, the results support the concept that positive high-arousal emotions likely trigger greater social media posting of

photographs consistent with previous posts that elicited such emotions (Berger & Milkman, 2012; Guadagno et al., 2013; Nelson-field et al., 2013). Thus, the above findings further demonstrate the significance of social networking features on users' psychological wellbeing and subsequent online behaviour.

3.3 Adolescence through to Emerging Adults

Developmental stage may make people particularly vulnerable to the impact of SNS on body image. Two stages may be most vulnerable: adolescence and emerging adulthood (EA) due to individuals in these phases being hypersensitive to social feedback and body image concerns (Back et al., 2010; Belk, 2013; Stsiampkouskaya et al., 2021). Adolescence includes age ten years to eighteen years while EA spans the late teens to mid-twenties (Arnett, 2000). Both phases are periods of developmental transition (Arnett, 2007) and are characterised by fundamental psychosocial transformations that make people hypersensitive to social cues that indicate what is attractive and acceptable to their social group (Duarte et al., 2017). During these phases, individuals tend to become more self-aware, self-sufficient, have greater responsibilities, begin to explore committed relationships, and frequently pursue tertiary education that facilitates future success (Wood et al., 2018). These transitions and developmental challenges especially contribute to identity development. Importantly, during these developmental stages, there is a tendency to be more reliant on the peer group as a guide for behaviour through social comparisons (Burnette et al., 2017; Chua & Chang, 2016; Corcoran et al., 2011).

Young people (henceforth used to describe adolescents and emerging adults) are consumers of high levels of use of SNS (Turner, 2015) with users spending approximately three hours per day on SNS (Haller, 2020). This high use of SNS therefore provides ample opportunity for peer-group comparisons and body-related feedback. One study with girls aged 12 to 14 years (n = 38) investigated the relationship between SNS usage and body image (Burnette et al., 2017). They found that girls reported having appearance concerns and engaging in social comparisons, particularly with peers. Another study with a similar population examined secondary school girls' (n = 27) self-presentation and peer comparison behaviours on SNS with a particular focus on 'selfies' (a photo of oneself taken by oneself) and peer feedback through likes,

comments and followers (Chua & Chang, 2016). The thematic analysis reflected a discrepancy between teenage girls' self-beliefs and perceived peer standards of beauty. The researchers also found that the girls attributed their photo editing efforts as an attempt to achieve peer recognition to mitigate feelings of low self-esteem and insecurity. Moreover, the findings showed that the participants perceived their peers to play various roles such as acting as judges, imaginary audiences, vicarious learning sources, and comparison targets that contributed to the development of adolescent girls' perceptions and presentation of beauty. Therefore, current research findings reaffirm that likes, followers and comments are a vital source of peer attention and validation in young people.

As adolescence and emerging adulthood is often associated with heightened self-evaluation of socially desirable characteristics, it is consequently associated with fears of being stigmatised and excluded by peer groups. A stigma is a negative evaluation of a characteristic that deviates from societal standards and dictates whether a person is undesirable or not (Lewis, 1998). Physical appearance is one of many opportunities for normative deviation that is stigmatised by society (Mills, 2005). As a large proportion of peer and social interactions occur online (Mikami et al., 2019; Pempek et al., 2009), SNS provides a pathway by which young people can experience stigmatisation. SNS engagement may elicit emotions such as shame and beliefs about being rejected (i.e., through a lack of likes and/or negative comments), which can motivate behaviour to gain approval by their in-group. Therefore, the experience of negative emotions could trigger behaviour that aims to avoid future negative peer evaluation by obtaining desirable traits or physical features (Gilbert & Irons, 2009). In the context of body image, online social feedback may elicit negative emotions such as embarrassment regarding one's perceived body shape. Such emotions may evoke in-group behaviours, for instance modifying photographs and dieting in attempt to achieve social acceptance through promoting a figure more consistent with the current societal female body ideal (Chua & Chang, 2016).

Following Facebook's rise to success, SNS related psychological research demonstrated an adverse influence on users' body image (Fardouly & Vartanian, 2015; Tiggemann & Slater, 2013). This effect was especially prevalent among users who frequently used SNS photo-related features such as commenting on photos (Kim &

Chock, 2015; Meier & Gray, 2014), as 89% of 18 to 34-year-olds have been found to engage in Facebook use (Pollara Strategic Insights, 2018). This is concerning as this indicates that a large proportion of young people are exposed to regular opportunities to make appearance-related social comparisons, which can lead to adverse psychological outcomes such as negative body image (Myers & Growther, 2009).

The ability to use advanced filters on Instagram and visual-based SNS means that it is replete with edited photographs that can obscure reality (Saiphoo et al., 2019). One of the characteristics that attracts people to SNS is sharing candid content; content that appears to be based in the present moment and is perceived as spontaneous, informal and real (Kane et al., 2014). However, SNS commonly portray images as edited and staged as those published on billboards and in magazines (Mingoia et al., 2017). Along with online filters that feature on SNS, users can download applications such as 'FaceTune' (https://apps.apple.com/ro/app/facetune2-editor-by-lightricks/id1149994032?l=ro) and 'Body Tune' (https://apps.apple.com/ro/app/body-tune-beauty-photo-editor/id1222515036) that allow selfies, videos, and photographs to be modified through adjusting sizes, smoothing blemishes, and sculpting figures. However, when edited photographs and videos become the norm, users are left questioning what is natural versus what has undergone modification. A qualitative study of young female Instagram users reported that Instagram, regardless of participants' usage, heightened attention on females' physical appearance (Baker et al., 2019). Importantly, users reported being exposed to a range of images representing what appeared to be unnatural beauty ideals, such as using large amounts of makeup, being thin and having an 'hourglass figure' (larger hips and breasts with a narrow waist), and resembling fitness ideals such as having a toned, curvy and muscular figure.

Compared to offline, SNS users may encounter disproportionate exposure to unrealistically attractive and unobtainable images, which can induce social comparisons that lower one's body satisfaction. Compared to traditional media outlets that primarily display photoshopped photographs of models and celebrities, SNS also streams photos of peers (Saiphoo et al., 2019). As noted earlier in this chapter, an influx of heavily edited peer images can be problematic, as peer comparisons are by far the most influential type of social comparison for adolescents and young adults (Heinberg & Thompson, 1992; Hogue & Mills, 2019; Schutz et al., 2002). Therefore, an

abundance of edited user and peer content that portrays female body ideals can conceal what has been naturally attained and what has been modified. Thus, the above findings highlight the potential impact edited photographs and content consistent with the Western beauty ideal can have on females' body image.

Fitspiration and associated diet content are particularly problematic for vulnerable SNS users such as young people who may be more susceptible to internalising unrealistic body ideals and misinformation surrounding exercise and diet (Jong and Drummond, 2016; Vaterlaus et al., 2015). This may be particularly problematic given the physical changes that are undergone during this time. For instance, adolescents experience pubertal changes such as acne, and substantial growth spurts, accrue bone mass, and reach their peak cardiovascular fitness levels (Spear, 2002), and this is often marked by increased feelings of distress, embarrassment, and lowered body image (Martin, 2018). However, the benefits of functional health behaviour during this period are both immediate and long-term as health behaviour endorsed during adolescence likely persists into the adult years (Viner et al., 2012). Behaviours such as healthy exercise are adaptive to physical fitness and have implications for young peoples' current and future health. Though qualitative research has suggested that adolescents understand the importance of health and fitness (Woodgate and Leach, 2010), not all adolescents engage in adaptive health practices. Qualitative research suggests that young people inextricably entangle exercise and health with physical appearance, placing value on health behaviours for their appearance-enhancement qualities instead of their health benefits (Beltrán-Carrillo et al., 2018; Halliwell & Harvey, 2006; McCabe & Ricciardelli, 2003). Engaging in physical activity for appearance goals, over fitness and health goals, has also been associated with lower levels of exercise (Sebire et al., 2011) and poorer body image (Hurst et al., 2017).

3.4 Photo Modification as a Normative Behaviour

When there is a strong desire to conform to body ideals in addition to a discrepancy in one's self-evaluation of one's physical appearance (Myers & Crowther, 2009), there is a greater likelihood of appearance comparisons, body dissatisfaction, and engaging in behaviours designed to increase body image such as restricted dietary

intake (Hoffman & Tan, 2013). Research indicates that the above appearance-related discrepancy can eventuate to individuals vetting and modifying photos to publish idealised images of themselves and their lives (Ahadzadeh et al., 2017; Vartanian, 2012). However, photo modification may be associated with detrimental psychological and physical effects. A recent study investigated the effects of photo modification such as retouched selfies on state mood and body image in a sample of 110 young women (Mills et al., 2018). The researchers assigned the women to one of three groups: (1) taking and uploading an untouched selfie, (2) taking and posting an enhanced or edited selfie or (3) a control group. The researchers examined state mood and body image pre-manipulation and post-manipulation. Participants in the untouched selfie condition experienced significantly greater levels of anxiety than the control condition. The untouched selfie condition also reported feeling less confident and attractive after posting the photo, compared to the control group. The above findings in conjunction with other studies (Kleemans et al., 2018; Vendemia & DeAndrea, 2021) indicate the adverse effect of the wide acceptance of photo modification on individuals' body image.

Previous studies have also identified selfie taking and photo modification as a behaviour of interest to body image disturbance. Women between 16 to 25 years of age have been found to spend up to 5 hours per week engaging in selfie-taking and posting behaviour (Pounders et al., 2016). This is concerning, given that that selfie-taking behaviour has been shown to harm self-image and mood in young women and that it also increases individuals' vulnerability to clinical eating disorders, mood disorders, and anxiety disorders (Cohen et al., 2018; Mills et al., 2018). In addition, selfie-taking has been associated with shape and weight dissatisfaction (Mills et al., 2018), which in turn have been associated with depression and low self-esteem (Meier & Gray, 2014; Tiggemann & Miller, 2010). Thus, demonstrating the potential prolonged effect of online behaviour and consequential psychological changes regarding perceptions of individuals' physical appearance.

Rumination, a feature of depression and anxiety has also been linked to selfie modification. A cross-sectional study of female Instagram users in the United States showed that selfie modification was significantly correlated with rumination regarding eating, body weight, and shape (Lee-Won et al., 2020). The researchers found that

rumination mediated the relationship between photo modification and disordered eating. Thus, it appears important to understand the extent to which individuals internalise current beauty ideals, how rooted these ideals are, and how invested they may be in the photographs they post; especially when online social feedback (i.e., gaining a high number of likes) could be a potential driver of rumination.

3.5 Social Media, Body Ideals and Health Outcomes

Online users may engage in risky health behaviours to resemble the thin body ideal. Various literature has reported dysfunctional health behaviours in users engaging in fitspiration content. Holland and Tiggemann (2017) found that women who published fitspiration images had significantly higher scores on compulsive exercise behaviours. Similarly, Raggatt and colleagues (2018) found participants who engaged in fitspiration content compared to alternative content were at risk of 'exercise addiction'. Previous research indicated that both exercise addiction and excessive exercise has been associated with mental health disturbances including eating disorders, anxiety and other forms of addictive behaviour (Colledge et al., 2020). Though appearance-based content on social media may initially elicit short-lived periods of excessive exercise, when compulsive exercise becomes prolonged and occurs parallel to restricted diets it can manifest as eating disorders (Hecht et al., 2021; Silvestris et al., 2019). Prolonged excessive exercise and eating disorders have been associated with significant health risks such as amenorrhea (Mircea et al., 2007), joint damage, osteoporosis, and soft tissue injuries (Agras, 2001). Therefore, the internalisation of fitspiration content could predispose individuals to specific health risks through the stimulation of unhealthy exercise and patterns of dietary consumption.

Given that the minimum age required to have SNS profiles such as Instagram, Snapchat, Facebook is 13 years of age, and early adolescence is a period of higher risk for disordered eating (Gowers & Shore, 2001), the association between social media, body image, and eating patterns appears important to investigate (Fardouly & Vartanian, 2016). Disordered eating (DE) refers to a range of irregular eating patterns and weight-regulatory behaviours and symptoms. DE is common among 11-20% of young adult females (Walker et al., 2015) and can include chronic weight fluctuation, feelings of guilt and shame that are related to diet, compensatory actions (e.g., purging,

laxative use), rituals surrounding food and exercise, and compulsive eating habits. Though DE does not warrant a diagnosis of an eating disorder (ED) such as anorexia nervosa, bulimia nervosa or binge eating disorder (Kelly-Weeder, 2010; Shisslak et al., 1995), it remains a significant health risk (Santos et al., 2007). DE has been associated with depression, increased substance abuse, binge eating and increased body image dissatisfaction (Measelle et al., 2006; Fulkerson et al., 2004). Disordered eating has also been shown to pave the way to clinical eating disorders (Samuels et al., 2019).

The elaborated sociocultural model of DE (Fitzsimmons-Craft et al., 2014) posits the association between social media and DE. The model asserts that family, peers and the media provide a pathway for the internalisation of thin body ideals and pressure for thinness to occur. The model proposes that internalisation of the thin-ideal and simultaneous pressure to present this precedes body dissatisfaction that in turn predicts DE. However, the model also suggests that social comparison and body-surveillance (the tendency to over-focus on appearance attributes) (Lindner & Tantleff-Dunn, 2017) mediate the thin internalisation – body dissatisfaction relationship. The theory implies that DE is more likely in a sociocultural environment where DE behaviours are approved and normalised (Evans, 2004; Forney & Ward, 2013). Because the current thin-curvaceous body ideal is promoted parallel to diet culture, DE behaviours may offer a route to cultural conformity; especially for females who may already be deviating from the dominant culture norms (Doris et al., 2015; Saucedo-Molina et al., 2019).

The abundance of pro-thinspiration and pro-eating disorder websites and content on social media such as Twitter, TikTok, and Instagram (Borzekowski et al., 2010; Herrick et al., 2021; Logrieco et al., 2021; Rodgers et al., 2016; Syed-Abdul et al., 2013) illustrate the normalisation of/and acceptability of eating disorders and DE. Pro-eating disorder websites and social media content advocate for ED and behaviours to be considered as deliberate and legitimate lifestyle decisions rather than as symptoms of a mental health disorder or threat to wellbeing (Borzekowski et al., 2010; Juaracio et al., 2010). This is concerning, given that it is common for young people with eating disorders to engage in pro-ED communities (Arseniev et al., 2016) and that pro-anorexia content consists of approximately 30% of anorexia-related content on certain social media platforms (Syed-Abdul et al., 2013). Content analyses have revealed that

pro-eating disorder websites include thin-ideal images that are occasionally modified to appear more emaciated, as well as strategies of extreme weight-loss behaviours, or suggestions on means by which users can conceal symptoms from family members (Borzekowski et al., 2010; Juarascio et al., 2010).

Instagram amended their user guidelines to ban photographs or videos that may contribute to ED in 2012 (Hasan, 2012). The anti-harm policy attempts to motivate users to discontinue the promotion, and glorification of self-harm to users' physical and mental wellbeing through stating that any profile that is determined to be motivating or "urging others to embrace anorexia, bulimia, or other eating disorders; or to cut, harm themselves or commit suicide will result in a disabled account without warning" (Hasan, 2012). In addition to this, Instagram reinforced their anti-self-harm policy through making hashtags such as #thinspiration, #probulimia, #proanorexia unsearchable. Though this may (to some extent) destabilise pro-eating disorder communities, comparable content and advice remains prevalent. For instance, searching #bullimia, #anorexia, #bullimiadict, #starving, #donteat, and #thighgap on Instagram provides access to various posts and pages associated with the content Instagram supposably deemed 'unsearchable'. Though a pop-up option appears with the option of "get support" or "show posts", when selecting "show posts" users have for example, accessibility to the 5.7 million posts associated with '#anorexia' (Instagram, 2021). Although some users may use such pages and posts to facilitate their recovery (Logrieco et al., 2021), 'before and after' photographs and peers' eating disorder experiences may stimulate users' relapse while simultaneously exacerbating individuals' symptoms through the provision of 'inspiration' for extreme weight control measures and methods (Juarascio et al., 2010; Chancellor et al., 2016). Thereby, hashtag affiliated posts and pages remain active and provide a precipitating and perpetuating route for the manifestation and maintenance of body image and eating disturbance. Similar trends are also prevalent on TikTok, where pro eating disorder search terms have been banned; however, this can be bypassed through searching terms without the hashtag (e.g., 'anorexia') and misspelling words (e.g., '#proanachallenge') (Insider, 2020; Jezebel, 2020; Logrieco et al., 2021). The presence of such content further challenges SNS' ethics when key ED terms such as #anorexia remain searchable.

Previous research supports the pathways by which DE develops in the elaborated sociocultural model of disordered eating (Fitzsimmons-Craft et al., 2014). Body surveillance, thin-ideal internalisation and body dissatisfaction have been identified a risk factor for DE in young women (Fitzsimmons-Craft et al., 2014). Previous studies have found that Facebook provides a platform by which users experience a greater drive for thinness, body surveillance, internalisation of the thin-ideal, self-objectification, and engage in appearance comparisons (Fardouly & Vartanian, 2016; Meier & Gray, 2014; Tiggeman & Slater, 2013). Consistent with the above research, studies have found that greater engagement on Facebook and Myspace was correlated with higher body surveillance, body dissatisfaction, internalisation of the thin-ideal, self-objectification, and dieting among pre-teenage girls, high school students (Tiggeman & Miller, 2010), and female undergraduate students (Cohen & Blaszczynski, 2015; Fadouly et al., 2015; Fardouly & Vartanian, 2015, Mabe et al., 2014). As proposed in the elaborated sociocultural model of disordered eating, research findings indicate that SNS likely provides a pathway to behaviour (i.e., thin internalisation, appearance comparisons, self-objectification) that predicts body image concerns and eating disturbance.

Research findings suggest that exposure to healthy body shapes and sizes may act as a protective factor against the harmful effect of exposure to the thin body ideal (Brown and Dittmar, 2005, Fister & Smith, 2004; Groesz et al., 2002, Owen et al., 2013; Papies and Nicolaije, 2012, Quigg and Want, 2011, Yamamiya et al., 2005). A previous study indicated that women at risk for eating disorders were less likely to act on urges to diet after viewing images of healthy weight models than viewing images of thin models (Fister & Smith, 2004). Moreover, previous studies have suggested that exposure to healthy and overweight models enhances female audiences' body satisfaction (Brown and Dittmar, 2005, Groesz et al., 2002, Papies and Nicolaije, 2012, Quigg and Want, 2011, Yamamiya et al., 2005). Furthermore, a correlational study (Owen et al., 2013) with 44 female participants examined whether viewing healthy weight models could increase the ideal female body size. The study found that women who viewed photographs of healthy-weight models had significantly larger body ideals (as measured by participants adjusted body shape and size on a virtual model), compared to when they viewed photographs of 'skinny' models. In addition, another study showed that females who viewed overweight (rather than underweight) models

in magazines experienced reduced body dissatisfaction and increased body satisfaction (Tucci & Peters, 2008). The above studies provide findings that are consistent with the SCT in that lateral and downward physical appearance comparisons are more likely to be associated with heightened body image (Paxton & McLean, 2010; Wood et al., 1994). Though it is noteworthy that the impact of such comparisons may differ depending on the characteristics of people, such as their ownership of possessions, social status, and relationship to the user (Hogue & Mills, 2019). Nevertheless, the results suggests that exposure to females of healthy weights and what society deems as 'overweight' could have a positive effect on body image and DE. For instance, greater exposure to less thin figures could popularise and normalise realistic and more functional body weights and ideals than what is currently promoted on mainstream social media. In turn, this could lower users' body dissatisfaction; a determinant of low body image and a key risk factor for the progression of eating disorders (Polivy & Herman, 2002).

3.6 Social Media Engagement, Body Image and Associated Variables

Various research supports that social media engagement is associated with adverse body image outcomes (Myers & Crowther, 2009; Rounsefell et al., 2020; Tiggemann & Zaccardo, 2015). A systematic review of 26 studies identified that exposure to online visual (appearance) content was associated with higher body dissatisfaction, restricted dietary intake, binging, and unhealthy food choices (Rounsefell et al., 2020). From this study, the quantitative analysis identified five key themes: (1) social media encourages peer comparisons, (2) comparisons heighten body image evaluation, (3) young adults modify their physical appearance to resemble an ideal image, (4) young adults are aware of SNS influence on body image and dietary choices, and (5), that individuals receive external validation regarding their image through social media.

Exposure to beauty ideals has been associated with shifts in body image and behaviour oriented toward producing an approximation to body ideals. An experimental study on young adult females exposed participants to idyllic photographs of celebrities, fitspiration, and peer content on Instagram (Tiggemann & Zaccardo, 2015). The researchers found that young adult women reported higher body dissatisfaction and

weight-loss behaviours when exposed to fitspiration content. Though the intention of fitspiration content is to inspire a healthy diet and exercise, content analyses of fitspiration content on SNS have shown that numerous photographs and their associated messages portray thinness and fitspiration images as naturally or healthily attainable for the average woman (Carrotte et al., 2017; Harper & Tiggemann, 2008). However, instead of females reminding themselves that online users (e.g., influencers and fitness models) may display these body ideals as part of their occupation, some women may believe these figures are attainable within everyday life and consequently begin to feel guilty and dissatisfied with their physical appearance.

Research findings indicate that specific activity and engagement with appearance-related content is associated with body image concerns. Specifically, exposure to and internalisation of thinspiration and fitspiration content is correlated with higher body dissatisfaction in women (Tiggeman & Zaccardo, 2015; Myers & Crowther, 2009). A previous study (Meier & Gray, 2014) aimed to identify the specific Facebook features that correlated with dysfunctional body image in 103 adolescent females. The findings indicated that increased appearance exposure (appearance posts, photos) instead of overall Facebook usage was significantly associated with drive for thinness, weight satisfaction, self-objectification, and thin-ideal internalisation. Similarly, a correlation study examined the relationship between SNS and body image concerns in 259 young women aged between 18 to 29 years (Cohen et al., 2017). They found that appearance focused SNS use compared to general SNS use was associated with body image concerns. Thus, the findings indicate that higher engagement in appearance focussed content is associated with variables predictive of poor body image.

Inconsistent with the above study, a previous cross-sectional survey (n = 186) found that simple exposure to social media (time spent on social media) was uncorrelated with body image outcomes (Kim et al., 2015). However, exposure to appearance-based content on Facebook such as updating profile photos and viewing peer's social media profiles was found to be significantly correlated with thin-ideal internalisation and body surveillance (Cohen et al., 2017). Hierarchical regression analyses also indicated that appearance comparison mediated the relationship between social grooming behaviours and the drive for thinness. The above findings suggest that engagement with appearance-based content, rather than time on SNS is correlated with

disturbance to body image. Therefore, specific content (i.e., thin-ideal and appearance-based content) and related activity on SNS (i.e., commenting and liking appearance-based photos and thin-ideals) appear to be an area of interest for interventions that target improved body image.

3.7 Chapter Summary

The present chapter outlined how social networking features may provide informative quantitative and qualitative data on the likeability, attractiveness, social desirability, and social status of users. This data can have a distinct impact on individuals, particularly young people who have been identified to be susceptible to social cues and stigmatisation. As presented in the chapter, research supports the impact of social media use in the hierarchical effects in the cultivation theory and pathways in the elaborated sociocultural model of disordered eating. For instance, social media has been shown to provide an opportunity for individuals to internalise thin ideals, engage in comparisons and perceive a discrepancy between oneself and other. Such online generated perceptions and behaviour can precipitate body dissatisfaction and motivate behaviour consistent with attaining a figure more consistent with the beauty ideal popularised by social media.

Chapter 4: The Current Study

4.1 Rationale

As previously noted, body image concerns are highly prevalent in young people (Fardouly & Vartanian, 2015; Micali et al., 2014). More specifically, young females may be particularly susceptible to appearance comparisons and body dissatisfaction (Leahey et al., 2011; Myers et al., 2012; Ridolfi et al., 2011). Approximately 25% to 61% of young people experience body dissatisfaction (Al Sabbah et al., 2009). These figures are especially concerning given that body dissatisfaction is a key risk for depression, anxiety, suicidal ideation, drug use, and high-risk alcohol use (Bornioli et al., 2019; Swanson et al., 2011). Body dissatisfaction is also a primary risk factor for the development of DE including unhealthy dieting, muscle building behaviours and binge eating (Goldschmidt et al., 2015; Neumark-Sztainer et al., 2006; Pope et al., 2011; Rohde et al., 2014), as well as the progression through to eating disorders (Stice et al., 2011).

According to the tripartite influence model of body image and eating disturbance (Thompson et al., 1999), body comparisons and internalisation of body ideals mediate pathways by which body dissatisfaction, a drive for thinness, and disordered eating behaviours can occur. Because appearance ideals are primarily unattainable for the average individual and appearance comparisons likely occur with targets more attractive than the individual being judged (Fardouly et al., 2017), body dissatisfaction can often occur (Jones, 2004). The examination of this model among young people has provided empirical support for the proposed association in both girls and boys (Amaral & Ferreira, 2017; Papp et al., 2013; Thompson et al., 2017).

Because of SNS readily accessible nature, peer interaction is frequent and socially reinforced, and social media facilitates optimal self-presentation through visual tools such as videos and photographs are considered the norm (Perloff, 2014; Trekels et al., 2018). Qualitative research findings have shown that many young women curate and modify images of themselves to reach the beauty endorsed standards and state they believe that the characteristics of SNS heighten the intensity of peer appearance comparisons (Chua & Chang, 2016). Unsurprisingly, greater engagement with visual-

based SNS negatively influences body image, self-esteem, mood (Kelly et al., 2018), and DE (Holland & Tiggemann, 2016). More specifically, research findings have shown that activities involving viewing and posting photos are more problematic to body image (Cohen et al., 2018; Holland & Tiggemann, 2016; Meier & Gray, 2014).

Most of the studies on social media and body image have pointed to a consistent finding – that increased exposure and engagement with appearance-based content such as fitspiration is associated with reduced body image (Brown & Dittmar, 2005; Groesz et al., 2002; Papies & Nicolaije, 2012; Tiggemann & Barbato, 2018; Tiggemann et al., 2018; Tiggemann & Zaccardo, 2015; Quigg & Want, 2011; Yamamiya et al., 2005). However, it is essential to note that the above research is not without limitations. Current literature on social media and body image lacks a measure to assess specific online content and activities users engage in. Most of the studies also self-report measures of social media use (Fardouly et al., 2015; Gross, 2004; Meier & Gray, 2014; Tiggemann & Slater, 2013; Tiggemann & Slater, 2014; Slater et al., 2017) and therefore may be inaccurate and susceptible to recall and social desirability bias regarding actual exposure (Podsakoff et al., 2012).

Whilst some studies do use a measure of social media engagement, the current measures of social media use (Tiggemann & Slater, 2013; Slater et al., 2017) are also somewhat narrow in focus. For instance, more nuanced features such as online activity (i.e., liking and commenting behaviour), category of Instagram pages followed (e.g., thinspiration, fitspiration), written content and type of images posted (i.e., fitness-related, or idyllic images) are not assessed. The absence of distinct measures for online SNS activity prevents researchers from establishing the underling mechanisms by which online behaviour impacts body image, and more specifically, having the ability to differentiate between SNS features and the content that heightens maladaptive behaviour and perceptions.

Most studies are also self-reported, cross-sectional and exploratory by nature, which prevents conclusions regarding causation and the directionality of the relationships to be determined (Fardouly & Vartanian, 2015; Fardouly & Vartanian, 2016; Fox, 2020; Mabe et al., 2014; Meier & Gray, 2014; Saunders & Eaton, 2018; Rodgers et al., 2020; Tiggemann & Miller, 2010; Tiggemann & Slater, 2013; Tiggemann & Slater, 2014; Wilksch et al., 2020). More experimental studies on acute

exposure to specific content could provide insight into health specific social communication and interventions to mitigate the risk associated with current fitspiration philosophies.

The limited experimental studies on social media and body image, and the lack of an objective measure of SNS use (Brown & Tiggemann, 2016; Casale et al., 2019; Cohen et al., 2019; Tiggemann & Barbato, 2018; Tiggemann et al., 2018; Tiggemann & Zaccardo, 2015) make it difficult to establish a causal and directional relationships between social media use and body image outcomes. This research appears important in the context of health interventions that can be used to inform professionals, whānau, and future interventions that target awareness of the impact of SNS on body image.

Accordingly, the purpose of this research is two-fold. Firstly, the current study aimed to examine the effect of brief exposure to social media on state body image, mood, and self-esteem in females in New Zealand using a three-arm randomised control trial. Specifically, the researcher sought to understand if exposure to fitspiration related content or self-love content influenced state body image, mood and self-esteem. Secondly, this research aimed to explore the how the impact of social media exposure on body image was influenced by potential risk and vulnerability factors such as thin-ideal internalisation, body comparison behaviour, photo investment, photo modification, eating disorder symptomatology, and self-esteem.

4.2 Hypotheses

4.2.1 Primary Hypotheses

1. It is predicted that after exposure to the "fitspiration" condition, participants will score lower on the appearance subcomponent of state self-esteem than participants in the self-love positive and control conditions.
2. It is predicted that after exposure to the "fitspiration" condition, participants will score worse (higher) on state mood than participants in the self-love positive and control conditions.
3. It is predicted that after exposure to the "fitspiration" condition participants will score lower on body image as measured by higher body dissatisfaction scores, than participants in the self-love positive and control conditions.

4.2.2 Secondary Hypotheses

4. It is hypothesised that there will be a positive correlation between the following social media and body image related risk and vulnerabilities variables: a) thin internalisation, b) photo modification, c) photo investment, d) body comparison, e) disordered eating symptomatology, f) liking appearance-based content, g) commenting on appearance-based content, h) posting a greater amount of photos of oneself, and i) following appearance-based content.
5. It is hypothesised that body image and social media related risk and vulnerabilities variables will influence the impact of the social media content on state self-esteem, state mood, and body dissatisfaction.

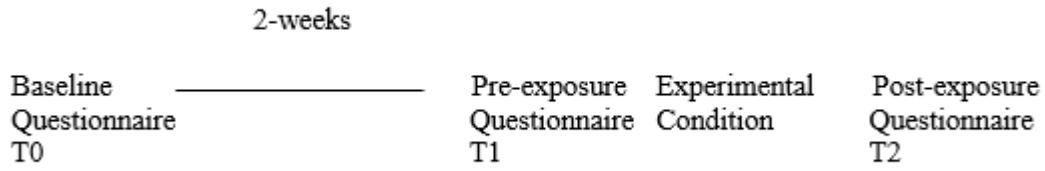
Chapter 5: Method

5.1 Study Design

The study consisted of a three-armed randomised control trial utilising a mixed-methods design to assess the effect of social media exposure on body image. The study included pre-baseline measures approximately 14-days (T0) before the experimental exposure commencing with the pre-exposure questionnaire (T1). Immediately following exposure to the experimental condition, participants completed the post-exposure questionnaire (T2) which included quantitative measures and a qualitative writing task. See Figure 3 for further detail.

Figure 3

Study Design



5.2 Participants

5.2.1 Inclusion and exclusion criteria

Participants were included in the study if they identified as female, were 18 years or older, were proficient in English, and had access to an Android or iPhone with a screen time measure that could record their screentime use for at least one week before the experimental exposure date. Eligible participants were required to consent to share their screen time use and be able to attend the experimental exposure face-to-face at the University of Auckland or through Zoom. There were no exclusion criteria for this study.

5.2.2 Sample size

The software programme G*Power (version 3.1) (Faul et al., 2007) was used to

conduct a power analysis to determine the number of participants required to participate in the study. Given an expected effect size of f = 0.4 (Bouchard et al., 2017), and an α = .05, a minimum of 66 participants (n = 22 per condition) was calculated to achieve a power of 80% (i.e., 1-β = 0.80). To allow for potential attrition, over recruitment of at least 15% was completed (n = 12 participants).

5.3 Procedure

5.3.1 Recruitment

Following Human Ethics approval (See Ethics Letter in Appendix A), participants were recruited from the Faculty of Medical and Health Sciences (FMHS) Twitter and Facebook pages, advertisements around the University of Auckland Grafton and City Campus, and through email invitations, and social media postings in the researchers' own networks. Participants were recruited between June 12 and August 4, 2021 (see recruitment advertisement samples in Appendix B). Participants who showed interest were directed through a Qualtrics web link provided in the advertisements to the online participant information sheet (see Participant information sheet in Appendix C) and directed to consent to the study after reading the participant information sheet (see Consent Form in Appendix D). After providing online consent to participate in the study, participants were able to complete the baseline questionnaire through the same Qualtrics weblink (Qualtrics, 2021).

5.3.2 Baseline Questionnaire

The baseline questionnaire (see baseline questionnaire in Appendix E) consisted of measures of participants' body image, self-esteem, online SNS behaviour, internalisation of thin-ideals, photo investment, photo modification, social comparison, and eating patterns. The baseline questionnaire took approximately 15 minutes to complete. Researchers then contacted the participants (via email or text) with a Calendly link (https://calendly.com/) that they could use to book their appointment for the experimental exposure. The Calendly link included a range of time slots for the experimental condition exposure that was available two weeks post the baseline date. Once booked, Calendly would notify the researchers and participant with a confirmation email and upcoming reminder. At the same time point, the researchers asked participants to activate their screen time (iPhone) or Digital Wellbeing and

Parental Controls (Android phone). Baseline and experimental exposure dates were temporally separated to reduce method bias such as response styles and tendencies, respondent fatigue, and the impact of questionnaire context on laboratory responding (Podsakoff et al., 2012). Furthermore, this allowed researchers to measure screen time to capture an objective measure of social media usage.

5.3.3 Experimental Condition Exposure

Approximately two weeks after the completion of the baseline questionnaire, participants attended the experimental condition exposure which took approximately 40 minutes to complete. The experimental exposure occurred at an assigned room at the University of Auckland Grafton or on Zoom (depending on participant availability). Upon arrival (via Zoom or in-person at the University of Auckland), participants met the researcher and were greeted with a standard script, which was modified according to whether the experimental exposure was in-person (script one), included Māori participants (script two), or whether it occurred online through Zoom (script three) (see Appendix F for experimental condition scripts). Prior to commencing, participants were required to verbally confirm that they have read the participant information sheet and meet the eligibility criteria.

Participants were then given a 3-digit random number in an enclosed envelope. The 3-digit numbers were pre-assigned to one of the three conditions: (1) self-love; (2) fitspiration; or (3) control condition (see Appendix G). Participants were then required to show the researchers their screen time usage.

The researcher then asked the participants to share their screen time use through opening Screen Time or Digital Wellbeing and Parental Controls via the participants entering their phone settings. Researchers recorded participants' average social media daily use and average daily time for their favourite visual (image-based) social media application.

5.3.4 Pre – exposure Questionnaire

The participants were then given an iPad for the completion of the pre – exposure questionnaire hosted on Qualtrics. The pre-exposure questionnaire examined body image, state self-esteem and state mood (see Appendix H) and took approximately 8-minutes to complete.

5.3.5 Exposure to the experimental condition

Following the pre–exposure questionnaire, participants viewed their assigned Instagram feed on an iPad for 15-minutes. Participants were instructed to stay on the feed and take their time to view the photos and videos. The Instagram feeds contained different content depending on the experimental condition (See Appendix G). Conditions consisted of (1) fitspiration content (e.g., diet advice, exercise guides, fitness models, fitness fashion, celebrity images, fitness quotes); (2) self-love (healthy female figures, realistic female figures, self-love content, compassionate quotes, self-acceptance quotes, body positivity/ self-love videos); or (3) the control condition content included home vegetable garden, garden projects, pets, garden insects, and gardening tips, without any direct images of people (i.e., hands only). The participants were instructed to take their time to view the content for 15-minutes and that the researchers will time the task using a stopwatch, and signal participants when they were finished.

5.3.6 Writing Task

Following the social media exposure, participants completed a timed 5-minute writing task about how they felt about their body after viewing the feed (see Appendix I). The researchers gave participants a piece of paper with brief instructions for the task. The researchers instructed the participants to signal them as soon as they have completed the task. The researchers timed the task using a stopwatch to ensure none of the participants exceeded 5-minutes. The writing task aimed to collect more detailed information about how participants perceived their body image after exposure to each of the Instagram feeds.

5.3.7 Post – exposure Questionnaire

After the writing task, the participants were asked complete the final questionnaire (post – exposure questionnaire; Appendix J) using a Qualtrics link on the iPad. The post–exposure questionnaire re-examined state self-esteem, state mood, and body dissatisfaction. The post-exposure questionnaire took approximately 8-minutes to complete. Overall, total participant time in the study was 45 to 60 minutes.

5.3.8 Debrief

A debrief was held after the post-exposure questionnaire. The debrief was

created and modified by MP and reviewed by LD (within Appendix F). The debrief asked participants how they felt after the tasks. The debrief addressed social media and misinformation surrounding body ideals and exercise, body image, physical health and mental health. A script was available in the unlikely situation that participants did experience any psychological distress or harm which would lead to referring participants to additional supports as required.

5.3.9 Compensation

Upon completion of the post–exposure questionnaire at the end of the experimental condition, participants were given the choice of a $20 Westfield or Countdown voucher as a koha for their time and contribution.

5.3.10 Randomisation

A random number generator was used to generate a 3-digit number which would randomly allocate participants to the self-love, fitspiration, and control condition (See Figure 4). Each 3-digit number was enclosed within a sealed envelope by an external individual and was given to the participant at the start of the experiment exposure to determine which group participants were allocated to. The participants were blinded to the study groups. The researcher was blinded to the participant's 3-digit number until the participant opened the envelope. During data analysis, the researchers were also blinded to the participant groups.

5.3.11 Experimental Condition Design

The experimental condition exposure script was pre-developed, practised, and presented by MP to ensure that the experimental condition exposure tasks and scripts were consistent across all conditions. The script was reviewed and modified by the principal investigator, LD, a Health and Clinical Psychologist to ensure the debrief targeted social media and body image. The modified script was reviewed by a Māori psychologist to ensure that it was appropriate for Māori participants. A karakia was included during the introduction of the experimental condition exposure and to close the session.

The three Instagram feed conditions were developed between 11th March 2021 and 28th May 2021. The experimental exposure conditions were created on Instagram,

using three different private profiles named: ‘uoacondition_one’, ‘uoacondition_two’, and ‘uoacondition_three’. Each condition profile was created using google search, Instagram search, and Pinterest to post photos, videos, and quotes consistent with each of the three conditions. Each profile included 169 posts and five ‘highlight’ icons for each of the three different conditions and associated content to ensure each of the conditions were equally visually appealing. Each photo, image, or quote also included a caption to ensure consistency across all conditions. Each of the profiles were ‘tested’ on three different occasions by different individuals to ensure that each profile included sufficient content to sustain 15-minutes of browsing.

5.4 Measures

5.4.1 Baseline

At the baseline, seven questionnaires were administered to assess demographic data, body comparison behaviour, thin-internalisation, photo modification behaviour, photo investment, trait self-esteem, social media use, and eating patterns.

5.4.1.1 Demographics

Participants completed demographic items assessing age, ethnicity, country of birth, tertiary qualification, path of study if appropriate, body mass index (BMI) and socioeconomic status (SES) by suburb.

5.4.1.2. Disordered Eating Symptomatology

The Eating Disorder Examination Questionnaire 6.0 (EDE-Q; Fairburn & Beglin, 1994; Fairburn & Beglin, 2008) is a 28-item questionnaire with four subscales: Restraint (five items), Eating Concern (five items), Weight Concern (five items), and Shape Concern (eight items) that is widely used in ED research and clinical practice. Twenty-two items were used to assess the severity of disordered eating features and were rated on a 7-point (0-6) forced-choice scale, with higher scores indicating greater severity. Six items (items thirteen to eighteen) were used to assess the frequency of key patterns such as purging behaviours. The remaining items had an open response format that assessed the frequency of specific eating patterns over the last 28 days. The scale has shown high internal reliability ($\alpha = .70$ to $.93$) and validity in cross-cultural samples

(Machado et al., 2014; Rand-Giovannetti et al., 2020).

5.4.1.3. Thin Internalisation

The Sociocultural Attitudes Towards Appearance Questionnaire (SATAQ-3) is a 30-item survey that was designed by Thompson and colleagues (2004). It is one of the most widely used scales for Western female body ideals. It includes four subscales (information, perceived pressure, internalisation-general and internalisation-athlete). The items were scored on a 5-point Likert-scale from definitely disagree (1) to definitely agree (5) with higher scores indicating greater internalisation of sociocultural influences of beauty standards. The SATAQ-3 has shown sufficient internal reliability ($\alpha = 0.84$ to .91) (Thompson et al., 2004) and validity (Mousazadeh et al., 2017; Warren et al., 2013).

5.4.1.4. Body comparison

The Physical Appearance Comparison Scale-Revised (PACS- R) (Schaefer & Thompson, 2014a) is an 11-item scale that was used to assess an individual's tendency to make physical appearance-related comparisons. The items were rated on a 5-point Likert scale ranging from 0 (never) to 4 (always). Higher mean scores indicated greater intensity of appearance comparisons. Researchers have indicated that the PACS- R has sufficient internal reliability and validity ($\alpha = .70$ - .97) (Haller et al., 2020; Schaefer, 2018; Schaefer & Thompson, 2014).

5.4.1.5 Trait Self-Esteem

The Rosenberg Self-Esteem Scale (Rosenberg, 1965) was used to assess trait self-esteem. It is a 10-item scale rated on a 4-point Likert scale ranging from 1 (strongly agree) to 4 (strongly disagree). Higher scores reflect greater global trait self-esteem. Previous studies indicate that the scale has good internal reliability and validity ($\alpha = .84$ -.91) (Almenara et al., 2017; Lee-Won et al., 2020; Santarossa & Woodruff, 2017).

5.4.1.6 Photo Investment

Photo investment was measured through the Self-Report Photo Investment Scale (McLean et al., 2015). The scale measured efforts in choosing which photos to post to social media, and monitoring responses to photos. It was assessed through eight

visual analogue items from 0 to 100, with anchors such as “I worry about whether anyone will like my photos” compared to “I do not care whether anyone likes my photo.” Total scores derived from the mean of eight items, with larger scores reflecting greater photo investment. Research has reflected that the scale has good internal consistency (α= .77 - .82) (Lonergan et al., 2020; McLean et al., 2015; Mingoia et al., 2019).

5.4.1.7 Photo Manipulation

Photo Manipulation was assessed through the Self-Report Photo Manipulation Scale (McLean et al., 2015). The scale assessed the extent to which respondents edit their photos prior to posting images. It was assessed through 10 Likert-type items that vary from 1 (never) to 5 (always). The scores ranged from 10 to 50, with larger scores indicating greater photo manipulation. It included items such as how often do you “make specific parts of your body larger or smaller?” Previous studies have indicated that the scale has good internal reliability (α= .77 - .94) (Lonergan et al., 2020; McLean et al., 2015; Mingoia et al., 2019).

5.4.1.8 SNS Exposure

There is currently no validated scale for SNS usage and activity. SNS usage was assessed using items from previous research on social media applications such as Facebook (Slater et al., 2017; Tiggemann & Slater, 2013). Items included questions such as "which social media platform do you use most frequently?" with response options: “Facebook, Instagram, Snapchat, TikTok, and other". It also included items such as "how much time do you spend in total on social media per day?", and “how many followers do you have?” Moreover, instead of being Facebook specific, the survey was modified to include multiple SNS.

5.4.2 Pre–Exposure Questionnaire Measures

5.4.2.1 Body Dissatisfaction

Two items from the Eating Disorder Questionnaire were used to measure body dissatisfaction. These items were related to body shape concern (item 25) and weight concern subscale (item 26). The two items assessed the severity of weight and shape concern and were rated on a 7-point (0-6) forced-choice scale, with higher scores

indicating greater severity (greater weight and shape dissatisfaction). To capture the immediate impact of the social media exposure conditions, the two items were modified from past tense to present tense: “how satisfied have you been with your weight?” to “how satisfied are you with your weight right now?”

5.4.2.2 State Mood

State Mood was assessed through the Profile of Moods Questionnaire (POMS; McNair et al., 1971). The scale is sensitive enough to measure alterations in state mood. The original scale consists of 65-items with six mood subscales (Tension. Anger, Fatigue, Depression, Vigor and Confusion). However, the current study used the 40-item survey that was modified by Grove and Prapavessis (1992). The questionnaire asks respondents to indicate the number (0-4) that best describes how they feel right now. It has five response options that are anchored as “not at all, a little, moderately, quite a lot, and extremely”. The researchers determined the total mood disturbance score by summing the totals for the negative subscales (tension, depression, fatigue, confusion, anger) and subtracting it from the positive subscales (vigour, esteem-related affect). Previous studies have shown that the POMS has good internal reliability (Hawkins et al., 2004; McNair et al., 1971; Palmeira et al., 2010).

5.4.2.3 State Self-Esteem

The State Self-Esteem Scale (Heatheron & Policy, 1991) was included. The appearance subscale includes 20-items rated on a five-point scale with items such as "I feel satisfied with the way my body looks right now", and "I feel self-conscious". Items are scored on a 5-point Likert scale ranging from 1 (not at all) to 5 (extremely). Higher scores reflect greater state self-esteem. The scale has shown good internal reliability (α=.87 - .94) (Santarossa & Woodruff, 2017; Tiggemann & Zaccardo et al., 2015).

5.4.2.4 Screen Time

The 'Screen Time' app is both an iPhone and Android that measures and provides a report of daily and weekly time spent on the device and apps. It calculates weekly reductions or increases in app usage. Participants were asked to activate their Screen Time setting upon the completion of the baseline questionnaire. It was accessed

through going into 'settings' and selecting 'Screen Time' and tapping 'turn on Screen Time' and pressing 'continue' on iPhones or ‘Digital Wellbeing and Parental Control’ on Android phones. Screen Time data was collected through participant authorisation in the consent form and through showing the report to the researchers during the experimental condition exposure (in-person or via Zoom). Overall daily average SNS use and favourite visual (image based) SNS (via hours) was recorded. Screen Time is non-invasive and maintains participant's privacy, through presenting time reports, as opposed to specific content.

5.4.3 Post–Exposure Questionnaire Measures

5.4.3.1. Body Dissatisfaction

Item 25 and 26 from the Eating Disorder Questionnaire were used to assess body dissatisfaction post social media exposure. These items were related to body shape concern (item 25) and weight concern subscale (item 26). The two items assess the severity of weight and shape concern and are rated on a 7-point (0-6) forced-choice scale, with higher scores indicating greater severity (greater weight and shape dissatisfaction). The two items were modified from past tense to present tense: “how satisfied have you been with your weight?” to “how satisfied are you with your weight right now?” to capture the immediate impact of the social media exposure.

5.4.3.2. State Mood

State Mood was assessed through the Profile of Moods Scale (POMS; McNair et al., 1971). The scale is sensitive enough to measure small shifts in state mood. The original scale consists of 65-items with six mood subscales (tension. anger, fatigue, depression, vigour and confusion). However, the post – exposure questionnaire used the 40-item questionnaire that was modified by Grove and Prapavessis (1992). The survey asks participants to rate the number (0-4) that best describes how they feel right now. It has five response options that are anchored from “not at all, a little, moderately, quite a lot, and extremely”. The researchers calculated a total mood disturbance score by summing the totals for the negative subscales (tension, depression, fatigue, confusion, anger) and subtracting it from the positive subscales (vigour, esteem-related affect). The POMS has shown sufficient internal reliability in multiple studies (Hawkins et al., 2004; McNair et al., 1971; Palmeira et al., 2010).

5.4.3.3. State Self-Esteem

The State Self-Esteem Scale (Heatheron & Policy, 1991) was used to assess state self-esteem post social media exposure. The appearance subscale was used to assess changes in appearance related self-esteem. It includes 20-items rated on a five-point scale with items such as "I feel satisfied with the way my body looks right now", and "I feel self-conscious". Items are scored on a 5-point Likert scale ranging from 1 (not at all) to 5 (extremely). Higher scores reflect greater state self-esteem. Previous studies indicate that scale has good internal reliability (α= .87 - .94) (Santarossa & Woodruff, 2017; Tiggemann & Zaccardo et al., 2015)

5.5 Data Analysis

5.5.1 Quantitative Analysis

Data analysis was conducted using the Statistical Package for Social Sciences (SPSS) version 27. For all tests the significance level was set at $p \leq .05$. Consistent with the hypotheses, the analytic strategy aimed to investigate whether there was a significant correlation between the baseline variables using a bivariate Pearson correlation. The researchers used one-way ANOVAs to determine whether the fitspiration group scored worse on state mood, self-esteem, and body dissatisfaction after viewing the social media feed, compared to the self-love and neutral group. Multiple regression analyses were also performed to determine which variables were the strongest predictors of the primary outcome variables: state self-esteem, mood, and body dissatisfaction.

5.5.2 Qualitative Analysis

The researcher used Nvivo (Nvivo, 2021) to determine the word frequency and key themes for each of the groups for the writing task. The researcher then conducted a thematic analysis by identifying the words that occurred more frequently to identify key themes for each of the conditions.

Chapter 6: Results

6.1 Overview

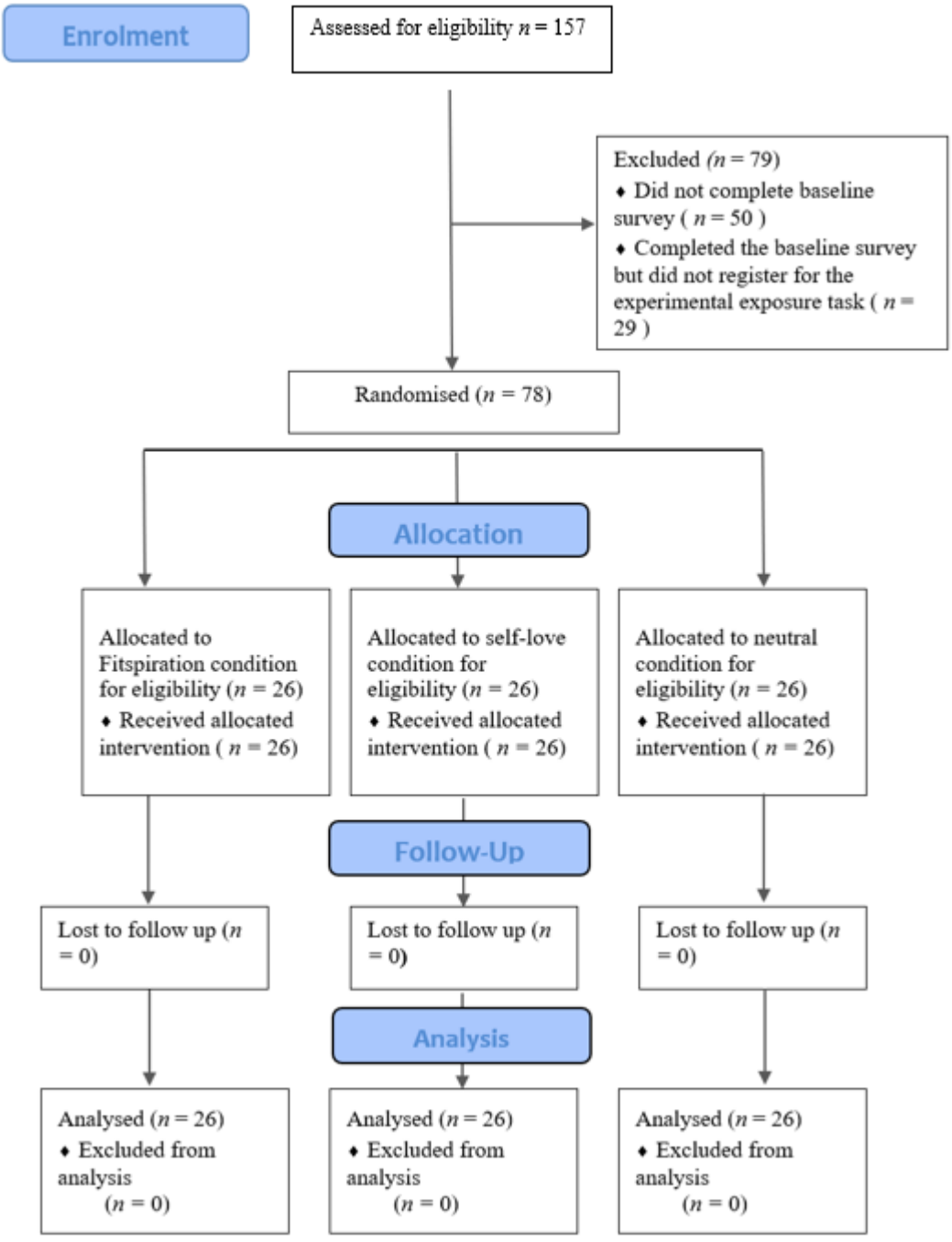
This chapter will present the results obtained from the study. Firstly, those that completed the study are compared to those that did not. Following this, baseline demographics and clinical variables for the final sample are presented, with comparison between the fitspiration, self-love, and neutral conditions. The main analyses relating to each specific hypotheses are then presented. This is followed by a thematic analysis of the writing task investigating the effects of the fitspiration, self-love, and neutral conditions on how participants felt about their body following exposure to the social media feed. Finally, multiple regression analyses are presented that reflect which variables most predict state self-esteem, state mood, and state body dissatisfaction.

6.2 Comparison of Analytic and Excluded Samples

Following the advertisement of the study, 157 participants expressed an interest in participating (see Figure 4). A total of seventy-nine participants (50.3%) were excluded from the study as 50 participants (63.3% of those excluded) did not complete the baseline questionnaire and 29 participants (36.7% of those excluded) did not register to complete the final part of the study. The final sample who completed the baseline survey and experimental exposure phase was 78 participants (49.7% of those who registered with the study). Refer to participant flow in figure 4.

Figure 4.

Consort Diagram Highlighting Participants Progress Throughout the Study



6.2.1 Demographic Characteristics for Participants who Completed the Baseline Survey

For the 107 participants who completed the baseline survey (*completers and excluders*), age ranged from 18 to 53 years (*Mdn = 22, IQR* = -.2.80 – 1.87) with an average age of 23.41 (*SD* = 5.32). Participants had an average weight of 65.55 kilograms (*SD* = 14.64) and weight across the sample ranged from 45 to 125 kilograms (*Mdn = 63, IQR* = -2.59 – 3.13). Participants had an average height of 165.27 centimetres (*SD* = 6.30) ranging from 149 to 182 centimetres (*Mdn = 63, IQR* = -10.61 – 2.86). From these measurements, 7.5% had a BMI classified as underweight, 63.6% had a BMI classified as healthy weight, 20.6% had a BMI classified as overweight, and 8.4% had BMI classified as obese.

In terms of ethnicity, 32.7% identified as New Zealand European, 6.5% identified as Māori, 3.7% identified as Pacific peoples, 1.9% identified as Asian, 9.3% identified as Middle Eastern/Latin American/African (MELAA) and 45.8% as other. Of the baseline participants, 68.2% had a bachelor's degree, 3.7% had a postgraduate diploma, 1.9% had an honours degree, 15% had a master's degree, 4.7% had a doctorate degree and 6.5% held an alternative qualification. In terms of sociodemographic status, 17.8% lived in a suburb classified as low socioeconomic status (SES), 57.9% lived in a suburb classified as middle SES and 24.3% lived in a suburb classified as high SES.

6.2.2 Between-Group Analyses of Demographic Variables between Participants that Completed the Study with those that Dropped out after Baseline

To evaluate how representative the final sample were of those that indicated an interest in participating, between-group analyses were conducted to determine whether there were any group differences in demographics and clinical variables between the completers (*n* = 78) (*the final sample who completed the whole study*) and the excluded group (*n* = 29) (*those who did not complete the experimental exposure*). These data are presented in Table 1 and 2.

Baseline demographic characteristics are presented in Table 1. Although the final sample and those excluded did not differ significantly on majority of the test variables, a difference was observed in ethnicity (x^2 (5, *N* = 107) = 15.27, *p* = .009). Bonferroni post-hoc testing indicated that more Māori did not complete the study than other ethnicities.

Table 1.

Comparison of Sociodemographic Variables for Those who Completed the Baseline Survey

	Completers (*N*=78)		**Excluded (*N*=29)**		
Variable	*M*	*SD*	*M*	*SD*	***p***
Age in years[a] *M (SD)*	23.28	4.54	23.75	7.15	.692
Weight in kg [a] *M (SD)*	64.55	12.61	68.42	19.36	.256
Height in cm [a]*M (SD)*	165.34	6.08	165.07	5.44	.853
Variable	***N***	***%***	***N***	***%***	***p***
Country of birth[b]					.372
New Zealand	49	62	20	71.4	
Other	30	38.0	8	28.6	
Ethnicity[b]					.009*
Māori	1	1.3	6	21.4	
Pacific peoples	3	3.8	1	3.6	
NZE	26	32.9	9	32.1	
Asian	2	2.5	0	0.0	
MELAA	9	11.4	1	3.6	
Other	38	48.1	1	39.3	
Qualification					.090
Bachelor's degree	51	64.6	22	78.6	
Post graduate diploma	4	5.1	0	0.0	
Honours degree	2	2.5	0	0.0	
Master's degree	14	17.7	2	7.1	
Doctoral deegre	5	6.3	0	0.0	
Other	3	3.8	4	14.3	
BMI[b]					.441
Underweight	5	6.3	3	10.7	
Healthy weight	53	67.1	15	53.6	
Overweight	16	20.3	6	21.4	
Obese	5	6.3	4	14.3	
SES[b]					.761
Low	15	19.0	4	14.3	
Middle	46	58.2	16	57.1	
High	18	22.8	8	28.6	

Note. Excluded refers to those participants that completed the baseline survey, but not the exposure condition and therefore were not included in the final analysis., Completers refers to those that completed the entire study. [a] Independent samples t-test exact test scores reported, [b] Chi square's exact test values reported, * Indicates statistical significance ($p \leq .05$), *M* = mean, *SD* = standard deviation.

6.2.3 Between-Group Analyses of Clinical Variables between Participants that Completed the Study with those that Dropped out after Baseline

Between-group analyses were conducted to determine if there were any group differences between the completers and the excluded group in clinical variables. Independent samples t-tests were conducted to determine whether there were any differences in clinical characteristics between the two groups (see Table 2). The findings showed that there were significant differences between the two groups in four of the clinical variables. Specifically, results showed that excluded sample scored significantly higher on the EDE-Q restraint subcomponent of the EDE-Q (M=11.22, SD=9.26) compared to the completers sample (M = 7.68, SD = 6.52, t (105) = -2.17, p = .032), significantly higher on the EDE-Q total score (M = 63.74, SD = 32.68) compared to the final sample (M = 49.13, SD = 30.92, t(105) = -2.09, p = .039), significantly lower on trait self-esteem (M = 24.00, SD = 3.86) compared to the final sample (M = 26.89, SD = 5.48, t(105) = 2.57, p = .012), and significantly higher on social media total exposure (M = 50.78, SD = 6.33) compared to the final sample (M = 47.81, SD = 5.57), t (105) = -2.31, p = .023). As reflected by the results of the independent sample t-tests (see Table 2), there were no significant differences between the two groups in body comparison, photo investment, photo modification, internalisation, and liking and commenting on appearance-based content (p = > .05).

Chi square tests of independence demonstrated that there were no significant differences in photos uploaded (x^2 (1, N = 107) = .70, p = .400) and content followed between the excluded and completers sample (x^2 (2, N = 107) = 1.16, p = .561).

Table 2.

Comparison of Baseline Clinical variables for the Completed and Excluded Sample

	Completers (*N=78)*		Excluded (*N*=29)		
Variable	***M***	***SD***	***M***	***SD***	***p***
Body Comparison	34.61	9.71	38.25	10.47	.098
EDE-Q *M (SD)* [a]					
EDE-Q concern	6.56	6.38	8.82	7.38	.125
EDE-Q restraint	7.68	6.52	11.22	9.27	.032*
EDE-Q shape	22.84	13.20	27.93	12.65	.079
EDE-Q weight	12.05	7.86	15.11	7.57	.077
EDE-Q total	49.13	30.92	63.74	32.68	.039*
Photo investment[a]	372.93	105.21	407.17	102.82	.177
Photo modification[a]	19.14	6.68	20.86	10.10	.313
Internalisation[a]	98.31	19.58	102.63	17.97	.315
Self-esteem[a]	26.89	5.48	24	3.86	.012*
Social media total[a]	47.81	5.57	50.78	6.33	.023*
Time on favourite SNS[b]					.339
0 – 30 minutes	0	0.0	2	7.1	
31 – 60 minutes	1	1.3	0	0.0	
61 – 90 minutes	1	1.3	0	0.0	
91 –120 minutes	1	1.3	0	0.0	
121– 150 minutes	36	45.6	11	39.3	
151 – 180 minutes	2	2.5	0	0.0	
181 – 210 minutes	30	38.0	11	39.3	
211 – 240 minutes	0	0.0	0	0.0	
241 minutes [+]	8	10.1	4	14.3	
SNS daily time[b]					.398
0 – 30 minutes	0	0.0	0	0.0	
31 – 60 minutes	0	0.0	1	3.7	
61 – 90 minutes	0	0.0	0	0.0	
91 –120 minutes	0	0.0	0	0.0	
121– 150 minutes	21	26.9	5	18.5	
151 – 180 minutes	2	2.6	1	3.7	
181 – 210 minutes	25	32.1	8	29.6	
211 – 240 minutes	3	3.8	0	0.0	
241 minutes [+]	27	34.6	12	44.4	
Liking appearance-based content [a]	5.95	1.11	6.32	1.25	.143
Commenting on appearance-based content [a]	2.39	1.07	2.43	1.20	.882
Uploaded photos [b]					
Other photos	16	20.8	8	28.6	.400
Photos of self	61	79.2	20	71.4	

Following appearance-based content [b]					
No appearance-based content pages	8	10.1	5	17.9	.561
At least one	34	43	11	39.3	
More than two	37	46.8	12	42.9	

Note. [a] Independent samples t-test exact test scores reported, [b] Chi square exact scores reported, ABC refers to appearance based content, Social media favourite time reflects time on favourite social networking site per day and Social media daily time reflects overall daily time on social media, Social media total reflects the total scores on the social media questionnaire, Uploaded photos refer to uploading greater other content or of oneself, *M* = mean, *SD* = standard deviation,* indicates statistical significance ($p \leq .05$)

6.2.4 Demographic Characteristics of the Final Sample

The final samples' (*those that completed the study)* age ranged from 18 to 37 years (*M* = 22.23, *SD* = 4.55). The average weight was 63.70 kilograms (*SD* = 10.40) ranging from 47 to 93 kilograms. The average height was 165.32 centimetres (*SD* = 6.65) ranging from 149 to 182. More than half of the final sample were of a healthy BMI (67.9%) (see Table 3), 5.1% of participants were underweight, 21.8% were overweight and 5.1% were obese based on their BMI score. Of the final sample, 17.9% lived in a low SES suburb, 55.1% lived in a middle SES and 26.9% lived in a high SES. In terms of ethnicity, 1.3% identified as Māori, 2.6% identified as Pacific Peoples, 33.3% identified as New Zealand European, 2.6% identified as Asian, 11.5% identified as MELAA and 48.7% identified as other. In terms of education, 65.4% had a bachelor's degree, 5.1% had a postgraduate diploma, 2.6% had an honours degree, 17.9% had a master's degree, 5.1% had a doctoral degree, and 3.8% held a different qualification (see Table 3).

As indicated by the one-way analysis of variance test values and chi square's exact test values in Table 3, there were no significant differences in demographic variables between those allocated to the three experimental conditions.

Table 3.

Baseline Demographic Variables for the Final Sample

	Fitspiration (*N*=26)		Self-love (*N*=26)		Neutral (*N*=26)		
Variable	***M***	***SD***	***M***	***SD***	***M***	***SD***	***p***
Weight in kgs[a]	63.08	10.24	64.29	9.54	66.3	16.72	.992
Height in cm[a]	163.78	6.45	167.13	5.51	165.39	7.49	.349
Age in years[a]	22.7	4	23.32	4.62	23.85	5.07	.744
Variable	***N***	***%***	***N***	***%***	***N***	***%***	***p***
Country of birth[b]							0.85
New Zealand	17	65.4	15	57.7	16	61.5	
Other	9	34.6	11	42.3	10	38.5	
Ethnicity[b]							0.677
Māori	0	0	1	3.8	0	0	
Pacific peoples	1	3.8	1	3.8	0	0	
NZE	6	23.1	8	30.8	12	46.2	
Asian	1	3.8	1	3.8	0	0	
MELAA	3	11.5	4	15.4	2	7.7	
Other	15	57.7	11	42.3	12	46.2	
Qualification							0.728
Bachelors degree	19	73.1	15	57.7	17	65.4	
Post graduate diploma	1	3.8	2	7.7	1	3.8	
Honours degree	1	3.8	0	0	1	3.8	
Masters degree	3	11.5	6	23.1	5	19.2	
Doctoral degree	0	0	2	7.7	2	7.7	
Other	2	7.7	1	3.8	0	0	
BMI[b]							0.399
Underweight	0	0	1	3.8	3	11.5	
Healthy weight	19	73.1	19	73.1	15	57.5	
Overweight	5	19.2	6	24	6	23.1	
Obese	2	7.7	0	0	2	7.7	
SES[b]							0.601
Low	7	26.9	4	15.4	3	11.5	
Middle	12	46.2	16	61.5	15	55.1	
High	7	26.9	6	23.1	8	30.8	

Note. [a]One-way ANOVA test values reported, [b]Chi square's exact test values reported, *M* = mean, *SD* = standard deviation

* Indicates statistical significance ($p \leq .05$)

6.2.5 Clinical Characteristics of the Final Sample

As indicated by the one-way analysis of variance test, values and chi square's exact test values in Table 4, there were no significant differences in baseline clinical variables between the fitspiration, self-love and neutral group ($p > .05$).

Table 4.

Clinical Variables for the Final sample, Including Screen Time Measures

	Completers (*N*=78)		**Excluded (*N*=29)**		**Excluded (*N*=29)**		
Variable	***M***	***SD***	***M***	***SD***	***M***	***SD***	***p***
Body comparison	35.85	10.28	34.31	9.79	33.31	9.28	0.643
EDE-Q *M (SD)* [a]							
EDE-Q concern	6.58	6.33	6.35	6.01	6.96	7.02	0.942
EDE-Q restraint	7.19	5.95	8	5.58	7.53	6.06	0.906
EDE-Q shape	22.65	12.42	24.5	13.21	21.65	14.42	0.739
EDE-Q weight	11.69	6.89	12.73	8.4	11.62	8.78	0.854
EDE-Q total	48.12	27.51	51. 58	33.1	47.77	33.49	0.89
Photo investment[a]	367.91	101.21	264.91	118.35	378.84	97.15	0.891
Photo modification[a]	20.27	7.26	18.12	6.47	19.23	6.4	0.516
Internalisation[a]	102.04	19.04	95.42	16.34	97.96	23.24	0.487
Self-esteem[a]	27.96	5.5	26.85	5.66	25.62	5.21	0.306
Social media total[a]	46.64	6.64	45.62	6.65	46.5	7.02	0.804
Variable	***N***	***%***	***N***	***%***	***N***	***%***	***p***
Time on favourite SNS[b]							0.874
0 – 30 minutes	0	0	0	0	0	0	
31 – 60 minutes	1	3.8	0	0	1	3.8	
61 – 90 minutes	1	3.8	2	7.7	1	3.8	
91 –120 minutes	2	7.7	2	7.7	6	23.1	
121– 150 minutes	3	11.5	3	11.5	1	3.8	
151 – 180 minutes	3	11.5	4	15.4	3	11.5	
181 – 210 minutes	3	11.5	4	15.4	2	7.7	
211 – 240 minutes	5	19.2	2	7.7	3	11.5	
241 minutes [+]	8	30.8	9	34.6	9	34.6	
SNS daily time[b]							0.569
0 – 30 minutes	2	7.7	1	3.8	2	7.7	
31 – 60 minutes	6	23.1	6	23.1	9	34.6	
61 – 90 minutes	9	34.6	12	46.2	5	19.2	
91 –120 minutes	3	11.5	0	0	3	11.5	
121– 150 minutes	1	3.8	4	15.4	2	7.7	
151 – 180 minutes	2	7.7	0	0	3	11.5	
181 – 210 minutes	2	7.7	1	3.8	1	3.8	
211 – 240 minutes	1	3.8	1	3.8	1	3.8	
241 minutes [+]	0	0	1	3.8	0	0	

Liking appearnce based content [a]	6.19	1.02	5.81	1.33	5.88	0.95	0.423
Commenting on appearnce based content [a]	2.35	1.02	2.12	1.07	2.691	0.09	0.149
Uploaded photos [b]							0.24
Other photos	6	23.1	8	30.8	3	11.5	
Photos of self	20	76.9	18	69.2	23	88.5	
Following appearance-based content [b]							0.174
No appearance-based content pages	3	11.5	4	15.4	3	11.5	
At least one	14	53.8	8	30.8	6	23.1	
More than two	9	34.6	14	53.8	17	65.4	

Note. [a]One-way ANOVA test values reported, [b]Chi square's exact test values reported, ST refers to screen time social media time, *M* = mean, *SD* = standard deviation * Indicates statistical significance ($p \leq .05$)

6.3 Analysis of the Impact of Social Media Exposure

For the primary hypotheses, only participants in the final sample were included.

6.3.1 Impact of Experimental Exposure Conditions on Appearance and Overall Self-esteem

It was predicted that after exposure to the 'fitspiration' condition, participants would score lower on the appearance subcomponent of state self-esteem than participants in the self-love positive and control condition. A one-way ANOVA with pairwise comparisons using Tukey Honestly Significance Difference procedure was conducted to test the primary hypothesis one. As presented in Table 5, at post-exposure, the participants in the fitspiration group had an average appearance self-esteem (ASE) score of 18.46 (*SD* = 4.84); the participants in the self-love group had an average ASE score of 19.44 (*SD* = 5.74); and the participants in the neutral group had an average ASE score of 18.81 (*SD* = 5.02) (F (2,75) = .231, p = .795, η^2 = .006). Therefore, the effect of the social media condition on ASE was not significant.

At post-exposure, the participants in the fitspiration group had an average overall state self-esteem (SE) score of 68.38 (*SD* = 12.95); the participants in the self-love group had an average overall state SE score of 73.04 (*SD* = 16.61); and the participants in the neutral group had an average overall SE score of 69.60 (*SD* = 12.85). A one-way ANOVA indicated that there were no significant differences between the

groups based on overall state self-esteem after experimental exposure (F (2,75) = .730, p = .486, η^2 = .020).

6.3.2 Impact of Experimental Condition on Mood

It was predicted that after exposure to the 'fitspiration' condition, participants would score worse (higher) on total state mood as reflected by total mood disturbance scores, than participants in the self-love positive and control condition. See Table 5 for further details.

6.3.2.1 Impact on Total Mood Disturbance Score

At post-exposure, the participants in the fitspiration group had an average total mood disturbance (TMD) score of 46.58 (SD = 24.26); the participants in the self-love group had an average MDS of 17.81 (SD = 15.10); and the participants in the neutral group had an average MDS of 33.70 (SD = 22.87), F (2,75) = 12.11, p = <. 001, partial η^2 = .244. The effect of the social media exposure on total mood was therefore significant.

Pairwise comparisons of the means using the Tukey Honestly Significance Difference procedure indicated that there were two significant comparisons between the groups for MDS. Participants in the fitspiration condition (M = 46.58) scored significantly higher (worse) (p ≤. 001) than the participants in the self-love condition (M = 17.81), 95% CI [14.77, 42.77] after the exposure to the experimental condition. The comparison between the fitspiration and neutral group was insignificant (p = .078). However, there was a significant difference in TMD score between the neutral and self-love group. Participants in the neutral condition (M = 33.69) scored significantly higher (worse) (p = .022) than the participants in the self-love condition (M = 17.81), 95% [1.88,29.89]. Therefore, hypothesis two was supported.

Table 5.

One-way Analysis of Variance of Experimental Outcomes Before and After Social Media Exposure across Groups

	Fitspiration (n=28)		Self-love (n=28)		Neutral (n=28)			
Outcome Variable	***M***	***SD***	***M***	***SD***	***M***	***SD***	**F (2, 75)**	η_p^2
Body dissatisfaction (T1)	7.77	3.05	8.27	2.75	8.62	3.11	8.96**	.193
Body dissatisfaction (T2)	9.42	3.35	5.73	2.86	7.57	3.20		
POMS Neg (T1)	32.04	23.59	28.23	22.64	34.73	26.15	9.25**	.198
POMS Neg (T2)	64.85	20.26	43.35	11.80	53.62	20.63		
POMS Pos (T1)	13.54	6.62	15.39	4.36	12.42	5.41	9.35**	.199
POMS Pos (T2)	18.27	7.29	25.54	6.24	19.92	5.40		
POMS MDS (T1)	18.50	25.27	12.85	23.80	22.31	28.65	12.11**	.244
POMS MDS (T2)	46.58	24.26	17.81	15.06	33.69	22.86		
Self-esteem Tot (T1)	66.31	11.49	67.08	11.93	61.85	14.42	.73	.020
Self-esteem Tot (T2)	68.38	12.95	73.04	16.61	69.60	12.85		
Appearance self-esteem (T1)	18.04	4.54	18.34	4.00	17.89	4.30	.23	.006
Appearance self-esteem (T2)	18.46	4.84	19.44	5.74	18.90	5.15		

Note.T1 refers to pre social media exposure, T2 refers to post social media exposure, POMS refers to the Profile of Moods Questionnaire for state mood, POMS Pos refers to the positive mood subcomponent in the POMS scale, POMS Neg refers to the negative subcomponent in the POMS scale, POMS MDS refers to the total mood disturbance score for all mood components, with greater scores indicating worse mood, * $p < .05$, ** < .001

6.3.2.2 Impact on Positive Mood States

At post-exposure, the participants in the fitspiration group had an average total positive mood subscale score of 18.27 (*SD* = 7.29); the participants in the self-love group had an average of positive mood subscale score of 25.54 (*SD* = 6.24); and the participants in the neutral group had an average positive mood subscale score of 19.92 (*SD* = 5.40), F (2,75) = 9.35, $p \leq .001$, partial $\eta^2 = .199$. Thus, the effect of the social media exposure on the positive mood states was significant.

Pairwise comparisons of the means using the Tukey Honestly Significance Difference procedure indicated that there was only one significant comparison between the groups for a positive mood subscale score. Participants in the fitspiration condition (*M* = 18.27) scored significantly lower (worse) on the positive mood subscale ($p \leq .001$) than the participants in the self-love condition (*M* = 25.54), 95% CI [-11.48, -3.05]. The comparison between the fitspiration and control (neutral) group, and the self-love and control group were not significant ($p = > .05$). Thereby, compared to the fitspiration group, participants in the self-love groups' mood improved after viewing the social media feed.

6.3.2.3 Impact on Negative Mood States

At post-exposure, the participants in the fitspiration group had an average total negative mood subscale score of 64.85 (*SD* = 20.26); the participants in the self-love group had an average of negative mood subscale score of 43.35 (*SD* = 11.80); and the participants in the neutral group had an average negative mood subscale score of 53.62 (*SD* = 20.63), F (2,75) = 9.25, $p \leq .001$, $\eta^2 = .198$.

Pairwise comparisons of the means using the Tukey Honestly Significance Difference procedure indicated that there was one significant comparison between the groups for negative mood subscale score. Participants in the fitspiration condition (*M* = 64.85) scored significantly higher (worse) on the negative mood subscale ($p \leq .001$) than the participants in the self-love condition (*M* = 43.35), 95% CI [9.54, 33.46]. The comparison between the fitspiration and neutral group was insignificant ($p = .070$). Thereby, compared to the self-love group, participants in the fitspiration group scored worse on mood after viewing the social media feed.

6.3.3 Impact on Body Dissatisfaction

Finally, it was predicted that after exposure to the 'fitspiration' condition, participants would score higher on body dissatisfaction than participants in the self-love positive and control condition.

At post-exposure, the participants in the fitspiration group had an average body dissatisfaction of 9.42 (*SD* = 3.35); the participants in the self-love group had an average body dissatisfaction of 5.73 (*SD* = 2.87); and the participants in the neutral group had an average body dissatisfaction of 7.58 (*SD* = 3.20), F (2,75) = 8.96, $p \leq$ .001, η^2 = .193.

Pairwise comparisons of the means using the Tukey Honestly Significance Difference procedure indicated that there were two significant comparisons between the groups for body dissatisfaction. Participants in the fitspiration condition (*M* = 3.70) scored significantly higher (p ≤. 001) than the participants in the self-love condition (*M* = 1.85), 95% CI [1.60, 5.78]. The comparison between the fitspiration and neutral group was not significant (p = .093). Thereby, compared to the self-love group, participants in the fitspiration group were significantly more dissatisfied with their appearance after viewing the social media content. Thus, hypothesis three was also supported.

6.4 Relationship between clinical and social media risk variables

To test the hypothesis that there would be a significant correlation between the baseline clinical and social media risk variables, a two-tailed bivariate Pearson correlation was used to measure the strength and direction of the linear relationships between the clinical variables. Intercorrelations between the clinical variables for the final sample (n = 78) are presented in Table 6. and summary of significant correlations is presented below.

There was a significant positive association between thin internalisation and photo modification (r(75) = .24, $p \leq .05$), photo investment (r(75) = .41, $p \leq .001$), body comparison (r(75) = .60, $p \leq .001$), all the eating disorder scales, liking appearance-based content (r(75) = .35, $p \leq .001$), following appearance-based content (r(75) = .26, $p \leq .05$), and social media total scores (r(75) = .39, $p \leq .001$).

Photo modification was significantly positively correlated with liking appearance-based content (r (75) = .27, $p \leq .05$), and social media total scores (r (75) = .30, $p \leq .001$). Photo investment was significantly positively correlated with internalisation (r(24) = .29, $p \leq .05$), body comparison behaviour (r(75) = .37, $p \leq .001$) and all eating disorder behaviour subscales.

Body comparison behaviour was significantly positively correlated with internalisation (r(75) = .60, $p \leq .001$), photo investment (r(75) = .37, $p \leq .001$), the eating disorder scales, and social media total scores (r(75) = .23, $p \leq .05$).

Liking appearance-based content was significantly positively associated with, following appearance-based content (r(75) = .28, $p \leq .05$), and social media total scores (r(75) = .36, $p \leq .001$). Commenting on appearance-based content was significantly positively associated with social media total scores (r (75) = .41, $p \leq .001$).

Screen time daily social media time was significantly correlated with all eating disorder scales, social media total scores (r(75) = .42, $p \leq .001$), social media favourite time (r(75) = .72, $p \leq .001$), screen time favourite time (r(75) = .43, $p \leq .001$).

Table 6.

Correlations Between Baseline Variables

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1) Internalisation	—															
2) Photo Modification	.237*	–														
3) Photo Investment	.408**	.234	–													
4) Body comparison	.601**	.192	.369**	–												
5) EDE-Q Total	.544**	.137	.459**	.690**	–											
6) EDE-Q Concern	.468**	.168	.393**	.590**	.883**	–										
7) EDE-Q Restraint	.386**	.040	.356**	.567**	.796**	.587**	–									
8) EDE-Q Shape	.572**	.148	.451**	.660**	.966**	.815**	.687**	–								
9) EDE-Q Weight	.489**	.124	.455**	.666**	.950**	.818**	.686**	.904**	–							
10) Liking appearance-based content	.349**	.267*	.032	.156	.083	-.015	.027	.149	.067	–						
11) Commenting on appearance-based content	.138	.148	.052	-.036	-.120	-.123	-.139	-.074	-.134	.176	–					
12) ABC Content	.259*	.183	.045	.129	.073	-.031	.172	.087	.027	.284*	.179	–				
13) Uploaded Photos	.087	-.035	.042	-.073	-.097	-.046	-.160	-.066	-.102	.179	.045	.068	–			
14) SM Total	.390**	.301**	.148	.234*	.285*	.277*	.138	.313**	.259*	.361**	.413**	.299**	.049	–		
15) ST Daily Time	.095	.107	.110	.141	.336**	.320**	.258*	.325**	.307**	-.004	-.029	-.001	-.072	.417**	–	
16) ST Favourite Time	.083	.053	.043	.031	.262*	.313**	.091	.266**	.59*	.084	.034	.002	.082	.410**	.617**	

Note. EDE-Q refers to the Eating Disorder Examination Questionnaire, ABC refers to Appearance-based Content, SM refers to Social Media, ST refers to Screen Time, * $p <$ .05, ** < .001

6.5 Multiple Regression Analysis for Experimental Variables

It was hypothesised that online social networking site behaviour would influence the impact of the randomised condition on the outcome measures. To test hypothesis five, a multiple regression by enter method was conducted to determine which of the above models and variables explained the most variance in each of the outcome variables.

6.5.1 Predicting Body Dissatisfaction Post Exposure

Variables entered into the regression for post-exposure body dissatisfaction were baseline (T2) body dissatisfaction, experimental condition, negative and positive mood states (T2), thin internalisation, photo investment, body comparison, the EDE-Q restraint and concern subscales, and total social media time (see Table 7). In the final model, 62% of the variance in body dissatisfaction (T3) was explained by the included variables (F (10, 58) = 9.560, p <.001**,** R^2 = 0.62, $R^2_{adjusted}$ = 0.559), with body dissatisfaction (T2) *(*β = 0.62, t = *5.79,* p = <.001) and the group of exposure (β = -1.79, t = *-5.05,* p = <.001) remaining the only significant contributors to the model.

6.6.2 State and Appearance Self-esteem Post Social Media Exposure

Variables entered into the regression for post-exposure state and appearance self-esteem were baseline (T2) body dissatisfaction, experimental condition, negative and positive mood states (T2), thin internalisation, photo investment, body comparison, the EDE-Q restraint and concern subscales, and total social media time.

The regression models for state self-esteem (F (11, 57) = .752, p =.684, R^2 = .127, $R^2_{adjusted}$ = -.042) and appearance self-esteem (F (11, 57) = .980, p =.475, R^2 = 0.159, $R^2_{adjusted}$ = -.003) failed to produce a model that was statistically significant and none of the variables contributed significantly to state self-esteem (T3).

Table 7.

Multiple Regression by Enter Method for Post-Exposure Body Dissatisfaction (T3)

Variable	*B*	95% CI for *B*		*SE B*	R	R^2
		LL	*UL*			
Model 1					.40***	.16
Constant	10.83***	8.83	12.83	1.00		
Group	-1.66	-2.58	-.74	.46		
Model 2					.76***	.57
Constant	5.51***	3.54	7.47	.99		
Group	-1.09**	-1.86	-0.32	0.38		
Body dissatisfaction (T2),	0.72***	0.50	0.93	0.11		
Model 3					.77***	.59
Constant	5.62***	2.96	8.29	1.33		
Group	-1.87***	-2.60	-1.27	.33		
Body dissatisfaction (T2)	.66***	.46	.85	.10		
POMS Neg (T2)	0.02	-0.00	0.04	.01		
POMS Post (T2)	-.03	-.13	.08	.05		
Model 4					.79***	.62
Constant	4.60	-.50	9.70	2.55		
Group	-1.79***	-2.50	-1.08	.35		
Body dissatisfaction (T2)	.062***	.41	.84	.11		
POMS Neg (T2)	.01	-.01	.04	.01		
POMS Pos (T2)	-.03	-.14	.08	.06		
Internalisation	.02	-.02	.05	.02		
Photo Investment	-.00	-.01	.00	.00		
Body Comparison	.04	-0.05	.12	.04		
EDE-Q concern	.00	-.14	.15	.07		
EDE-Q restraint	.02	-.09	.14	.06		
SM Total	.00	-.09	.09	.05		

Note. CI= confidence interval; *LL* = lower limit; *UL* = upper limit, POMS refers to the Profile of Moods Scale, POMS Pos refers to the positive mood subcomponent in the POMS scale, POMS Neg refers to the negative subcomponent in the POMS scale, EDE-Q refers to the Eating Disorder Examination Questionnaire, SM refers to Social Media, *** p <.001, ** p <.01, * p <.05

6.6.3 Predicting Mood Post Social Media Exposure

6.6.3.1 Predicting negative mood state post social media exposure

Variables entered into the regression for post-exposure negative mood state were baseline (T2) experimental condition, negative and positive mood states (T2), body dissatisfaction (T2), state self-esteem (T2), thin internalisation, photo investment, body comparison, the EDE-Q restraint and concern subscales, and total social media time.

As depicted in Table 8, results indicated that the final model explained 77% of the variance in POMS Negative mood state (T3), F (11, 57) = 16.868, p = <.001, R^2 = .765, $R^2_{adjusted}$ = .720. Looking at the unique individual contributors of the predictors in the final model, the results showed that POMS Negative (T2) *(*β = 0.636, t = 8.064, p = <.001), state self-esteem (T2) *(*β = 0.429, t = 2.312, p = 0.24), internalisation *(*β = 0.188, t = 2.196, p = .032) and group of exposure *(*β = -8.120, t = *-4.758*, p = <0.001) significantly negatively predicted POMS Negative post exposure.

6.6.3.2 Predicting positive mood state post social media exposure

Variables entered into the regression for post-exposure positive mood state were baseline (T2) experimental condition, positive mood states (T2), body dissatisfaction (T2), state self-esteem (T2), negative mood states, thin internalisation, photo investment, body comparison, the EDE-Q restraint and concern subscales, and total social media time.

As depicted in Table 9, results indicated that model four explained 68% of the variance in POMS Positive (T3) can be accounted for by the eleven predictors, collectively, and that it was significant, F (11, 57) = 11.110, p = <.001, R^2 = 0.682, $R^2_{adjusted}$ = 0621. Looking at the specific individual contributors of the predictors in final model, POMS Positive (T2) *(*β = 0.827, t = 6.412, p = <.001) and group of exposure *(*β = 2.932, t = 4.151, p = <.001) only contributed to the model.

Table 8.

Multiple Regression by Enter Method for Negative Mood States (T3)

Variable	*B*	95% CI for *B*		*SE B*	R	R^2
		LL	UL			
Model 1					.395***	.156
Constant	72.598***	60.447	84.748	60.87		
Group	-9.837***	-15.410	-4.265	2.792		
Model 2					.837***	.701
Constant	51.821***	43.612	60.030	4.112		
Group	-9.2263***	-12.607	-5.919	1.675		
POMS Neg (T2)	.608***	.497	.719	.055		
Model 3					.848***	.719
Constant	29.622*	.775	58.469	14.435		
Group	-8.876***	-12.257	-5.494	1.692		
POMS Neg (T2)	.712***	.560	.864	.076		
POMS Pos (T2)	-.369	-1.007	.270	.320		
Body dissatisfaction (T2)	.053	-.997	1.103	.525		
State self-esteem (T2)	.352	-.015	.719	.184		
Model 4					.875***	.765
Constant	1.496	-33.043	36.036	17249		
Group	-8.120***	-11.537	-4.703	1.707		
POMS Neg (T2)	.636***	.478	.794	.079		
POMS Pos (T2)	-.350	-.974	.275	.312		
Body dissatisfaction (T2)	-.195	-1.278	.889	.541		
State self-esteem (T2)	.429*	0.02	.057	.19		
Internalisation	.188*	.017	.357	.085		
Photo Investment	-.003	-.032	.025	.014		
Body comparison	-1.25	-5.29	.279	.202		
EDE-Q concern	.387	-.334	1.109	.306		
EDE-Q restraint	.085	-.496	.639	.277		
SM Total	.232	-.215	.678	.223		

Note. CI= confidence interval; *LL* = lower limit; *UL* = upper limit, POMS refers to the Profile of Moods Scale, POMS Pos refers to the positive mood subcomponent in the POMS scale, POMS Neg refers to the negative subcomponent in the POMS scale, EDE-Q refers to the Eating Disorder Examination Questionnaire, SM refers to Social Media, *** p <.001, ** p <.01, * p <.05

Table 9.

Multiple Regression by Enter Method for Positive Mood States (T3)

Variable	*B*	95% CI for *B*		*SE B*	R	R^2
		LL	UL			
Model 1					.337*	.114
Constant	14.904***	10.473	19.334	2.220		
Group	2.983*	.951	5.015	1.018		
Model 2					.789***	.623
Constant	3.100	-.735	6.935	1.921		
Group	2.932***	1.051	3.733	.672		
POMS Pos (T2)	.963***	.759	1.166	.102		
Model 3					.803***	.644
Constant	-4.973	-16.523	6.577	5.780		
Group	2.558***	1.204	3.912	.677		
POMS Pos (T2)	.833***	0.64	.577	1.089		
Body dissatisfaction (T2)	-.022	-.442	.399	.210		
State self-esteem (T2)	-.125	-.022	.272	.074		
POMS Neg (T2)	.051	-.009	.112	.031		
Model 4					.826***	.682
Constant	-11.217	-25.513	3.078	7.139		
Group	2.932***	1.518	4.346	.706		
POMS Pos (T2)	.827***	.569	10.86	.129		
Body dissatisfaction (T2)	-.081	-.529	.368	.224		
State self-esteem (T2)	.123	-.031	.276	.077		
POMS Neg (T2)	.035	-.030	.101	.033		
Internalisation	-0.01	-0.09	0.07	0.04		
Photo Investment	.009	-.062	.080	.035		
Body comparison	.129	-.039	2.96	.083		
EDE-Q concern	-.149	-.447	.149	.149		
EDE-Q restraint	.018	-.211	.247	.115		
SM Total	.013	-.172	.198	.092		

Note. CI= confidence interval; *LL* = lower limit; *UL* = upper limit, POMS refers to the Profile of Moods Scale, POMS Pos refers to the positive mood subcomponent in the POMS scale, POMS Neg refers to the negative subcomponent in the POMS scale, EDE-Q refers to the Eating Disorder Examination Questionnaire, SM refers to Social Media, *** p <.001, ** p <.01, * p <.05

6.5 Thematic Analysis Themes

A thematic analysis was conducted based on the writing task for each of the conditions. All themes are presented in Table 12. Approximately six to eight themes were identified from for each condition. For the fitspiration condition unrealistic body ideals, body dissatisfaction, motivation to exercise, self-consciousness, reduced mood, reinforcing values and the concerning nature of diet culture was evident. For the self-love condition, key themes that emerged were body gratitude, focus on health, improved mindset, body acceptance, normalisation of imperfections, motivation and self-care. Finally, for the neutral condition, shift in attention, neutral, unchanged, relaxed, motivation to increase health and creativity were established as key themes.

Table 10.

Themes Identified in the Thematic Analysis of the Participants' Writing Tasks by Groups

	Fitspiration (*n* = 26)		**Self-love (*n* = 26)**		**Neutral (*n* = 26)**
Theme (frequency)	**Participant Example**	**Theme**	**Participant Example**	**Theme**	**Participant Example**
Body dissatisfaction (10)	Participant 040: "I feel bad about my body not being small or attractive"	Body gratitude (7)	Participant 077: "I am grateful for my body for what it is capable of, and what it has gotten me through"	Motivation to be healthier (6)	Participant 045: "I feel inspired to fuel my body with lots of healthy fruits and vegetables, I even want to make my own veggie garden"
Unrealistic Body Ideals (8)	Participant 040: "The bodies do not seem very realistic for me and my lifestyle on the whole"	Improved mindset (7)	Participant 068: "Too hard on myself for the way I look & punish myself for it. After viewing the feed, I feel empowered to change my mindset surrounding myself and body image"	Relaxed (5)	Participant 075: "I feel less stressed, and my muscles feel relaxed"
Motivation to exercise (8)	Participant 073: "I feel like I want to go to the gym and increase my tone"			Shift in attention (4)	Participant 024: "I'm not so focused on how my body looks right now; it is not at the forefront of my mind"
Worsened mood (7)	Participant 010: "I feel uneasy and embarrassed"	Self-acceptance (6)	Participant 005: "More loving toward, accepting, and even proud of my body"		
Self-conscious (5)	Participant 043: "More self-conscious about my appearance"	Focus on Health (5)	Participant 077: "I focus on things that don't matter and my body is beautiful, most importantly it is healthy"	Neutrality (4)	Participant 015: "I feel pretty neutral about my body image right now"
Reinforced values (5)	Participant 073: "The images do not align with my physical goals and idea of beauty"	Self-care (5)	Participant 062: "I feel like I need to take better care of my body and learn habits of rest"	Unchanged (4)	Participant 033: "My attitude towards my body shape did not change"
Diet culture concerns (5)	Participant 064: "I feel diet culture can be so toxic	Normalisation of imperfections (4)	Participant 026: "Everyone has imperfections. There are also other people with a body like mine meaning my body is a norm, because there is no norm, just diversity"	Creativity (4)	Participant 066: "Inspired me to do some creative things in the garden"
		Motivated (4)	Participant 044: "Motivated to love and look after myself"		

Note. Reported number of themes do not equate the total number of participants in each condition, but the number of participants who reported the specific theme.

Chapter 7: Discussion

7.1 Overview

The aim of the study was to explore whether exposure to a social media feed of fitspiration content negatively impacted state body image, mood, and self-esteem. The study also aimed to determine what social media activities, sociocultural behaviours, and clinical indicators make individuals most vulnerable to the impact of social media content on state self-esteem, body dissatisfaction, and mood. This chapter summarises the main findings and integrates the results into existing literature. Theoretical and clinical implications of the current study are then discussed, and the strengths and limitations of the present study are explored. Lastly, recommendations for future research are made.

7.2 Summary of the Key Findings

In accordance with the primary hypothesis two and three, the participants who viewed the fitspiration content experienced statistically significant reductions in body image as reflected by higher body dissatisfaction, compared to participants who viewed the self-love content. In addition, participants who viewed the fitspiration content experienced statistically significant worsened mood as reflected by higher mood disturbance scores after exposure, compared to participants who viewed the self-love content. Conversely, participants who viewed the self-love content experienced statistically significant increases in body satisfaction and mood after exposure. Interestingly, hypothesis one was unsupported in that participants in the fitspiration condition did not score significantly lower on the state appearance self-esteem subscale of state self-esteem.

The impact of social media content was also highlighted in the qualitative themes of the writing tasks. Participants assigned to the self-love condition demonstrated themes toward greater self-love, with popular themes identified being body gratitude, improved mindset, and self-acceptance. Participants in the fitspiration condition reflected themes of body dissatisfaction, unrealistic body ideals, worsened

mood, and motivation to exercise. The most prominent themes for participants in the neutral condition were motivation to be healthier and feelings of relaxation. Thus, the thematic analysis further suggests the psychological benefits associated with increasing exposure to self-love and neutral content and limiting exposure to fitspiration content.

In terms of the variables that may increase susceptibility to the impact of body-related social media, thin-ideal internalisation was the only variable that was most consistently correlated with all variables, particularly total eating disorder symptomology, and weight and body shape concerns. Similarly, body comparison behaviour was significantly positively correlated with total eating disorder symptomology and concerns related to shape and weight. Further regression analysis indicated that pre-exposure state body dissatisfaction and state mood, and the type of social media content participants were exposed to most consistently predicted post-exposure body dissatisfaction and mood states. Specifically, the models revealed that body dissatisfaction pre-exposure and type of social media content exposed to were key predicters of body dissatisfaction post-exposure. Negative mood states and state self-esteem pre-exposure, thin internalisation behaviour, and group of exposure were significant predictors of negative mood state post-exposure. Moreover, positive mood states pre-exposure and the type of social media content exposed to, were the only significant predictors of positive mood state after exposure. Apart from the internalisation of body ideals significantly predicting negative mood states post exposure, the remaining sociocultural and social networking site behaviours did not explain a significant proportion of the variance in the primary outcome variables.

In addition, it is noteworthy that individuals who completed the initial questionnaire but did not register to participate in the experimental part of the research (i.e., excluded sample) scored significantly higher on body image and eating disturbance, and lower on trait self-esteem than those who did register and completed the final component of the study. It could be hypothesised that the excluded group dropped out due to greater body image concerns and being anxious about participating in a study about this, and that they may be more vulnerable to the effects of social media use on body image, eating disturbance, and self-esteem. Thereby the effect of the experimental conditions on the excluded sample could have stronger if the excluded sample were exposed to the social media conditions, however this remains a

speculation.

7.3 Integration into Existing Literature

The findings that participants who were exposed to fitspiration content experienced significant reductions in state mood and worsened body dissatisfaction are consistent with previous studies which found that exposure to fitspiration content can have an adverse impact on females' mood and perceptions regarding their physical appearance (Ahadzadeh & Sharif, 2017; Brown & Tiggemann, 2016; Cohen et al., 2017; Fardouly & Vartanian, 2016; Fardouly et al., 2018; Hendrickse et al., 2017; Kleemans et al., 2018; Ridgeway & Clayton, 2016; Tiggemann & Zaccardo, 2015). Similar findings are evident in previous studies that have demonstrated the adverse impact of appearance-based photographs in magazines on females' body image (Gabe et al., 2008; Groesz et al., 2002; Rounds et al., 2021; Want, 2009). Moreover, a previous experimental and ecological momentary assessment study supports the positive impact of self-love and body positive content on mood and affect (Cohen et al., 2019; Serlin, 2020).

The above results oppose the findings of another study that found that exposure to fitspiration SNS did not negatively impact negative mood (Slater et al., 2017). The differences could be attributed to methodological discrepancies between the two studies such as a shorter duration and low number of images (20 versus 169 images). Despite the researchers (Slater et al., 2017) using hashtags such as "#fitspo" to replicate real-life Instagram captions, the ecological validity of the study may likely be restricted due to the low number of images and inability for participants to 'naturally' select photographs to view. Though, a study by Tiggemann and Zaccardo (2015) did have a similar methodological design to the above study and yielded findings consistent with the present study in that acute exposure to fitspiration images had a negative effect on state mood.

The present findings for the thematic analysis are comparable to a recent mixed-methods study on body image in New Zealand (Poulter & Treharne, 2021) and similar international studies (Burnette et al., 2017; Deighton & Bell, 2018). Thus, the results emphasise the importance of self-love content to promote body positivity, body appreciation, and self-acceptance (Lazuka et al., 2020). The findings therefore support

the body positive movement, which rejects unattainable and narrow beauty ideals and motivates people to challenge mainstream societal message and embrace diverse body figures and sizes as being attractive (Cohen et al., 2019). Pages that resemble body positive content utilise strategies that enable users to better resist the pursuit of the thin-ideal. Thus, it aims to facilitate greater body appreciation of oneself and others' figures (Cohen et al., 2019). Thereby, as suggested by the above findings, exposure to body positive content via SNS could serve as a protective avenue for body image, mood, and general psychological wellbeing.

Despite not all pre-intervention variables being significantly correlated, the association between total social media, body concern, shape concern, and eating behaviour was significantly positively correlated, which is comparable to past research. As outlined in the introduction, SNS use is associated with body image concerns (Tiggemann & Slater, 2013; 2014) and eating disturbance (Aparicio-Martinez et al., 2019; Mabe et al., 2014; Sidani et al., 2016). The findings from the present study are also consistent with a previous meta-analysis that found that social networking is positively related to body image concerns and disordered eating (Holland & Tiggemann, 2016). Therefore, the results strengthen the current literature on social media, body image, and eating disturbance. Thus, indicating that social media can in fact be perceived as a sociocultural influence that, when engaged with, can elicit processes that can impact changes in body image, mood, and eating outcomes.

7.4 Possible Explanations to the Lack of Change in State Self-esteem

Contrary to the expectancy that participants who were exposed to the fitspiration content would score lower on appearance state self-esteem, participants exposed to the fitspiration did not experience a statistically significant reduction in appearance state self-esteem compared to the self-love and neutral condition. There could be several reasons for this. For example, a comparable study randomly allocated participants to a fitspiration or travel condition and measured the impact of the images on inspiration, mood, and body dissatisfaction (Tiggemann & Zaccardo, 2015). Unlike the present study, state self-esteem was only measured after viewing and rating the images. Comparable to the present study, no differences were present between the groups on performance and social self-esteem. However, there were significant between-group differences on appearance state self-esteem. It is however noteworthy

that state self-esteem was not measured before the exposure, hence within-group differences cannot be established. It is therefore of importance to consider the recency effect in the present study, given that the pre and post exposure state self-esteem scale only occurred 16 to 20 minutes apart (Baddeley & Hitch, 1993). Another difference in the above study is that participants had to view all images and actively rate each, which varies from the present study in that participants did not have to view photographs that may have altered their self-esteem.

Another explanation for the lack of effect on self-esteem is the visual information and context given to the participants. On social media, context is provided through elements such as profiles, captions, likes, comments, and pre-existing knowledge of the individual (Bauer, 2020). Without social media interaction such as liking and commenting on posts, participants may feel unengaged and presented with images that lack meaning and may therefore have less of an effect on body image. Influencers connect with their followers by sharing frequent content andoccasionally vulnerable aspects of their life on Instagram. Therefore, the page structure in the present study could have stripped individuals and influencers of their backgrounds and the power of social norms and connection. Thus, participants may have lacked relatability to the pages displayed and thus not have been affected as much.

It is also viable that the study design could have diminished the effect of the social media content on state self-esteem. The current study included a brief writing task where participants could view the feed, then write about how the social media exposure made them feel about themselves. Since humans are driven to maintain a positive image (Festinger, 1954), the writing task could have provided participants with the opportunity to use cognitive restructuring to recover from negative emotions and perceptions regarding their body image. The detrimental impact of social comparison processes (especially appearance-related comparison) can be reversed through conscious processing (Want, 2009). Thus, the task could have elicited defensive reasoning in some participants by giving participants time to process, reflect and analyse the content viewed in relation to their personal values and attitudes on physical attractiveness. More specifically, comments in the fitspiration writing tasks revealed that the task allowed females time to criticise the content and manifest thoughts and emotions more consistent with their innate beliefs. For example, participants quoted

“looking at the whole page does make me more critical in that I realise some of the images are unrealistic” (019) and “I associate achieving that body image with being all consuming and not fulfilling in life; thereby, it reinforced my values and love and appreciation for my body, but only because I am so aware” (participant 001). In turn, the writing task could elicit reflective processes that could diminish the immediate effect of the 15-minute Instagram exposure on state self-esteem. Therefore, the task may exhibit a protective mechanism that mitigates the detrimental effects of thin ideals by allowing individuals to reaffirm their values and interpret the content more critically.

In line with the TIMBE model (Thompson et al., 1999), thin-ideal internalisation and social comparison were the two variables most consistently positively correlated with social media use, body image, and eating disturbance at a statistically significant level. Consistent with the present study, engaging in appearance comparisons on SNS has been shown to predict greater body dissatisfaction and bulimic symptoms in young adult females (Smith et al., 2013). Previous literature has also shown an association between greater social media use, thin-internalisation and appearance comparisons (Bauer, 2020; Mingoia et al., 2017), higher internalisation of appearance ideals, and greater body dissatisfaction (De Vries & Kuhne, 2015; McLean et al., 2015; Sampasa-Kanyinga et al., 2016).

7.5 Theoretical, Clinical and Media Implications

Due to the study's novel exploratory and explanatory nature, there are several implications arising from the present study.

The current research identified associations between time spent on social media, body dissatisfaction, and eating disturbance in the study's first phase. It also demonstrated a causal association between fitspiration content on Instagram, state body image, and mood disturbance compared to the self-love content in the second experimental phase of the research. Therefore, the current research affirms the evidence for sociocultural models of disordered eating patterns and body image disturbance, wherein the frequency of Instagram use appears to be associated with higher scores on disordered eating symptoms, body dissatisfaction, and mood disturbance. The study findings contribute to the literature on body image and disordered eating. It supplements previous research that has investigated sociocultural models of disordered

eating and reiterates social media as a modern, digital form of pressure that precipitates adverse changes in body image and disordered eating behaviour (Aparicio-Martinez et al., 2019; Howard et al., 2017; Sidani et al., 2016; Walker et al., 2015).

The present study's findings also emphasise the positive effects associated with self-love and body positivity content, in that 15-minutes exposure to such content is sufficient to elicit a statistically significant effect on body image and mood in female adults. The lack of follow up has meant the lasting effects of the visual manipulation and writing task were undetermined. However, the study still reiterates the importance of increasing exposure to more body-positive, self-love and neutral content than fitspiration and appearance-based content on the media. Though 'healthy engagement' with social media may differ person-to-person (depending on individuals' beliefs, values, and morals), the research reiterates the societal level importance of greater positive content parallel with SNS ethics, individuals' broader competencies and abilities, body diversity, body appreciation, and glorification, compared to previously narrowed and body ideals featured on social media and sponsored advertisements (Cwyner-Horta, 2016). Given that a 15-minutes exposure to self-love and body positive content had a positive effect on state mood and body dissatisfaction, then self-love and neutral content could be perceived a potential protective factor to state body image and mood in females (Tiggemann & Zinoviev, 2019). As opposed to eliminating appearance-based photographs entirely, the current findings re-emphasise the importance of posting a higher frequency of body diverse and more natural looking photographs to help deteriorate the high number of highly edited images that tend to dominate typical social media applications (Tiggemann & Zinoviev, 2019).

The present findings suggest the importance of practitioners and professionals who work with females to be aware of the avenues and effects of digital communication and comparison. Health and educational professionals can support girls and women in body appreciation and lowering appearance comparisons on and offline. Healthier exposure to social media can be promoted by introducing self-love, body positive, and neutral content. Moreover, the above findings indicate the positive effects that may be associated with psychoeducation on content that may promote appearance comparisons and disturbance to body image. For example, teaching young people to recognise the emotions elicited by social media photographs, and restructuring the associated

perceptions according to one's values, beliefs, and morals, and social media one chooses to engage with. The present study findings therefore have important implications in the realm of social media literacy. For instance, educational initiatives oriented to social media literacy have shown promising findings for positive social media exposure and use (Mclean et al., 2017). Social media literacy involves attaining the skills and knowledge required to analyse, produce, participate, and evaluate social media (Boyd & Ellison, 2008). The affective component of social media literacy also includes the knowledge stored in viewers' memory that enables them to process and perceive the content (Lang, 2017). Teaching social media literacy is of importance for young people as it could decrease the extent to which online content impacts body image and eating patterns. For example, using critical thought about the types of photographs displayed and how this translates to the credibility of the photographs and profile than meaninglessly scrolling. Therefore, the implementation of social media literacy programmes comparable to the 'SoMe' programme (Gordon et al., 2020) and the Boost Body Confidence and Social Media Savvy intervention (McLean et al., 2017) could hold positive implications for social media-induced effects on body satisfaction and healthy eating behaviour in youth. Therefore, education can be used to harness the positive intentions behind policies developed for SNS to support young people in developing critical knowledge and emotional intelligence required to engage in healthier social media usage.

Policies and social movements initiated by SNS may aim to reduce physical and psychological harm to users. However, the study findings point to concerns regarding Instagram use and its social responsibility to truthfully implement and iterate public policy. For example, a particular concern regards the ethical dilemma associated with social media platforms' success being contingent upon time online. Regardless of women and young girls being advised to lower their exposure to social media platforms to prevent the perpetuation of body image concerns and eating disturbance, algorithms pose a threat to the maintenance and autonomy of individuals' distinct profiles through dictating user content and aiming to increase online user engagement. Therefore, adopting a more explorative and creative stance towards social media use may include using digital education on social media algorithms and how best to optimise such technological advances regarding one's health, identity, and goals. Clinicians could use psychoeducation and education on social media to offer creative suggestions such as

the use of 'hashtags', 'following', 'liking' of/and 'tagging' of friends in more self-love and neutral content, such as self-love, puppy pages or travel pages and photographs, to aid the cognitive restructuring and the recreation of online profiles. Thereby, practitioners can facilitate the development of healthier social media exposure and communication to aid body image and eating disturbance in females.

7.6 Strengths and Limitations

The previous sections of this chapter have discussed the potential explanations for the results of the present study and its broader implications. Numerous strengths can be identified from the study. To our knowledge, the present study is the first to utilise a mixed methods study design and demonstrate a causal relationship between acute exposure to fitspiration, self-love, and neutral content on Instagram on state mood and state body dissatisfaction in female adults. The findings solidify that fitspiration content, compared to self-love and neutral (garden) content, significantly worsen state mood and body image. In addition, as opposed to fitspiration and neutral content, self-love content significantly improved state mood and body image. The current study is also novel as it is the first known study to use an objective measure of social media (screen time) to examine the association between time on social media, body dissatisfaction, and eating behaviour. Using a randomised controlled trial with a qualitative writing task also enabled researchers to overcome the limitations associated with quantitative measures such as response styles and sets, scale format, and item wording (Gehlbach & Brinkworth, 2011; Weng, 2004). The writing task enabled a detailed understanding of the participants' cognitions, emotions, and broader attitudes about the content viewed and how this sits according to participants' sense of identity and belief systems. Another strength is the experimental phase of the study, which enables researchers to make a causal inference regarding the effects of the Instagram page on participants' state body satisfaction and mood.

Another strength was using multiple psychometrically sound scales assessing key factors thought to influence social media behaviour and impact. This enabled the gathering of more valid and reliable information consistent with the constructs being investigated as predictors of unhealthy social media use and body image concerns. As described in the method chapter of the study, the three Instagram pages were another strength as they were designed to be equally broad and as thorough as each other. For

example, the fitspiration page included a range of popular influencers and celebrities of different races and influencer styles to resemble an ecologically valid Instagram page. Randomisation to experimental groups also meant the study findings were due to the intervention (conditions) rather than influencing characteristics. Considering the groups had comparable sample characteristics, randomisation was successful, and the study results can be considered generalisable.

In addition to the above, the present intervention design (visual-manipulation) is not only cost-effective and straightforward but could also be administered by numerous health-related and educational professionals. Because of the simplicity of the visual manipulation and minimal resources involved, social media interventions could be introduced and replicated to a range of different settings and procedures. This strength is further evidenced by the low attrition rate across the study sample. The development of an experiment format adaptable to a video calling platform or in-person was another strength of the study. This was of advantage in the scheme of the pandemic, as it meant little pandemic-related interference to the study, in that participant who met the inclusion criteria and consented to participate could complete the entire study from any location. The digital nature of the study also helped diversify the study population as older females such as mothers and working professionals could participate online who were not subject to the Auckland region. Thereby the study sample is more generalisable to the broader population.

Some limitations should be acknowledged when taking the study results into account. Firstly, a likely limitation includes the use of screen time itself. Despite screen time being an objective measure of social media use, it does rely on participants' integrity to enable it (following the initial questionnaire). Procedural remedies such as temporal separation was utilised to reduce the recency effect and response bias. A two-week temporal separation was used to measure time using SNS. Despite the two-week temporal separation being a remedy to combat method bias and that it was included to increase the validity and reliability of the study findings (Podsakoff et al., 2012), participant bias could simultaneously have arisen due to the Hawthorne effect (through participants' awareness of observation and screen time monitoring during the two weeks) (Sedgwick & Greenwood, 2015). Therefore, the temporal separation could have manifested a window of opportunity for participants to disable or control their time

spent on applications and limit their use to specific social media platforms and pages, despite the information sheet stating their privacy would not be breached.

It is also noteworthy that the researchers included Android and iPhone devices to get a more accurate representation of the sample populations' screen time. However, this could be identified as a limitation as there are slight differences between phone models such as iPhones' 'Apple Screen Time' that is classified into social, travel, and creativity, compared to Android's 'Digital Balance' screen time measure (Kristensen et al., 2022). Older phones also generate screen times according to battery life, whereas newer Android mobiles generate screen time according to a time chart for each SNS with a daily and weekly time. The inconsistency between measures and the use of social media on laptops, computers, and televisions could under or overestimate participants' social media time. However, the objective nature of screen time cannot be overlooked, considering the risk of social desirability and self-report bias that likely arises in subjective reporting. Utilising a research-based application such as the recently developed 'SDU DeviceTracker' (Kristensen et al., 2022) to track screen time on iPhones and Android devices could increase the objective measure's criterion validity.

Another limitation is that the study only included female adults. Due to the nature of the study, funding, logistics, and the pandemic, the target sample was narrowed to include female adults above the age of 18 years only. This limits the generalisation to the broader population in that males and those that identify as gender fluid, non-binary gender and transgender were not examined in this study.

The experimental phase of the study was also measured in a laboratory setting rather than a naturalistic setting. Participants were monitored online through video-calling platform or in-person. Therefore, participants could have attended to images and videos differently compared to a more naturalistic setting. For example, a home environment where participants may have been more likely to zoom in and compare their physical appearance and identity to the online profile but may not have done so in the present study for fear of being observed by the researcher. In addition, the context of an online profile is often present through pre-existing knowledge, captions, and comments (Bauer, 2020). Without such context and a legitimate 'connection' that online profiles and influencers have with their following (e.g., the sharing of vulnerable aspects of their lives), an Instagram page may lack a sufficient backstory and medium

for an authentic connection with its audience. This could in turn, hinder the effect of the social media content on the participants' state body image, mood, and self-esteem, as it may not be representative of a 'real-life' Instagram page. Thus, the impact of the social media exposure may be greater than seen in the present study.

Finally, the single-blind study design was a limitation. Due to limited resources, the researcher delivered the visual manipulation based on group allocation. Therefore, a double-blind design was not possible. To mitigate the above limitation, the researcher included a standardised script and a concealed group allocation that was revealed prior to the experimental baseline questionnaire for each participant. This decreased the likelihood of influencing the participants' perceptions of the experimental tasks, including the social media exposure condition, and writing task. Devising a double-blind design would further reduce the likelihood of expectancy biases.

7.7 Future Research

The present study is the first to include a mixed-method design including quantitative and qualitative measures, with an objective measure of social media usage. The experimental phase of the study is novel in the sense that a causal association can be drawn between exposure to Instagram content, state body satisfaction, and mood.

The results of this study do not support previous research showing that interaction with social media content such as appearance-based content affects state self-esteem. Previous studies have indicated that individuals make greater comparisons to influencers than models and significantly more comparisons to their peers (Bauer, 2020). Therefore, comparison and exposure to peers as opposed to models could have a more significant effect on the dependent variables and associated effect size (Heinberg & Thompson, 1992; Leahey & Growther, 2008; Wheeler & Miyake, 1992). Likewise, the future research could utilise a scale oriented towards physical appearance with improved face and content validity. Despite the self-esteem measure in the study having good internal reliability, a scale such as the 'Body esteem Scale' (Franzoi & Shields, 1984), 'Body Appreciation Scale-2' (Tylka & Wood-Barcalow, 2015) and 'Social Appearance Anxiety Scale (Hart et al., 2008) could have greater face, content, and construct validity. This is especially important given that the study is centred on the effects social media has on an individual’s perceptions of their physical appearance.

To broaden the current literature on protective factors of social media and body image concerns, it could be beneficial for future studies to include a social desirability scale and a measure of individuals' intrinsic values. The addition of an engagement task where participants, in turn, can engage in 'likes' and 'comments' on the photographs, quotes and videos that best resonate with themself could be an alternative means of determining the above and investigating the effect of this engagement on body image, self-esteem, and mood.

A few minor variations of the study should also be implemented to investigate the impact of a lengthier social media exposure condition on the outcome variables, particularly state self-esteem. Though, the current study included ethnically diverse images, the inclusion of individuals from greater marginalised communities such as people with disabilities and ethnic minorities is underrepresented in popular body positivity and self-love pages (Webb et al., 2019). Thus, broadening the content included in the self-love content would also be a target for future studies.

In addition, the inclusion of a 'do it yourself' Instagram page or pre-experimental task where participants reveal their most (physically attractive) idealised peers, influencers, and celebrities, to construct a more personalised page with greater resonance and therefore impact on the viewer/ participant. The inclusion of liking activity and the number of likes being featured could be included to administer the effect on body image, mood, and self-esteem (Rounsefell et al., 2020; Tiggemann et al., 2018). Furthermore, the effects of the writing task on self-esteem could be tested through only exposing some participants to the task to determine whether the task itself elicits defensive reasoning that can diminish the impact of the social media condition on body image, self-esteem, and mood.

Therefore, further research is required to understand the impact of social media on body image, mood, self-esteem, and eating behaviour on a global scale. Future directions could target differing ages and include all sexes. Future studies could expand the literature necessary to optimise implications such as education more relevant to media literacy and policy design to inform social media platforms such as Instagram.

7.8 Conclusions

Exposure to greater self-love social media content appears to significantly improve females' state body image and state mood. Alternatively, exposure to fitspiration content negatively impacts state mood and body satisfaction. Social media use is associated with heightened body image and eating disturbance, thin-ideal internalisation, body comparison, photo investment, and photo modification. Thereby considering the primary findings of the exposure conditions, individuals should aim to limit mainstream social media including fitspiration and appearance-based content and increase online engagement with greater self-love content and neutral content. This is especially important given the high usage of social media and the long-term effects this has on body dissatisfaction, a factor that precipitates disordered eating, clinical eating disorders, addiction, anxiety, and depression.

To date, this is the first study to use a mixed-methods design to investigate predictors of social media-induced body image, mood and eating disturbance with an objective measure of social media. It also utilises a correlational and an experimental design with a qualitative writing task. This allowed the researchers to gain an in-depth understanding of how the three different social media pages made participants feel, by enabling participants to interpret, analyse and critique the content they viewed. Nonetheless, further research is required to explore the addition of a reliable body self-esteem scale, social desirability scale, and the presence and removal of the writing task to determine how this may influence state self-esteem in more diverse populations, including both normative and non-normative sexes.

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Appendices

Appendix A: University of Auckland Human Ethics Committee Approval

The University of Auckland
Private Bag 92019
Auckland, New Zealand

Level 3, 49 Symonds Street
Auckland, New Zealand
Telephone 86356
Facsimile +64 9 373 7432

UNIVERSITY OF AUCKLAND HUMAN PARTICIPANTS ETHICS COMMITTEE (UAHPEC)

26/02/2021

Dr Liesje Donkin

Re: Application for Ethics Approval (Our Ref. UAHPEC3279): Approved

The Committee considered your application for ethics approval for the study entitled "**Do They Like My Post? A Study Into the Effects of Social Media on Body Image**".

We are pleased to inform you that ethics approval has been granted for a period of three years.

The expiry date for this approval is **26/02/2024**.

Completion of the project: In order that up-to-date records are maintained, you must notify the Committee once your project is completed.

Amendments to the approved project: Should you need to make any changes to the approved project, please follow the steps below:

- Send a request to the UAHPEC Administrators to unlock the application form (using the Notification tab in the Ethics RM form).
- Make all changes to the relevant sections of the application form and attach revised documents (as appropriate).
- Change the Application Type to "Amendment request" in Section 13 ("Submissions and Sign off").
- Add a summary of the changes requested in the text box.
- Submit the amendment request (PI/Supervisors only to submit the form).

If the project changes significantly, you are required to submit a new application.

Funded projects: If you received funding for this project, please provide this approval letter to your local Faculty Research Project Coordinator (RPC) or Research Project Manager (RPM) so that the approval can be notified via a Service Request to the Research Operations Centre (ROC) for activation of the grant.

The Chair and the members of UAHPEC would be happy to discuss general matters relating to ethics approvals. If you wish to do so, please contact the UAHPEC Ethics Administrators at humanethics@auckland.ac.nz in the first instance.

Additional information:

- Do not forget to fill in the 'approval wording' on the PISs, CFs and/or advertisements, using the date of this approval and the reference number, before you use the documents or send them out to your participants.

All communications with the UAHPEC regarding this application should indicate this reference number: **UAHPEC3279**.

UAHPEC Administrators

University of Auckland Human Participants Ethics Committee

c.c. Penelope Hayward, Miss Marcé Pienaar

Appendix B: Sample of Recruitment Advertisements

Seeking to recruit female participants to be involved in our research project

DO THEY LIKE MY POST? A STUDY INTO THE EFFECTS OF SOCIAL MEDIA ON BODY IMAGE

We are looking for females to complete a questionnaire and brief intervention about their social media use and body image.

You can complete the questionnaires online, and the intervention in person at the University of Auckland City, Grafton campus or online through Zoom.

To be ***eligible*** you must:

- Be female
- Be fluent in English
- 18 years and older
- Have access to and use an iPhone or Android phone for at least one week prior to the study intervention date
- Have and share your 'screen time use' (iPhone) once with the researchers or 'Digital wellbeing and Parental control' feature in settings (Android) (a non-invasive feature that simply shows time spent on apps, not specific activity)

Time: Approximately 1 hour in total for the questionnaire and intervention.

Compensation: Upon completion of the intervention, participants will be thanked for their contribution to the research through receiving a koha, a $20 voucher (Westfield or Countdown).
You will also be offered a copy of the results at the completion of the study.

Interested?
Please follow the link to access the participant information sheet, the consent form and the pre-intervention questionnaire. Please ensure that you take your time to consider your participation. You can re-enter the link at any point. Should you wish to participate, please provide consent and continue to the pre- intervention questionnaire. Please contact the research team for any questions or concerns regarding the study. If you wish to complete a paper copy, please let us know.

Link: *https://tinyurl.com/socialbody*

Contact details:
Marcé Pienaar (Masters of Health Psychology candidate)
mpie670@aucklanduni.ac.nz

Approved by the University of Auckland Human Participants Ethics Committee on 26/02/2021 for three years. Reference Number UAHPEC3279

Appendix C: Participant Information Sheet

Department of Psychological Medicine
Faculty of Medical and Health Sciences
The University of Auckland
Auckland, 1142, New Zealand
Private Bag 92019

PARTICIPANT INFORMATION SHEET

Project Title: Do They like my post? A study into the effects of social media on body image

Name of Principal Investigator/ Supervisor (PI): zDr Liesje Donkin

Name of Student Researcher: Marcé Pienaar

Researcher Introduction

Marcé Pienaar is a Master of Health Psychology student completing her Master's thesis on the relationship between social media, body image and disordered eating in the Department of Psychological Medicine. Dr Liesje Donkin, a senior Professor in the Department of Psychological Medicine, supervises Marcé.

Study Description and Invitation

You are invited to participate in a study investigating the impact of social media on body image. Individuals nowadays spend a significant time on social media. Various social networking sites such as Instagram allow for photos to be manipulated and society to believe that a thin-ideal is attainable and desirable. However, exposure to such thin-ideals can influence an individual's body satisfaction. The current study that you are invited to take part in, aims to understand the association between body image

and social media. The decision to participate in this study is completely your choice. If you do not wish to participate, you do not require a reason and it will not influence your relationship with the University of Auckland or the researchers. The participant information sheet will facilitate your decision to take part in the study. It will explain the reason the study is being conducted, what your participation would involve, what the risks and benefits to you may be and what occurs post study. Please feel free to communicate to others such as whanau, friends or healthcare providers, should you desire to do so.

Why is the study being conducted?

The aim of this study is to examine the relationship between social media and body image. Social media use has become a significant part of our daily lives. However, constant exposure to other people's lives may influence how we perceive and treat ourselves. While research has examined the association between social media use and body image, this study is unique in the sense that it will measure social media both subjectively and objectively through the screen time application.

Who can take part in the research?

- Be aged 18 years or older
- Have access to and use an iPhone or Android phone with a 'Screen Time' feature (measures time spent on apps) or 'Digital Wellbeing and Parental Control' (screen time on Android phones) for the duration of the study (at least one week prior to the intervention date)
- Willing to share their 'screen time' usage with the researchers once (a non-invasive measure showing time spent on apps, not specific activity)
- Be fluent in English (read, write and speak)
- Be female
-

What may your participation include?

We intend to recruit approximately 78 female participants

- After reading this information sheet, read the consent form and indicate that you consent to participate in the study. You will then be asked a range of questions

that will take approximately (e.g., age, ethnicity, education). Complete the pre-intervention questionnaire (up to 15-20-minutes) about your social media usage, body image and eating habits

- Ensure that your screen time is turned on without any time restrictions to social media sites/ applications. Please contact the researchers if you have any queries regarding screen time
- Once you have completed the pre-intervention questionnaire, you will be contacted by email or text to choose a date and time to complete the intervention (in-person at the University of Auckland or via Zoom)
- The intervention will take up to 40-minutes. You will be required to share your screen time application and finish another questionnaire (baseline questionnaire) that will examine measures such as state self-esteem, mood, and body dissatisfaction. You will then view a social media feed for 15-minutes. Following the social media feed, you will be required to complete a 5-minute qualitative writing task that will be analysed to identify key themes. You will then complete the final questionnaire (post-intervention questionnaire) (i.e., self-esteem, body image outcomes and mood)

What about confidentiality?

All information that you provide to us will be securely stored through password secured files. A researcher will code your identity for questionnaires, which will be stored in a separate file from the data that only permits access to the project researchers. The researchers will also securely store your consent form. Although we will use data as part of a master's thesis and may publish it in professional journals or present in seminars, your identity is confidential to the public. This means that your information and identity is protected and unidentifiable to the public.

Participation is voluntary

It is entirely your choice to participate in the study. Your decision to participate or not participate will not impact your relationship with the researchers or the University of Auckland. You may withdraw from the study at any point without any reason. As data is kept separately from personal details, we will not be able to remove your data from

the study should you wish to withdraw.

What are the possible benefits of participating?

Your participation will contribute to the results from the study, which has the potential to identify predictors of poor body image and maladaptive eating patterns. It can therefore contribute to identifying the risks associated with social media and the impact this has on body image. On completion of the study, you receive a $20 voucher of choice (Westfield or Supermarket voucher) as a koha for your participation. The voucher will be supplied in person or online (via email).

What are the risks of participating?

Considering students are highly likely to view social media sites, the study process will be no different to what is already viewed daily. Therefore, there are no discernible risks associated with participation. However, you may experience temporarily lowered self-esteem or distress. If you do experience any distress or lowered self-esteem, please voice this to the project researcher who will ask you how you feel post intervention. Additionally, please feel free to talk to someone you trust such as your doctor or a family member.

Alternatively, there are several free phone/text-counselling options:

Need to talk? Call/ text 1737

Lifeline – call 0800 543 354 or free text to 4357.

What will happen after the study?

The data obtained will be saved securely on to the researcher's computer at the Department of Psychological Medicine, University of Auckland (and University of Auckland server). The file is password protected, allowing only the student researcher (Marcé Pienaar) and the researcher (Liesje Donkin) to access it. The data may be used for conference presentations and a journal article. The results will be reported in a format so that participants are not identified. A summary of the study findings will be available for participants who are interested. If you would like a summary of the results, you will be able to provide an email address. The summary will be emailed to

participants after data analyses are completed. The data will be permanently destroyed after the storage period by law (6 years). This will occur through deletion of the data. What do I need to do now? We hope the above information provides you with all the details you need to know. If you do not wish to participate, please do not hesitate to; there will be no ramifications for your decision. For Māori cultural support regarding this study, please contact the research team and support will be arranged. If you have any queries or complaints about the study at any stage, you can contact us.

What do I contact for more information or for concerns?

Study contact details

Dr Liesje Donkin
The University of Auckland
l.donkin@auckland.ac.nz
09 923 4175

Marcé Pienaar
The University of Auckland
Department of Psychological Medicine
mpie670@aucklanduni.ac.nz

For any queries regarding ethical concerns, you may contact the Chair, The University of Auckland Human Participants Ethics Committee.

UAHPEC Chair contact details

Office of Research Strategy and Integrity
The University of Auckland
Private Bag 92019, Auckland 1142
Telephone 09 373-7599 ext. 83711
Email: humanethics@auckland.ac.nz

Approved by the University of Auckland Human Participants Ethics Committee on 26/02/2021 for three years. Reference Number UAHPEC3279

Appendix D: Participant Consent Form

Department of Psychological Medicine
Faculty of Medical and Health Sciences
The University of Auckland
Auckland, 1142, New Zealand
Private Bag 92019

CONSENT FORM

THIS CONSENT FORM WILL BE KEPT FOR A PERIOD OF 6 YEARS

Project title: Do they like my post? A study into the effects of social media on body image
Name of Principal Investigator/ Supervisor (PI): Liesje Donkin
Name of Student Researcher: Marcé Pienaar

I have read the Participant Information Sheet for 'Do They Like My Post? A Study into the Effects of Social Media on Body Image. I have has the opportunity to ask questions and have had answers to my satisfaction.

- I consent to take part in this research
- I understand that I will be asked to record and share my 'screen time' usage with the researchers
- I have been given the opportunity to contact the researchers about any queries that I may have regarding the study
- I understand the research is voluntary and that I am free to withdraw my application at any time without giving a reason or experiencing repercussion
- I understand that choosing to participate or not will affect my academic progression, my relationship with the University, or my relationship with the researchers
- If I do withdraw from the study, I understand that I can request for my data to be removed from the study
- I understand that I will not be identifiable in any reports produced from the study- I understand that information will be stored for 6 years

Participant name:

_____

I hereby consent to participate in the study 'Do They Like My Post? A Study Into the Effects of Social Media on Body Image

○ Yes (1)

I wish / do not wish to receive the summary of findings:

- ○ I wish (1)
- ○ I do not wish (2)

Email for the study findings:

_____

Email for phase two of the study:

_____

Phone number:

_____

Approved by the University of Auckland Human Participants Ethics Committee on 26/02/2021 for three years. Reference Number UAHPEC3279

Appendix E: Baseline Questionnaire

Department of Psychological Medicine
Faculty of Medical and Health Sciences
The University of Auckland
Auckland, 1142, New Zealand
Private Bag 92019

BASELINE QUESTIONNAIRE

Q8 **Demographics**

What is your highest University qualification that you have or are currently completing?

- ○ Bachelor Degree (1)
- ○ Postgraduate Diploma (2)
- ○ Honours Degree (3)
- ○ Masters Degree (4)
- ○ Doctoral Degree (5)
- ○ Other (6) _____

Q9 What school do you belong to at the University (e.g., Medicine, Health Psychology, Population health, Optometry)? If you are no longer studying, please state your occupation below:

_____

Q10 What ethnic group do you belong to? You may choose as many as you believe apply to you.

- [ ] New Zealand European (1)
- [ ] Māori (2)
- [ ] Samoan (3)
- [ ] Cook Island Māori (4)
- [ ] Tongan (10)
- [ ] Niuean (5)
- [ ] Chinese (6)
- [ ] Indian (8)
- [ ] Other (e.g., Dutch, Korean, South African) (9) _____

Q11 What country were you born in?

- ○ New Zealand (1)
- ○ Australia (2)
- ○ China (3)
- ○ India (4)
- ○ South Africa (5)
- ○ Samoa (6)
- ○ Cook Islands (7)
- ○ Japan (8)
- ○ Zimbabwe (9)
- ○ Other (10) _____

Q12 What suburb do you live in?

_____

Q13 What is your age?

_____

Q14 What is your weight? (kilograms)

_____

Q15 What is your height? (centimetres)

_____

Q16 Study contact details
Dr Liesje Donkin
The University of Auckland
l.donkin@auckland.ac.nz
09 923 4175
Marcé Pienaar
The University of Auckland.
Department of Psychological Medicine
mpie670@aucklanduni.ac.nz

Approved by the University of Auckland Human Participants Ethics Committee on 26/02/2021 for three years. Reference Number UAHPEC3279

End of Block: Consent Form & Demographics

Start of Block: Body Comparison: Answer how often you generally make the below comparisons.

Q17 When I'm out in public, I compare my physical appearance to the appearance of others.

- Never (1)
- Seldom (2)
- Sometimes (3)
- Often (4)
- Always (5)

Q18 When I meet a new person (same sex), I compare my body size to her body size.

- Never (1)
- Seldom (2)
- Sometimes (3)
- Often (4)
- Always (5)

Q19 When I'm at work or school, I compare my body shape to the body shape of others.

- Never (1)
- Seldom (2)
- Sometimes (3)
- Often (4)
- Always (5)

Q20 When I'm out in public, I compare my body fat to the body fat of others

- Never (1)
- Seldom (2)
- Sometimes (3)
- Often (4)
- Always (5)

Q21 When I'm shopping for clothes, I compare my weight to the weight of others.

- Never (1)
- Seldom (2)
- Sometimes (3)
- Often (4)
- Always (5)

Q22 When I’m at a party, I compare my body shape to the body shape of others.

- ○ Never (1)
- ○ Seldom (2)
- ○ Sometimes (3)
- ○ Often (4)
- ○ Always (5)

Q23 When I’m with a group of friends, I compare my weight to the weight of others.

- ○ Never (1)
- ○ Seldom (2)
- ○ Sometimes (3)
- ○ Often (4)
- ○ Always (5)

Q24 When I’m out in public, I compare my body size to the body size of others.

- ○ Never (1)
- ○ seldom (2)
- ○ Sometimes (3)
- ○ Often (4)
- ○ Always (5)

Q25 When I’m with a group of friends, I compare my body size to the body size of others.

- ○ Never (1)
- ○ Seldom (2)
- ○ Sometimes (3)
- ○ Often (4)
- ○ Always (5)

Q26 When I’m eating at a restaurant, I compare my body fat to the body fat of others.

- ○ Never (1)
- ○ Seldom (2)
- ○ Sometimes (3)
- ○ Often (4)
- ○ Always (5)

Q27 When I’m at the gym, I compare my physical appearance to the appearance of others.

- ○ Never (1)
- ○ Seldom (2)
- ○ Sometimes (3)
- ○ Often (4)
- ○ Always (5)

End of Block: Body Comparison: Answer how often you generally make the below comparisons.

Start of Block: Eating survey: The questions exclude religious fasting.

Q28 On how many of the past 28 days... Have you been deliberately trying to limit the amount of food that you eat to influence your shape or weight? (whether or not you have succeeded).

- ○ No days (0)
- ○ 1-5 days (1)
- ○ 6-12 days (2)
- ○ 13-15 days (3)
- ○ 16-22 days (4)
- ○ 23-27 days (5)
- ○ everyday (6)

Q29 On how many of the past 28 days... Have you gone long periods of time (8 waking hours or more) without eating anything at all in order to influence your shape or weight? (whether or not you have succeeded).

- ○ No days (0)
- ○ 1-5 days (1)
- ○ 6-12 days (2)
- ○ 13-15 days (3)
- ○ 16-22 days (4)
- ○ 23-27 days (5)
- ○ everyday (6)

Q30 On how many of the past 28 days... Have you tried to exclude from your diet any foods that you like in order to influence your shape or weight? (whether or not you have succeeded).

- ○ No days (0)
- ○ 1-5 days (1)
- ○ 6-12 days (2)
- ○ 13-15 days (3)
- ○ 16-22 days (4)
- ○ 23-27 days (5)
- ○ everyday (6)

Q31 On how many of the past 28 days... Have you tried to follow definite rules regarding your eating (e.g., calorie limit) in order to influence your shape or weight? (whether or not you have succeeded).

- ○ No days (0)
- ○ 1-5 days (1)
- ○ 6-12 days (2)
- ○ 13-15 days (3)
- ○ 16-22 days (4)
- ○ 23-27 days (5)
- ○ everyday (6)

Q32 On how many of the past 28 days... Have you had a definite desire to have an empty stomach with the aim of influencing your shape or weight?

- ○ No days (0)
- ○ 1-5 days (1)
- ○ 6-12 days (2)
- ○ 13-15 days (3)
- ○ 16-22 days (4)
- ○ 23-27 days (5)
- ○ everyday (6)

Q33 On how many of the past 28 days... Have you had a definite desire to have a totally flat stomach?

- ○ No days (0)
- ○ 1-5 days (1)
- ○ 6-12 days (2)
- ○ 13-15 days (3)
- ○ 16-22 days (4)
- ○ 23-27 days (5)
- ○ everyday (6)

Q34 On how many of the past 28 days... Has thinking about food, eating calories made it difficult to concentrate on things that you are interested in (e.g., having a conversation)?

- ○ No days (0)
- ○ 1-5 days (1)
- ○ 6-12 days (2)
- ○ 13-15 days (3)
- ○ 16-22 days (4)
- ○ 23-27 days (5)
- ○ everyday (6)

Q35 On how many of the past 28 days... Has thinking about your shape or weight made it very difficult to concentrate on things you are interested in (e.g., having a

conversation, reading)?

- ○ No days (0)
- ○ 1-5 days (1)
- ○ 6-12 days (2)
- ○ 13-15 days (3)
- ○ 16-22 days (4)
- ○ 23-27 days (5)
- ○ everyday (6)

Q36 On how many of the past 28 days... Have you had a definite fear of losing control over eating?

- ○ No days (0)
- ○ 1-5 days (1)
- ○ 6-12 days (2)
- ○ 13-15 days (3)
- ○ 16-22 days (4)
- ○ 23-27 days (5)
- ○ everyday (6)

Q37 On how many of the past 28 days... Have you had a definite fear that you may gain weight?

- ○ No days (0)
- ○ 1-5 days (1)
- ○ 6-12 days (2)
- ○ 13-15 days (3)
- ○ 16-22 days (4)
- ○ 23-27 days (5)
- ○ everyday (6)

Q38 On how many of the past 28 days... Have you felt fat?

- ○ No days (0)
- ○ 1-5 days (1)
- ○ 6-12 days (2)
- ○ 13-15 days (3)
- ○ 16-22 days (4)
- ○ 23-27 days (5)
- ○ everyday (6)

Q39 On how many of the past 28 days... Have you had a strong desire to lose weight?

- ○ No days (0)
- ○ 1-5 days' (1)
- ○ 6-12 days (2)
- ○ 13-15 days (3)
- ○ 16-22 days (4)
- ○ 23-27 days (5)
- ○ everyday (6)

Q40 Over the past four weeks (28 days), how many times have you eaten what other people regard as an unusually large amount of food (given circumstances e.g., excluding religious fasting)?

_____

Q41 Over the past four weeks (28 days), how many times did you sense having lost control over your eating (at the time you were eating)?

_____

Q42 Over the past four weeks (28 days), how many DAYS have such episodes of

overeating occurred? (i.e. have you eaten an unusually large amount of food and have had a sense of loss of control at the time)

_____

Q43 Over the past four weeks (28 days), how many times have you made yourself sick (vomit) as a means of controlling your weight or shape?

_____

Q44 Over the past four weeks (28 days), how many times have you taken laxatives as a means of controlling your shape or weight?

_____

Q45 Over the past four weeks (28 days), how many times have you exercised in a 'drive' or 'compulsive' way as a means of controlling your weight, shape, or amount of fat to burn off calories?

_____

Q46 Over the past four weeks (28 days), how many days have you eaten in secret (do not count episodes of binge eating)?

- ○ No days (0)
- ○ 1-5 days (1)
- ○ 6-12 days (2)
- ○ 13-15 days (3)
- ○ 16-22 days (4)
- ○ 23-27 days (5)
- ○ everyday (6)

Q47 On what proportion of the times that you have eaten have you felt guilty because of its effect on your shape or weight? (Do not count episodes of binge eating).

- ○ No days (0)
- ○ 1-5 days (1)
- ○ 6-12 days (2)
- ○ 13-15 days (3)
- ○ 16-22 days (4)
- ○ 23-27 days (5)
- ○ everyday (6)

Q48 Over the past four weeks (28 days), how concerned have you been about other people seeing you eat? (Do not include episodes of binge eating).

- ○ Not at all (0)
- ○ (1)
- ○ Slightly (2)
- ○ (3)
- ○ Moderately (4)
- ○ (5)
- ○ Markedly (7)

Q49 On how many of the past 28 days, has your weight influenced how you think about yourself as a person?

- ○ Not at all (0)
- ○ (1)
- ○ Slightly (2)
- ○ (3)
- ○ Moderately (4)
- ○ (5)
- ○ Markedly (6)

Q50 On how many of the past 28 days, has your shape influenced how you think about yourself as a person?

- Not at all (0)
- (1)
- Slightly (2)
- (3)
- Moderately (4)
- (5)
- Markedly (6)

Q51 On how many of the past 28 days, how much would it have upset you if you had been asked to weigh yourself once a week (no more or less) for the next four weeks?

- Not at all (0)
- (1)
- Slightly (2)
- (3)
- Moderately (4)
- (5)
- Markedly (6)

Q52 In the past 28 days, how dissatisfied/ unsatisfied have you been with your

weight?

- ○ Not at all (0)
- ○ (1)
- ○ Slightly (2)
- ○ (3)
- ○ Moderately (4)
- ○ (5)
- ○ Markedly (6)

Q53 In the past 28 days, how dissatisfied / unsatisfied have you been with your shape?

- ○ Not at all (0)
- ○ (1)
- ○ Slightly (2)
- ○ (3)
- ○ Moderately (4)
- ○ (5)
- ○ Markedly (6)

Q54 How many of the past 28 days, have you felt uncomfortable seeing your body (e.g., shape in mirror, window while undressing or taking a shower)?

- ○ Not at all (0)
- ○ (1)
- ○ Slightly (2)
- ○ (3)
- ○ Moderately (4)
- ○ (5)
- ○ Markedly (6)

Q55 On how many of the past 28 days, have you felt uncomfortable about others seeing your shape or figure (e.g., in communal changing rooms, when swimming, or wearing tight clothes)?

- ○ Not at all (1)
- ○ (2)
- ○ Slightly (3)
- ○ (4)
- ○ Moderately (5)
- ○ (6)
- ○ Markedly (7)

End of Block: Eating survey: The questions exclude religious fasting.

Start of Block: Photo Investment: Drag/mark the answer that best fits you along the line.

Q56 Think about the photos of yourself that you post/ share on social media and mark an answer on the line to indicate the best response for you.

	It's easy to choose the photo	It's hard to choose the photo	Not Applicable
Click to write Choice 1 ()			

Q57 Think about the photos of yourself that you post/ share on social media and mark an answer on the line to indicate the best response for you.

	I take a long time to choose the photo	I choose the photo very quickly	Not Applicable
Click to write Choice 1 ()			

Q58 Think about the photos of yourself that you post/ share on social media and mark

an answer on the line to indicate the best response for you.

	I feel anxious or worried about the photos I share/post	I feel comfortable about the photos I share/post	Not Applicable
	0	100	
Click to write Choice 1 ()			

Q59 Think about the photos of yourself that you post/ share on social media and mark an answer on the line to indicate the best response for you.

	I share/post whichever photo is available	I take photos especially for posting/ sharing	Not Applicable
Click to write Choice 1 ()			

Q60 Think about the photos of yourself that you post/ share on social media and mark an answer on the line to indicate the best response for you.

	I do not care what others will think about how I look	I worry about what others will think about how I look	Not Applicable
Click to write Choice 1 ()			

Q61 Think about the photos of yourself that you post/ share on social media and mark an answer on the line to indicate the best response for you.

	I worry about whether anyone will "like" my photos	I do not care if anyone will "like" my photos	Not Applicable
Click to write Choice 1 ()			

Q62 Think about the photos of yourself that you post/ share on social media and mark an answer on the line to indicate the best response for you.

	I do not take any notice of how many "likes" I get	I take notice of how many "likes" my photos get	Not Applicable
Click to write Choice 1 ()			

End of Block: Photo Investment: Drag/mark the answer that best fits you along the line.

Start of Block: Photo Changes: Indicate how often you make the following changes to your photos.

Q63 For photos you post/share, how often do you get rid of red eye?

- Never (1)
- Rarely (2)
- Sometimes (3)
- Often (4)
- Always (5)

Q64 For photos you post/share, how often do you make socially desirable features of yourself larger?

- Never (1)
- Rarely (2)
- Sometimes (3)
- Often (4)
- Always (5)

Q65 For photos you post/share, how often do you highlight facial features (e.g.,

cheekbones, eye colour)?

- ○ Never (1)
- ○ Rarely (2)
- ○ Sometimes (3)
- ○ Often (4)
- ○ Always (5)

Q66 For photos you post/share, how often do you use a filter to change the look of the photo (for example blurring, smoothing, black and white filter)?

- ○ Never (1)
- ○ Rarely (2)
- ○ Sometimes (3)
- ○ Often (4)
- ○ Always (5)

Q67 For photos you post/share, how often do you make yourself skinnier?

- ○ Never (1)
- ○ Rarely (2)
- ○ Sometimes (3)
- ○ Often (4)
- ○ Always (5)

Q68 For photos you post/share, how often do you adjust light/ darkness of the photo?

- ○ Never (1)
- ○ Rarely (2)
- ○ Sometimes (3)
- ○ Often (4)
- ○ Always (5)

Q69 For photos you post/share, how often do you edit blemishes like pimples?

- Never (1)
- Rarely (2)
- Sometimes (3)
- Often (4)
- Always (5)

Q70 For photos you post/share, how often do you whiten your teeth?

- Never (1)
- Rarely (2)
- Sometimes (3)
- Often (4)
- Always (5)

Q71 For photos you post/share, how often do you make specific parts look larger or smaller?

- Never (1)
- Rarely (2)
- Sometimes (3)
- Often (4)
- Always (5)

Q72 For photos you post/share, how often do you edit or use apps to smooth your

skin?

- Never (1)
- Rarely (2)
- Sometimes (3)
- Often (4)
- Always (5)

End of Block: Photo Changes: Indicate how often you make the following changes to your photos.

Start of Block: Internalisation: Indicate the response option which best reflects your agreement

Q73 Social media is an important source of information about fashion and "being attractive."

- Definitely disagree (1)
- Mostly disagree (2)
- Neither agree/disagree (3)
- Mostly agree (4)
- Definitely agree (5)

Q74 I've felt pressure from social media to lose weight.

- Definitely disagree (1)
- Mostly disagree (2)
- Neither agree/diagree (3)
- Mostly agree (4)
- Definitely agree (5)

Q75 I do not care if my body looks like the body of people who are on social media

- Definitely disagree (5)
- Mostly disagree (4)
- Neither agree/disagree (3)
- Mostly agree (2)
- Definitely agree (1)

Q76 I compare my body to women who have the thin-ideal body on social media

- Definitely disagree (1)
- Mostly disgaree (2)
- Neither agree/disagree (3)
- Mostly agree (4)
- Definitely agree (5)

Q77 Social media influencers are an important source of information on fashion and "being attractive."

- Definitely disagree (1)
- Mostly disagree (2)
- Neither agree/disagree (3)
- Mostly agree (4)
- Definitely agree (5)

Q78 I do not feel pressure from social media sites to look pretty.

- Definitely disagree (5)
- Mostly disgaree (4)
- Neither agree/disagree (3)
- Mostly agree (2)
- Definitely agree (1)

Q79 I would like my body to look like the models who appear on social media

- Definitely disagree (1)
- Mostly disagree (2)
- Neither agree/disagree (3)
- Mostly agree (4)
- Definitely agree (5)

Q80 I compare my appearance to the appearance of TV and movie stars on social media

- Definitely disagree (1)
- Mostly disagree (2)
- Neither agree/disagree (3)
- Mostly agree (4)
- Definitely agree (5)

Q81 Music videos on TV and social media are not an important source of information about fashion and being attractive

- Definitely disagree (1)
- Mostly disagree (2)
- Neither agree/disagree (3)
- Mostly agree (4)
- Definitely agree (5)

Q82 I've felt pressure from social media to be thin.

- ○ Definitely disagree (1)
- ○ Mostly disagree (2)
- ○ Neither agree/disagree (3)
- ○ Mostly agree (4)
- ○ Definitely agree (5)

Q83 I would like my body to look like the people who are in movies and social media.

- ○ Definitely disagree (1)
- ○ Mostly disagree (2)
- ○ Neither agree/disagree (3)
- ○ Mostly agree (4)
- ○ Definitely agree (5)

Q84 I do not compare my body to the bodies of people who appear on social media.

- ○ Definitely disagree (5)
- ○ Mostly disgaree (4)
- ○ Neither agree/disagree (3)
- ○ Mostly agree (2)
- ○ Definitely agree (1)

Q85 Social media is <u>not</u> an important source of information about fashion and "being

attractive"

- ○ Definitely disagree (5)
- ○ Mostly disagree (4)
- ○ Neither agree/disagree (3)
- ○ Mostly agree (2)
- ○ Definitely agree (1)

Q86 I've felt pressure from social media to have a perfect body.

- ○ Definitely disagree (1)
- ○ Mostly disagree (2)
- ○ Neither agree/disagree (3)
- ○ Mostly agree (4)
- ○ Definitely agree (5)

Q87 I wish I looked like the models on social media.

- ○ Definitely disagree (1)
- ○ Mostly disagree (2)
- ○ Neither agree/disagree (3)
- ○ Mostly agree (4)
- ○ Definitely agree (5)

Q88 I compare my appearance to the appearance of influencers on social media

- ○ Definitely disagree (1)
- ○ Mostly disagree (2)
- ○ Neither agree/disagree (3)
- ○ Mostly agree (4)
- ○ Definitely agree (5)

Q89 Social media content and advertisements are an important source of information about fashion and “being attractive"

- ○ Definitely disagree (1)
- ○ Mostly disagree (2)
- ○ Neither agree/disagree (3)
- ○ Mostly agree (4)
- ○ Definitely agree (5)

Q90 I’ve felt pressure from social media to diet.

- ○ Definitely disagree (1)
- ○ Mostly disagree (2)
- ○ Neither agree/disagree (3)
- ○ Mostly agree (4)
- ○ Definitely agree (5)

Q91 I do not wish to look as athletic as the people in social media

- ○ Definitely disagree (5)
- ○ Mostly disagree (4)
- ○ Neither agree/disagree (3)
- ○ Mostly agree (2)
- ○ Definitely agree (1)

Q92 I compare my body to that of people in “good shape"

- ○ Definitely disagree (1)
- ○ Mostly disagree (2)
- ○ Neither disagree/agree (3)
- ○ Mostly agree (4)
- ○ Definitely agree (5)

Q93 I’ve felt pressure from social media to exercise.

- ○ Definitely disagree (1)
- ○ Mostly disagree (2)
- ○ Neither agree/disagree (3)
- ○ Mostly agree (4)
- ○ Definitely agree (5)

Q94 I wish I looked as athletic as sports stars

- ○ Definitely disagree (1)
- ○ Mostly disagree (2)
- ○ Neither agree/disagree (3)
- ○ Mostly agree (4)
- ○ Definitely agree (5)

Q95 I compare my body to that of people who are athletic.

- ○ Definitely disagree (1)
- ○ Mostly disagree (2)
- ○ Neither agree/disagree (3)
- ○ Mostly agree (4)
- ○ Definitely agree (5)

Q96 Actresses on social media are an important source of information about fashion and “being attractive"

- Definitely disagree (1)
- Mostly disagree (2)
- Neither agree/disagree (3)
- Mostly agree (4)
- Definitely agree (5)

Q97 I’ve felt pressure from TV or magazines to change my appearance.

- Definitely disagree (1)
- Mostly disagree (2)
- Neither agree/disagree (3)
- Mostly agree (4)
- Definitely agree (5)

Q98 I do not try to look like models, actresses or influencers on social media

- Definitely disagree (5)
- Mostly disagree (4)
- Neither agree/disagree (3)
- Mostly agree (2)
- Definitely agree (1)

Q99 Movie stars on social media are not an important source of information about

fashion and “being attractive.”

- Definitely disagree (5)
- Mostly disagree (4)
- Neither agree/disagee (3)
- Mostly agree (2)
- Definitely agree (1)

Q100 Famous people or influencers with many followers are an important source of "being attractive"

- Definitely disgaree (1)
- Mostly disagree (2)
- Neither agree/disagree (3)
- Mostly agree (4)
- Definitely agree (5)

Q101 I try to look like sport athletes or fitness influencers on social media

- Definitely disagree (1)
- Mostly disagree (2)
- Neither agree/disagree (3)
- Mostly agree (4)
- Definitely agree (5)

End of Block: Internalisation: Indicate the response option which best reflects your agreement

---

Start of Block: Trait self esteem: please indicate how strongly you agree/disagree

Q102 On the whole, I am satisfied with myself.

- ○ Strongly agree (4)
- ○ Agree (3)
- ○ Disagree (2)
- ○ Strongly disagree (1)

Q103 At times, I am not good at all.

- ○ Strongly agree (1)
- ○ Agree (2)
- ○ Disagree (3)
- ○ Strongly disagree (4)

Q104 I feel that I have a number of good qualities.

- ○ Strongly agree (4)
- ○ Agree (3)
- ○ Disagree (2)
- ○ Strongly disagree (1)

Q105 I am able to do things as well as most other people.

- ○ Strongly agree (4)
- ○ Agree (3)
- ○ Disagree (2)
- ○ Strongly disagree (1)

Q106 I feel I do not have much to be proud of.

- ○ Strongly agree (1)
- ○ Agree (2)
- ○ Disagree (3)
- ○ Strongly disagree (3)

Q107 I certainly feel useless at times.

- ○ Strongly agree (1)
- ○ Agree (2)
- ○ Disagree (3)
- ○ Strongly disagree (4)

Q108 I feel that I am a person of worth, at least on an equal plane as others.

- ○ Strongly agree (4)
- ○ Agree (3)
- ○ Disagree (2)
- ○ Strongly disagree (1)

Q109 I wish I could have more respect for myself.

- ○ Strongly agree (1)
- ○ Agree (2)
- ○ Disagree (3)
- ○ Strongly disagree (4)

Q110 All in all, I am inclined to feel that I am a failure.

- ○ Strongly agree (1)
- ○ Agree (2)
- ○ Disagree (3)
- ○ Strongly disagree (4)

Q111 I take a positive attitude toward myself.

- ○ Strongly agree (4)
- ○ Agree (3)
- ○ Disagree (2)
- ○ Strongly disagree (1)

End of Block: Trait self esteem: please indicate how strongly you agree/disagree

---

Start of Block: Social Media Use - Provide an answer to the best of your knowledge

Q112 How many hours do you spend on social media
per day? (e.g., 60 minutes = 1 hour, 120 minutes = 2 hours, 180 minutes = 3 hours)

_____

Q113 Which social media sites do you use?

- ☐ Instagram (1)
- ☐ Facebook (2)
- ☐ Snapchat (3)
- ☐ Tik-Tok (4)
- ☐ Other (5) _____

Q114 How many followers do you have on your preferred/ favourite social media

site?

- ○ 0-200 (1)
- ○ 200-400 (2)
- ○ 400-600 (3)
- ○ 600-800 (4)
- ○ 800-1000 (7)
- ○ 1000 or more (5) _____
- ○ Unsure (6)

Q115 What content do you follow?

- ☐ Actresses/ actors (1)
- ☐ Singers (2)
- ☐ Models (3)
- ☐ Education (4)
- ☐ Health and fitness (5)
- ☐ Gaming (6)
- ☐ Travel (7)
- ☐ Politics (8)
- ☐ Fashion (9)
- ☐ Animals (10)
- ☐ Other (11)

_____

Q116 How important is the number of followers you have on social media?

- ○ Not at all important (1)
- ○ Slightly important (2)
- ○ Moderately important (3)
- ○ Very important (4)
- ○ Extremely important (5)

Q117 How do you feel after viewing social media sites?

- ○ Extremely good (1)
- ○ Moderately good (2)
- ○ Slightly good (3)
- ○ Neither good nor bad (4)
- ○ Slightly bad (5)
- ○ Moderately bad (6)
- ○ Extremely bad (7)

Q118 How concerned are you with your level of social media use?

- ○ Not at all concerned (1)
- ○ Slightly concerned (6)
- ○ Somewhat concerned (7)
- ○ Quite concerned (8)
- ○ Extremely concerned (9)

Q119 Which social media site do you use most often every day?

- [ ] Instagram (1)
- [ ] Facebook (2)
- [ ] Snapchat (3)
- [ ] Tik-Tok (4)
- [ ] Other (5) _____

Q120 How much time do you spend on your favourite social network site (e.g., Instagram) per day? (e.g., 60 minutes = 1 hour, 120 minutes = 2 hours, 180= 3 hours)

_____

Q121 Do you ever feel distressed when viewing content related to fitness, health, and body shapes?

- ○ Never (1)
- ○ Barely (2)
- ○ Sometimes (5)
- ○ Often (3)
- ○ Very often (4)

Q122 Is there content that you avoid viewing, if so, what is that content?

_____

Q123 How often do you like appearance (physical image) based content on social

media?

- Never (4)
- Rarely (5)
- Sometimes (6)
- Often (7)
- Very often (8)
- Always (9)

Q124 How often do you read content on social media posts?

- Never (1)
- Barely (2)
- Sometimes (3)
- Often (4)
- Very often (5)

Q125 How often do you view videos on appearance (physical image) based social media?

- Never (1)
- Barely (2)
- Sometimes (3)
- Often (4)
- Very often (5)

Q126 How often do you comment on appearance based posts (e.g., photographs of

individuals, peers)?

- Never (1)
- Barely (2)
- Sometimes (3)
- Often (4)
- Very often (5)

Q127 How often do you post photos?

- Never (1)
- Less than once a month (6)
- Once a month (2)
- 1 - 3 times a month (3)
- Once a week (4)
- 1 - 3 times a week (5)

Q128 What does your uploaded photos consist of most?

- Selfies (photos of yourself taken by yourself) (1)
- Photos of yourself (alone) taken by someone else (6)
- Photos of yourself with others (10)
- Food (3)
- Posessions/ items (4)
- Scenery and places (5)
- Just of other people such as friends and family (7)
- Quotes and memes (8)
- Other (9) _____

Q139 Which $20 voucher would you like?

- ○ Westfield (1)
- ○ Countdown (2)

Thank you for completing the survey. We will be in contact with you soon regarding the final part of the study

Approved by the University of Auckland Human Participants Ethics Committee on 26/02/2021 for three years. Reference Number UAHPEC3279

Appendix F: Experimental Scripts

Script One

Greetings:

- "**Kia Ora/ Mōrena ___"**
- **" Haere mai!"**
- "You must be _" (refer to participant list prior to their arrival)
- **"Ko Marce toku ingoa**, (if Liesje present), and this is my supervisor, Liesje Donkin.
- "Come on in and take a seat."
- "How has your day been so far?" Action: Politely respond
- "Would you like me to start with a **karakia**?"
- **Opening Karakia:**
    - Kia hora te marino: may peace be widespread
    - Kia whakapapa pounamu te moana: may the sea be like greenstone
    - Hei hourahi ma tatou i te rangi nei : a pathway for us all this day
    - Aroha atu, aroha mai: give love, receive love
    - Tatou i a tatou katoa: let us show respect for eachother
    - Hui e! Taike e! : enriched, unified and blessed!

Intervention outline:

- "Before we get started, have you disabled screen time or have any time restrictions in place? Have you read the PIS and ensured that you meet the following inclusion criteria - That you are female, 18 years of age and above, have a phone with the screentime application and are fluent in English?"
- Respond appropriately
- "Please feel free to ask any questions as we go, as noted in the PIS, please let us know if you do not wish to continue, you do not need to provide a reason."
- "The session will be split into 5 phases: the screen time measure, the baseline questionnaire, a social media feed, a writing task and a follow up questionnaire.

Randomisation: Prepared prior to arrival.

- “Here is your 3-digit randomisation number. This number is to keep your identity confidential and anonymous. This means that any other University member and the general public will not be able to identify you.”
- Action: Assign their number and hand it to them on a piece of paper.
- “Keep this number on you. You will be asked to provide the number at the top of each task. You may dispose of it after the session.”

Screen Time:

“We will now administer the screen time measure. I would just like to remind you that screentime is a non-invasive measure and simply shows time spent on apps rather than specific activity.”

- “What type of phone do you have?”
- IPhone: “Okay. Please go into your phone settings and select Screen Time.
- Are you happy for me to enter the feature?
- If yes, “I will swipe to the week prior to this week, I am now referring to your average daily use and recording it”
- “What is your favourite SNS? I will now record your average daily use for that”
- “I will now record your most used SNS”
- If not, ask them to follow the above instructions and show the screen to you to record it.
- Android: “Okay. Please go into your phone settings, and select Digital Wellbeing and Parental Control.
- Are you happy for me to enter the feature?
- If yes, “I will enter the pie chart, I will now enter the week prior to this week, and record the daily use for all of the days”
- “I'll now click your most used SNS and I will record the use for every day”
- “Lastly, what is your favourite SNS? I will record every day’s use. We will calculate the average for each day later.”
- If not, ask them to follow the above instructions and show the screen to you.
- Action for the above: record (1) overall daily average of social media use, (2) favourite social media use time and application, and (3) most popular (i.e., most used) social media application and time.

- **“Great, kia ora __”**

Baseline Questionnaire:

- “Here is the first questionnaire. Please complete the survey and signal when you are done. Please ensure your 3 digit number is entered at the top of the questionnaire.”
- Action: await signal and check condition assigned to the participant.

Instagram Feed:

- Action: collect Ipad and prepare Instagram feed. Give it back to participants.
- “Please scroll through the feed, reading, viewing and watching as much of the content as you can. I will signal you when the 15-minutes is done. We will wear earplugs, so please ensure you play the videos out loud and listen carefully.”
- Action: Signal start time, signal end time
- Action: collect Ipad
- “You can stop now. Can you please hand the IPad over and I will give you the next task.”
- **“Kia ora __”**

Writing Task:

- “Here is the writing task. Quickly write how you feel about your body right now in one to three short sentences.”
- “Please signal when you are finished.”
- Action: Start timer on stopwatch. Allow up to 5minutes to stop participants if they have not already signalled you. Wait for their signal.
- “I’ll give you the last questionnaire and then we will be finished.”

Post-exposure Questionnaire:

- “Here is the last questionnaire. Please complete the survey and please ensure your 3 digit number is entered at the top of the questionnaire. Signal when you are finished.”

- Action: await signal and check condition assigned to the participant.
- **“Great, Kia ora ___”**
- Action: Collect iPad.

Debrief:

- “How are you feeling after completing the social media feed and tasks?”
- Action: await response.
- Action if showing any verbal/physical cues of distress (i.e., especially if they are in the fitspo and self love condition): Respond appropriately (e.g., clarify, acknowledge their feelings, validate their experience and summarise).
- Follow the initial response with a debrief regarding social media and body image.
    - “It is so important to be aware of the effects of social media on the way we perceive ourselves in terms of **our hauora hinengaro and hauora tinana.** Social media can be filled with unrealistic or unattainable physical appearances. These images may lead one to believe they are easily attained and deemed ‘desirable by society’. However, it is important to realise that influencers, fitness models and celebrities are being paid to present these figures and most of the time, include modifications such as filters and plastic surgery. It is important to look past modified figures and images and start embracing your personality, curves and edges through learning to **show more aroha to yourself and your body**.”
- “How do you feel about that?”
- Action: await response and react appropriately.
- Action for all conditions: Offer additional psychological support and contacts. “Would you like additional mental health support?” Action: hand list of contacts.
- We would like to offer you a **koha**, as a symbol of gratitude for your contribution to our study.”
- “Would you like a $20 Countdown or Westfield voucher?”
- Action: Await response, hand voucher of choice
- **Kia ora __ / tena rawa atu koe**

- If you haven’t already stated this in the consent form, would you like a summary of the study findings?
- **Closing Karakia**
    - Ka whakairia te tapu: restrictions are moved aside
    - Kia watea ai te ara: so the pathways are clear
    - Kia turuki whakataha ai : to return to everyday activities
    - Kia turuki whakataha ai : to return to everyday activities
    - Hue e! Taiki e!: enriched unified and blessed
- Action: Walk participants out the door.

“Kia ora __ , Haere ra!”

Script Two

Greetings:

- “Kia Ora/ Morena ___”
- **“**You must be _” (refer to participant list prior to their arrival)
- “Ko Marce toku ingoa, (if Liesje present), and this is my supervisor, Liesje Donkin.
- “Come on in and take a seat.”
- “How has your day been so far?” Action: Politely respond

Intervention outline:

- “Before we get started, have you disabled screen time or have any time restrictions in place? Have you read the PIS and ensured that you meet the following inclusion criteria - That you are female, 18 years of age and above, have a phone with the screentime application and are fluent in English?”
- Respond appropriately
- “Please feel free to ask any questions as we go, as noted in the PIS, please let us know if you do not wish to continue, you do not need to provide a reason.”
- “The session will be split into 5 phases: the screen time measure, the baseline questionnaire, a social media feed, a writing task and a follow up questionnaire.

Randomisation: Prepared prior to arrival.

- “Here is your 3-digit randomisation number. This number is to keep your identity confidential and anonymous. This means that any other University member and the general public will not be able to identify you.”
- Action: Assign their number and hand it to them on a piece of paper.
- “Keep this number on you. You will be asked to provide the number at the top of each task. You may dispose of it after the session.”

Screen Time:

“We will now administer the screen time measure. I would just like to remind you that screentime is a non-invasive measure and simply shows time spent on apps rather than specific activity.”

- “What type of phone do you have?”
- IPhone: “Okay. Please go into your phone settings and select Screen Time.
- Are you happy for me to enter the feature?

- If yes, “I will swipe to the week prior to this week, I am now referring to your average daily use and recording it”
- “What is your favourite SNS? I will now record your average daily use for that”
- “I will now record your most used SNS”
- If not, ask them to follow the above instructions and show the screen to you to record it.
- Android: “Okay. Please go into your phone settings and select Digital Wellbeing and Parental Control.
- Are you happy for me to enter the feature?
- If yes, “I will enter the pie chart, I will now enter the week prior to this week, and record the daily use for all of the days”
- “I'll now click your most used SNS and I will record the use for everyday”
- “Lastly, what is your favourite SNS? I will record every day’s use. We will calculate the average for each day later.”
- If not, ask them to follow the above instructions and show the screen to you.
- Action for the above: record (1) overall daily average of social media use, (2) favourite social media use time and application, and (3) most popular (i.e., most used) social media application and time.
- “Great, thanks”

Baseline Questionnaire:

- “Here is the first questionnaire. Please complete the survey and signal when you are done. Please ensure your 3 digit number is entered at the top of the questionnaire.”
- Action: await signal and check condition assigned to the participant.

Insta Feed:

- Action: collect iPad and prepare Instagram feed. Give it back to participants.
- “Please scroll through the feed, reading, viewing and watching as much of the content as you can. I will signal you when the 15-minutes is done. We will wear earplugs, so please ensure you play the videos out loud and listen carefully.”
- Action: Signal start time, signal end time
- Action: collect iPad
- “You can stop now. Can you please hand the iPad over and I will give you the next task.”
- “Thank you!”

Writing Task:

- "Here is the writing task. Quickly write how you feel about your body right now in one to three short sentences."
- "Please signal when you are finished."
- Action: Start timer on stopwatch. Allow up to 5minutes to stop participants if they have not already signalled you. Wait for their signal.
- "I'll give you the last questionnaire and then we will be finished."

Post-exposure Questionnaire:

- "Here is the last questionnaire. Please complete the survey and please ensure your 3 digit number is entered at the top of the questionnaire. Signal when you are finished."
- Action: await signal and check condition assigned to the participant.
- "Great, thanks!"
- Action: Collect iPad.

Debrief:

- "How are you feeling after completing the social media feed and tasks?"
- Action: await response.
- Action if showing any verbal/physical cues of distress (i.e., especially if they are in the fitspo and self love condition): Respond appropriately (e.g., clarify, acknowledge their feelings, validate their experience and summarise).
- Follow the initial response with a debrief regarding social media and body image.
    - "It is so important to be aware of the effects of social media on the way we perceive ourselves in terms of our mental and physical health. Social media can be filled with unrealistic or unattainable physical appearances. These images may lead one to believe they are easily attained and deemed 'desirable by society'. However, it is important to realise that influencers, fitness models and celebrities are being paid to present these figures and most of the time, include modifications such as filters and plastic surgery. It is important to look past modified figures and images and start embracing your personality, curves and edges through learning to show more love, aroha to yourself and your body."
- "How do you feel about that?"
- Action: await response and react appropriately.
- Action for all conditions: Offer additional psychological support and contacts. "Would you like additional mental health support?" Action: hand list of contacts.
- We would like to offer you a koha, as a symbol of gratitude for your contribution to our study."

- “Would you like a $20 Countdown or Westfield voucher?”
- Action: Await response, hand voucher of choice
- If you haven’t already stated this in the consent form, would you like a summary of the study findings?
- Action: Walk participants out the door.
- **“**Kia ora __ , Have a great day!”
- “Good bye”

Script Three

Greetings:

- “Kia Ora/ Morena ___”
- “Ko Marce toku ingoa, (if Liesje present), and this is my supervisor, Liesje Donkin.
- “How has your day been so far?” Action: Politely respond

Intervention outline:

- “Before we get started, have you disabled screen time or have any time restrictions in place? Have you read the PIS and ensured that you meet the following inclusion criteria - That you are female, 18 years of age and above, have a phone with the screentime application and are fluent in English?”
- Respond appropriately
- “Please feel free to ask any questions as we go, as noted in the PIS, please let us know if you do not wish to continue, you do not need to provide a reason.”
- “The session will be split into 5 phases: the screen time measure, the baseline questionnaire, a social media feed, a writing task and a follow up questionnaire.

Randomisation: Prepared prior to arrival.

- “Here is your 3-digit randomisation number. This number is to keep your identity confidential and anonymous. This means that any other University member and the general public will not be able to identify you.”
- **Action: Write down and show to them**, “please write it down and repeat it back to me’
- “Keep this number on you. You will be asked to provide the number at the top of each task. You may dispose of it after the session.”

Screen time:

- “We will now administer the screen time measure. What phone do you have?”
- IPhone: “Okay. Please go into your phone settings, and select Screen Time, please scroll the bar graph to the side to view the previous week, please show the screen to us (record), now go back and tap on the most used visual SNS and show to us (record), what did you put for you favourite SNS? Now go back and tap on your favourite visual SNS and show it to us (record)”
- Android: “Okay. Please go into your phone settings, and select Digital Wellbeing and Parental Control, click on the middle of the pie chart, then tap each day, starting from

Monday and **show the time for each day** (record Monday-Sunday), then click into most used SNS and show each day to us please (record all days). Lastly, what did you put for your favourite visual SNS? Please enter it and show us every day (record all days)"

- Action: record on online table (1) overall daily average of social media use, (2) favourite social media use time and application, and (3) most popular (i.e., most used) social media application and time
- "Great, thank you"

Baseline Questionnaire:

- **"I have sent you a link for the first questionnaire, please see the Zoom chat**. Please enter it and complete the survey and signal when you are done. Please ensure your 3 digit number is entered at the top of the questionnaire."
- Action: await signal

Insta Feed:

- "Thank you."
- Action: Prepare Instagram feed.
- **Here is a link to the Instagram feed, please log in, enter it and Screen share, so I can make sure you are viewing the correct Instagram feed.**
- "Please scroll through the feed, reading, viewing and watching as much of the content as you can. I will signal you when the 15-minutes is done.
- "We will wear earplugs and complete our work in the meantime, so please ensure you play the videos out loud and listen carefully."
- Action: ensure you can see them scrolling through the feed (to avoid particicpants doing something else on laptop)
- Action: Signal, start time, signal end time
- "You can stop now.
- "Can you please unfollow the page and show us that you have done this"
- "Thank you"

Writing Task:

- "**Here is a link to the online writing task (Zoom chat).** Quickly write how you feel about your body right now (after you have viewed the feed) in one to three short sentences."
- "Please signal when you are finished.
- Action: Start timer on stopwatch. Allow up to 5minutes. Wait for their signal.

- "Thank you"

Post-exposure Questionnaire:

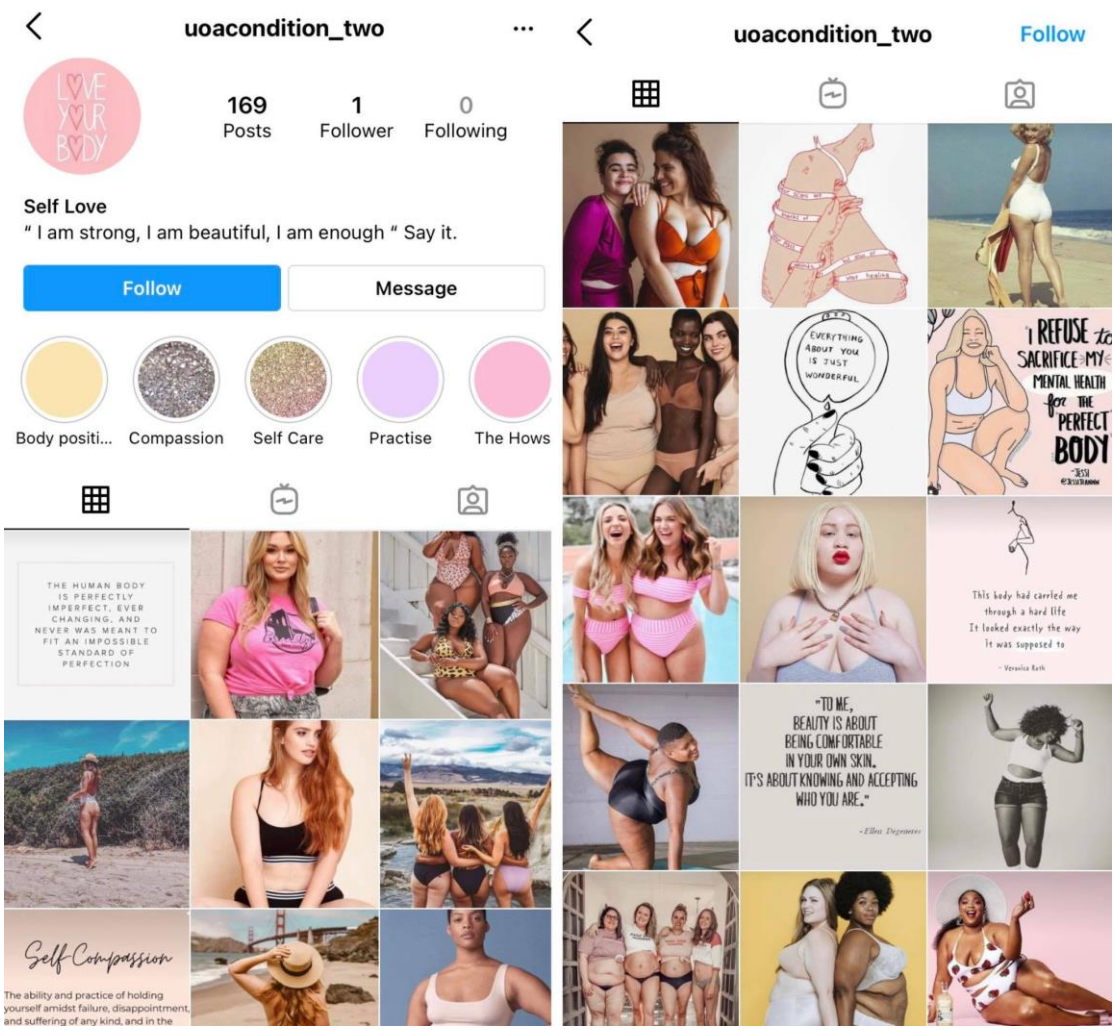
- "**Here is the link for the last questionnaire (see Zoom Chat).** Please complete the survey and please ensure your 3 digit number is entered at the top of the questionnaire. Signal when you are finished."
- Action: await signal and check condition assigned to the participant.
- "Great, thanks for that!"

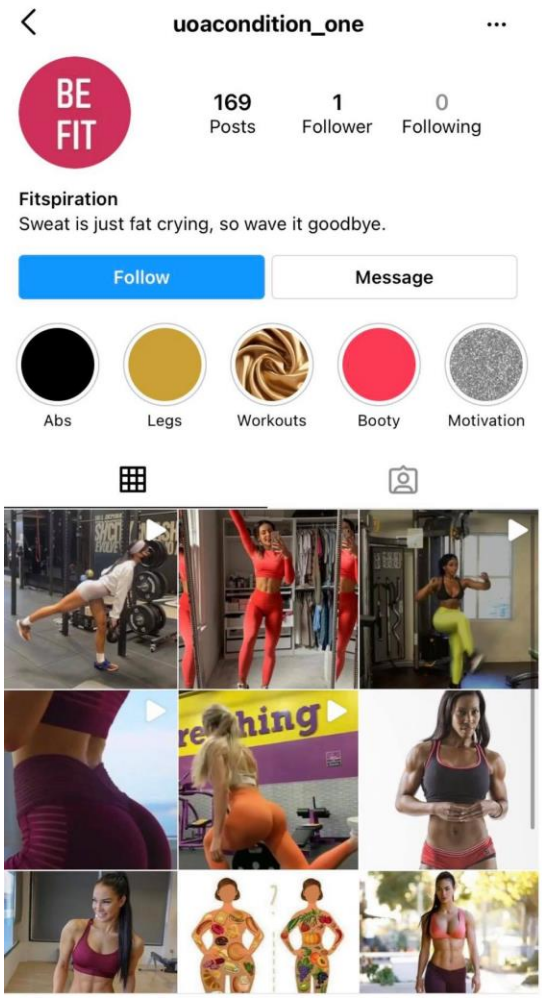
Debrief:

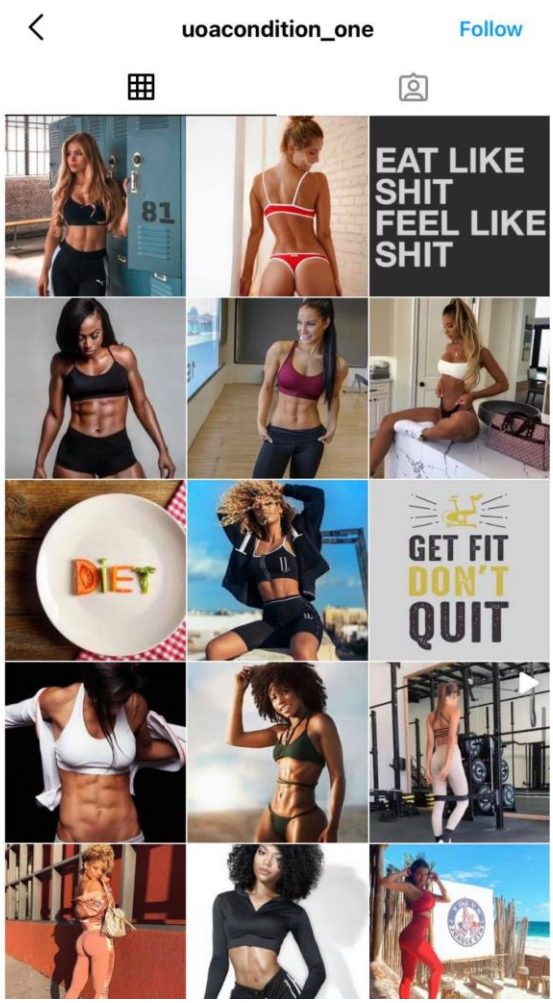
- "How are you feeling after completing the social media feed and tasks?"
- Action: await response.
- Action if showing any verbal/physical cues of distress (i.e., especially if they are in the fitspo and self love condition): Respond appropriately (e.g., clarify, acknowledge their feelings, validate their experience and summarise).
- Follow the initial response with a debrief regarding social media and body image.
    - "It is so important to be aware of the effects of social media on the way we perceive ourselves in terms of our mental and physical health. Social media can be filled with unrealistic or unattainable physical appearances. These images may lead one to believe they are easily attained and deemed 'desirable by society'. However, it is important to realise that influencers, fitness models and celebrities are being paid to present these figures and most of the time, include modifications such as filters and plastic surgery. It is important to look past modified figures and images and start embracing your personality, curves and edges through learning to show more love, aroha to yourself and your body."
- "How do you feel about that?"
- Action: await response and react appropriately.
- Action for all conditions: Offer additional psychological support and contacts. "Would you like additional mental health support?" Action: send contacts on Zoom chat or offer via email.
- We would like to offer you a koha, as a symbol of gratitude for your contribution to our study."
- "Would you like a $20 Countdown or Westfield voucher?"
- Action: Await response. "Great, your voucher will be emailed to you."
- "If you haven't already stated this in the consent form, would you like a summary of the study findings?

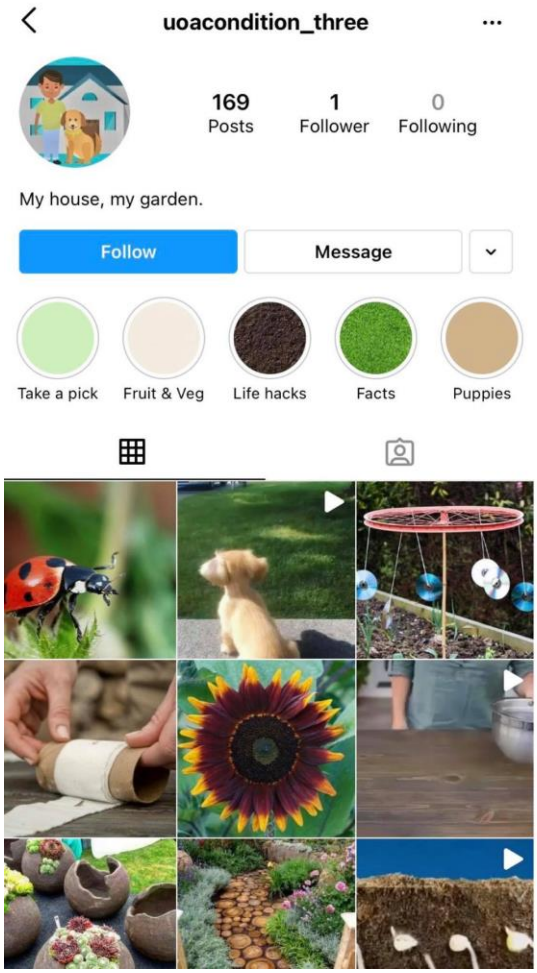
- Action: respond appropriately”
- **“**Kia ora __ , Have a great day!”
- “Good bye”
- Action: end Zoom session

Appendix G: Sample Social Media Exposure Conditions


uoacondition_two
LOVE YOUR BODY
169
Posts
1
Follower
0
Following
Self Love
" I am strong, I am beautiful, I am enough " Say it.
Follow
Message
Body positi...
Compassion
Self Care
Practise
The Hows
THE HUMAN BODY IS PERFECTLY IMPERFECT, EVER CHANGING, AND NEVER WAS MEANT TO FIT AN IMPOSSIBLE STANDARD OF PERFECTION
Self Compassion
The ability and practice of holding yourself amidst failure, disappointment, and suffering of any kind, and in the
uoacondition_two
Follow
EVERYTHING ABOUT YOU IS JUST WONDERFUL
I REFUSE to SACRIFICE MY MENTAL HEALTH for THE PERFECT BODY
This body had carried me through a hard life It looked exactly the way It was supposed to
"TO ME, BEAUTY IS ABOUT BEING COMFORTABLE IN YOUR OWN SKIN. IT'S ABOUT KNOWING AND ACCEPTING WHO YOU ARE."


uoacondition_one
BE FIT
169 Posts
1 Follower
0 Following
Fitspiration
Sweat is just fat crying, so wave it goodbye.
Follow
Message
Abs
Legs
Workouts
Booty
Motivation


uoacondition_one
Follow
EAT LIKE SHIT FEEL LIKE SHIT
DIET
GET FIT DON'T QUIT


uoacondition_three
169
Posts
1
Follower
0
Following
My house, my garden.
Follow
Message
Take a pick
Fruit & Veg
Life hacks
Facts
Puppies


uoacondition_three
Follow
How to
Grow an
Avocado

Appendix H: Pre – exposure Questionnaire

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Pre-exposure Questionnaire

What is your 3-digit number?

_____

Q69 What is your group number?

_____

End of Block: Please complete the below questions as truthfully as you can.

Start of Block: Body satisfaction: Indicate the answer that best reflects how you feel RIGHT NOW

Q1 How dissatisfied/ unsatisfied are you with your weight right now?

- Not at all (0)
- (1)
- Slightly (2)
- (3)
- Moderately (4)
- (5)
- Markedly (6)

Q2 How dissatisfied/ unsatisfied are you with your shape right now?

- Not at all (0)
- (1)
- Slightly (2)
- (3)
- Moderately (4)
- (5)
- Markedly (6)

End of Block: Body satisfaction: Indicate the answer that best reflects how you feel RIGHT NOW

Start of Block: State self esteem: Indicate the answer most true to yourself RIGHT NOW.

Q4 I feel confident about my abilities.

- Not at all (1)
- A little bit (2)
- Somewhat (3)
- Very much (4)
- Extremely (5)

Q6 I am worried about whether I am regarded as a success or failure.

- ○ Not at all (5)
- ○ A little bit (4)
- ○ Somewhat (3)
- ○ Very much (2)
- ○ Extremely (1)

Q7 I feel satisfied with how my body looks right now.

- ○ Not at all (1)
- ○ A little bit (2)
- ○ Somewhat (3)
- ○ Very much (4)
- ○ Extremely (5)

Q8 I feel frustrated or rattled about my performance.

- ○ Not at all (5)
- ○ A little bit (4)
- ○ Somewhat (3)
- ○ Very much (2)
- ○ Extremely (1)

Q9 I feel that I am having trouble understanding things I have read.

- ○ Not at all (5)
- ○ A little bit (4)
- ○ Somewhat (3)
- ○ Very much (2)
- ○ Extremely (1)

Q10 I feel that others respect and admire me.

- ○ Not at all (1)
- ○ A little bit (2)
- ○ Somewhat (3)
- ○ Very much (4)
- ○ Extremely (5)

Q11 I am NOT satisfied with my weight.

- ○ Not at all (5)
- ○ A little bit (4)
- ○ Somewhat (3)
- ○ Very much (2)
- ○ Extremely (1)

Q12 I feel self-conscious.

- ○ Not at all (5)
- ○ A little bit (4)
- ○ Somewhat (3)
- ○ Very much (2)
- ○ Extremely (1)

Q13 I feel as smart as others.

- ○ Not at all (1)
- ○ A little bit (2)
- ○ Somewhat (3)
- ○ Very much (4)
- ○ Extremely (5)

Q14 I feel displeased with myself.

- ○ Not at all (5)
- ○ A little bit (4)
- ○ Somewhat (3)
- ○ Very much (2)
- ○ Extremely (1)

Q15 I feel good about myself.

- ○ Not at all (1)
- ○ A little bit (2)
- ○ Somewhat (3)
- ○ Very much (4)
- ○ Extremely (5)

Q16 I am pleased with my appearance right now.

- ○ Not at all (1)
- ○ A little bit (2)
- ○ Somewhat (3)
- ○ Very much (4)
- ○ Extremely (5)

Q17 I am worried about what other people think about me.

- ○ Not at all (5)
- ○ A little bit (4)
- ○ Somewhat (3)
- ○ Very much (2)
- ○ Extremely (1)

Q18 I feel confident that I understand things.

- ○ Not at all (1)
- ○ A little bit (2)
- ○ Somewhat (3)
- ○ Very much (4)
- ○ Extremely (5)

Q19 I feel inferior(lower) to others at the moment.

- ○ Not at all (5)
- ○ A little bit (4)
- ○ Somewhat (3)
- ○ Very much (2)
- ○ Extremely (1)

Q20 I feel unattractive.

- ○ Not at all (5)
- ○ A little bit (4)
- ○ Somewhat (3)
- ○ Very much (2)
- ○ Extremely (1)

Q21 I feel concerned about the impression I am making.

- ○ Not at all (5)
- ○ A little bit (4)
- ○ Somewhat (3)
- ○ Very much (2)
- ○ Extremely (1)

Q22 I feel that I have less scholastic (academic) ability than others now.

- ○ Not at all (5)
- ○ A little bit (4)
- ○ Somewhat (3)
- ○ Very much (2)
- ○ Extremely (1)

Q23 I feel like I'm not doing well.

- ○ Not at all (5)
- ○ A little bit (4)
- ○ Somewhat (3)
- ○ Very much (2)
- ○ Extremely (1)

Q24 I am worried about looking foolish.

- ○ Not at all (5)
- ○ A little bit (4)
- ○ Somewhat (3)
- ○ Very much (2)
- ○ Exreemely (1)

End of Block: State self esteem: Indicate the answer most true to yourself RIGHT NOW.

Start of Block: State mood: Please indicate the option that best reflects how you feel RIGHT NOW

Q25 Tense

- Not at all (1)
- A little (2)
- Moderately (3)
- Quite a lot (4)
- Extremely (5)

Q26 Angry

- Not at all (1)
- A little (2)
- Moderately (3)
- Quite a lot (4)
- Extremely (5)

Q27 Worn out

- Not at all (1)
- A little (2)
- Moderately (3)
- Quite a lot (4)
- Extremely (5)

Q28 Unhappy

- Not at all (1)
- A little (2)
- Moderately (3)
- Quite a lot (4)
- Extremely (5)

Q29 Proud

- Not at all (1)
- A little (2)
- Moderately (3)
- Quite a lot (4)
- Extremely (5)

Q30 Lively

- Not at all (1)
- A little (2)
- Moderately (3)
- Quite a lot (4)
- Extremely (5)

Q31 Confused

- Not at all (1)
- A little (2)
- Moderately (3)
- Quite a lot (4)
- Extremely (5)

Q32 Sad

- Not at all (1)
- A little (2)
- Moderately (3)
- Quite a lot (4)
- Extremely (5)

Q33 Active

- Not at all (1)
- A little (2)
- Moderately (3)
- Quite a lot (4)
- Extremely (5)

Q34 On-edge

- Not at all (1)
- A little (2)
- Moderately (3)
- Quite a lot (4)
- Extremely (5)

Q35 Grouchy

- Not at all (1)
- A little (2)
- Moderately (3)
- Quite a lot (4)
- Extremely (5)

Q36 Ashamed

- Not at all (1)
- A little (2)
- Moderately (3)
- Quite a lot (4)
- Extremely (5)

Q37 Energetic

- Not at all (1)
- A little (2)
- Moderately (3)
- Quite a lot (4)
- Extremely (5)

Q38 Hopeless

- Not at all (1)
- A little (2)
- Moderately (3)
- Quite a lot (4)
- Extremely (5)

Q39 Uneasy

- Not at all (1)
- A little (2)
- Moderately (3)
- Quite a lot (4)
- Extremely (5)

Q40 Restless

- Not at all (1)
- A little (2)
- Moderately (3)
- Quite a lot (4)
- Extremely (5)

Q41 Unable to concentrate

- Not at all (1)
- A little (2)
- Moderately (3)
- Quite a lot (4)
- Extremely (5)

Q42 Fatigued

- Not at all (1)
- A little (2)
- Moderately (3)
- Quite a lot (4)
- Extremely (5)

Q43 Competent

- Not at all (1)
- A little (2)
- Moderately (3)
- Quite a lot (4)
- Extremely (5)

Q44 Annoyed

- ○ Not at all (1)
- ○ A little (2)
- ○ Moderately (3)
- ○ Quite a lot (4)
- ○ Extremely (5)

Q45 Discouraged

- ○ Not at all (1)
- ○ A little (2)
- ○ Moderately (3)
- ○ Quite a lot (4)
- ○ Extremely (5)

Q46 Resentful

- ○ Not at all (1)
- ○ A little (2)
- ○ Moderately (3)
- ○ Quite a lot (4)
- ○ Extremely (5)

Q47 Nervous

- Not at all (1)
- A little (2)
- Moderately (3)
- Quite a lot (4)
- Extremely (5)

Q48 Miserable

- Not at all (1)
- A little (2)
- Moderately (3)
- Quite a lot (4)
- Extremely (5)

Q49 Confident

- Not at all (1)
- A little (2)
- Moderately (3)
- Quite a lot (4)
- Extremely (5)

Q50 Bitter

- Not at all (1)
- A little (2)
- Moderately (3)
- Quite a lot (4)
- Extremely (5)

Q51 Exhausted

- Not at all (1)
- A little (2)
- Moderately (3)
- Quite a lot (4)
- Extremely (5)

Q52 Anxious

- Not at all (1)
- A little (2)
- Moderately (3)
- Quite a lot (4)
- Extremely (5)

Q53 Helpless

- Not at all (1)
- A little (2)
- Moderately (3)
- Quite a lot (4)
- Extremely (5)

Q54 Weary

- Not at all (1)
- A little (2)
- Moderately (3)
- Quite a lot (4)
- Extremely (5)

Q55 Satisfied

- Not at all (1)
- A little (2)
- Moderately (3)
- Quite a lot (4)
- Extremely (5)

Q56 Bewildered/ puzzled

- Not at all (1)
- A little (2)
- Moderately (3)
- Quite a lot (4)
- Extremely (5)

Q57 Furious

- Not at all (1)
- A little (2)
- Moderately (3)
- Quite a lot (4)
- Extremely (5)

Q58 Full of pep/energy

- Not at all (1)
- A little (2)
- Moderately (3)
- Quite a lot (4)
- Extremely (5)

Q59 Worthless

- Not at all (1)
- A little (2)
- Moderately (3)
- Quite a lot (4)
- Extremely (5)

Q60 Forgetful

- Not at all (1)
- A little (2)
- Moderately (3)
- Quite a lot (4)
- Extremely (5)

Q61 Vigorous

- Not at all (1)
- A little (2)
- Moderately (3)
- Quite a lot (4)
- Extremely (5)

Q62 Uncertain about things

- Not at all (1)
- A little (2)
- Moderately (3)
- Quite a lot (4)
- Extremely (5)

Q63 Bushed/ exhausted

- Not at all (1)
- A little (2)
- Moderately (3)
- Quite a lot (4)
- Extremely (5)

Q64 Embarrassed

- Not at all (1)
- A little (2)
- Moderately (3)
- Quite a lot (4)
- Extremely (5)

Approved by the University of Auckland Human Participants Ethics Committee on 26/02/2021 for three years. Reference Number UAHPEC3279

Appendix I: Writing Task

Department of Psychological Medicine
Faculty of Medical and Health Sciences
The University of Auckland
Auckland, 1142, New Zealand
Private Bag 92019

Writing Task

Do they like my post? A study into the effects of social media on body image

3-digit number:

Writing Task: Please write 1-3 sentences about how you feel about your body right now, after viewing the social media feed.

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Appendix J: Post – exposure Questionnaire

Department of Psychological Medicine
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The University of Auckland
Auckland, 1142, New Zealand
Private Bag 92019

Post-exposure Questionnaire

What is your 3-digit number?

_____

Q69 What is your group number?

_____

End of Block: Please complete the below questions as truthfully as you can.

Start of Block: Body satisfaction: Indicate the answer that best reflects how you feel RIGHT NOW

Q1 How dissatisfied/ unsatisfied are you with your weight right now?

- ○ Not at all (0)
- ○ (1)
- ○ Slightly (2)
- ○ (3)
- ○ Moderately (4)
- ○ (5)
- ○ Markedly (6)

Q2 How dissatisfied/ unsatisfied are you with your shape right now?

- Not at all (0)
- (1)
- Slightly (2)
- (3)
- Moderately (4)
- (5)
- Markedly (6)

End of Block: Body satisfaction: Indicate the answer that best reflects how you feel RIGHT NOW

Start of Block: State self esteem: Indicate the answer most true to yourself RIGHT NOW.

Q4 I feel confident about my abilities.

- Not at all (1)
- A little bit (2)
- Somewhat (3)
- Very much (4)
- Extremely (5)

Q6 I am worried about whether I am regarded as a success or failure.

- Not at all (5)
- A little bit (4)
- Somewhat (3)
- Very much (2)
- Extremely (1)

Q7 I feel satisfied with how my body looks right now.

- ○ Not at all (1)
- ○ A little bit (2)
- ○ Somewhat (3)
- ○ Very much (4)
- ○ Extremely (5)

Q8 I feel frustrated or rattled about my performance.

- ○ Not at all (5)
- ○ A little bit (4)
- ○ Somewhat (3)
- ○ Very much (2)
- ○ Extremely (1)

Q9 I feel that I am having trouble understanding things I have read.

- ○ Not at all (5)
- ○ A little bit (4)
- ○ Somewhat (3)
- ○ Very much (2)
- ○ Extremely (1)

Q10 I feel that others respect and admire me.

- ○ Not at all (1)
- ○ A little bit (2)
- ○ Somewhat (3)
- ○ Very much (4)
- ○ Extremely (5)

Q11 I am NOT satisfied with my weight.

- ○ Not at all (5)
- ○ A little bit (4)
- ○ Somewhat (3)
- ○ Very much (2)
- ○ Extremely (1)

Q12 I feel self-conscious.

- ○ Not at all (5)
- ○ A little bit (4)
- ○ Somewhat (3)
- ○ Very much (2)
- ○ Extremely (1)

Q13 I feel as smart as others.

- Not at all (1)
- A little bit (2)
- Somewhat (3)
- Very much (4)
- Extremely (5)

Q14 I feel displeased with myself.

- Not at all (5)
- A little bit (4)
- Somewhat (3)
- Very much (2)
- Extremely (1)

Q15 I feel good about myself.

- Not at all (1)
- A little bit (2)
- Somewhat (3)
- Very much (4)
- Extremely (5)

Q16 I am pleased with my appearance right now.

- Not at all (1)
- A little bit (2)
- Somewhat (3)
- Very much (4)
- Extremely (5)

Q17 I am worried about what other people think about me.

- ○ Not at all (5)
- ○ A little bit (4)
- ○ Somewhat (3)
- ○ Very much (2)
- ○ Extremely (1)

Q18 I feel confident that I understand things.

- ○ Not at all (1)
- ○ A little bit (2)
- ○ Somewhat (3)
- ○ Very much (4)
- ○ Extremely (5)

Q19 I feel inferior(lower) to others at the moment.

- ○ Not at all (5)
- ○ A little bit (4)
- ○ Somewhat (3)
- ○ Very much (2)
- ○ Extremely (1)

Q20 I feel unattractive.

- Not at all (5)
- A little bit (4)
- Somewhat (3)
- Very much (2)
- Extremely (1)

Q21 I feel concerned about the impression I am making.

- Not at all (5)
- A little bit (4)
- Somewhat (3)
- Very much (2)
- Extremely (1)

Q22 I feel that I have less scholastic (academic) ability than others now.

- Not at all (5)
- A little bit (4)
- Somewhat (3)
- Very much (2)
- Extremely (1)

Q23 I feel like I'm not doing well.

- Not at all (5)
- A little bit (4)
- Somewhat (3)
- Very much (2)
- Extremely (1)

Q24 I am worried about looking foolish.

- Not at all (5)
- A little bit (4)
- Somewhat (3)
- Very much (2)
- Exreemely (1)

End of Block: State self esteem: Indicate the answer most true to yourself RIGHT NOW.

Start of Block: State mood: Please indicate the option that best reflects how you feel RIGHT NOW

Q25 Tense

- Not at all (1)
- A little (2)
- Moderately (3)
- Quite a lot (4)
- Extremely (5)

Q26 Angry

- ○ Not at all (1)
- ○ A little (2)
- ○ Moderately (3)
- ○ Quite a lot (4)
- ○ Extremely (5)

Q27 Worn out

- ○ Not at all (1)
- ○ A little (2)
- ○ Moderately (3)
- ○ Quite a lot (4)
- ○ Extremely (5)

Q28 Unhappy

- ○ Not at all (1)
- ○ A little (2)
- ○ Moderately (3)
- ○ Quite a lot (4)
- ○ Extremely (5)

Q29 Proud

- ○ Not at all (1)
- ○ A little (2)
- ○ Moderately (3)
- ○ Quite a lot (4)
- ○ Extremely (5)

Q30 Lively

- Not at all (1)
- A little (2)
- Moderately (3)
- Quite a lot (4)
- Extremely (5)

Q31 Confused

- Not at all (1)
- A little (2)
- Moderately (3)
- Quite a lot (4)
- Extremely (5)

Q32 Sad

- Not at all (1)
- A little (2)
- Moderately (3)
- Quite a lot (4)
- Extremely (5)

Q33 Active

- Not at all (1)
- A little (2)
- Moderately (3)
- Quite a lot (4)
- Extremely (5)

Q34 On-edge

- Not at all (1)
- A little (2)
- Moderately (3)
- Quite a lot (4)
- Extremely (5)

Q35 Grouchy

- Not at all (1)
- A little (2)
- Moderately (3)
- Quite a lot (4)
- Extremely (5)

Q36 Ashamed

- Not at all (1)
- A little (2)
- Moderately (3)
- Quite a lot (4)
- Extremely (5)

Q37 Energetic

- Not at all (1)
- A little (2)
- Moderately (3)
- Quite a lot (4)
- Extremely (5)

Q38 Hopeless

- Not at all (1)
- A little (2)
- Moderately (3)
- Quite a lot (4)
- Extremely (5)

Q39 Uneasy

- Not at all (1)
- A little (2)
- Moderately (3)
- Quite a lot (4)
- Extremely (5)

Q40 Restless

- Not at all (1)
- A little (2)
- Moderately (3)
- Quite a lot (4)
- Extremely (5)

Q41 Unable to concentrate

- Not at all (1)
- A little (2)
- Moderately (3)
- Quite a lot (4)
- Extremely (5)

Q42 Fatigued

- Not at all (1)
- A little (2)
- Moderately (3)
- Quite a lot (4)
- Extremely (5)

Q43 Competent

- Not at all (1)
- A little (2)
- Moderately (3)
- Quite a lot (4)
- Extremely (5)

Q44 Annoyed

- Not at all (1)
- A little (2)
- Moderately (3)
- Quite a lot (4)
- Extremely (5)

Q45 Discouraged

- Not at all (1)
- A little (2)
- Moderately (3)
- Quite a lot (4)
- Extremely (5)

Q46 Resentful

- Not at all (1)
- A little (2)
- Moderately (3)
- Quite a lot (4)
- Extremely (5)

Q47 Nervous

- Not at all (1)
- A little (2)
- Moderately (3)
- Quite a lot (4)
- Extremely (5)

Q48 Miserable

- ○ Not at all (1)
- ○ A little (2)
- ○ Moderately (3)
- ○ Quite a lot (4)
- ○ Extremely (5)

Q49 Confident

- ○ Not at all (1)
- ○ A little (2)
- ○ Moderately (3)
- ○ Quite a lot (4)
- ○ Extremely (5)

Q50 Bitter

- ○ Not at all (1)
- ○ A little (2)
- ○ Moderately (3)
- ○ Quite a lot (4)
- ○ Extremely (5)

Q51 Exhausted

- ○ Not at all (1)
- ○ A little (2)
- ○ Moderately (3)
- ○ Quite a lot (4)
- ○ Extremely (5)

Q52 Anxious

- Not at all (1)
- A little (2)
- Moderately (3)
- Quite a lot (4)
- Extremely (5)

Q53 Helpless

- Not at all (1)
- A little (2)
- Moderately (3)
- Quite a lot (4)
- Extremely (5)

Q54 Weary

- Not at all (1)
- A little (2)
- Moderately (3)
- Quite a lot (4)
- Extremely (5)

Q55 Satisfied

- Not at all (1)
- A little (2)
- Moderately (3)
- Quite a lot (4)
- Extremely (5)

Q56 Bewildered/ puzzled

- Not at all (1)
- A little (2)
- Moderately (3)
- Quite a lot (4)
- Extremely (5)

Q57 Furious

- Not at all (1)
- A little (2)
- Moderately (3)
- Quite a lot (4)
- Extremely (5)

Q58 Full of pep/energy

- Not at all (1)
- A little (2)
- Moderately (3)
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- Not at all (1)
- A little (2)
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- Not at all (1)
- A little (2)
- Moderately (3)
- Quite a lot (4)
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- Not at all (1)
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- Moderately (3)
- Quite a lot (4)
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- Not at all (1)
- A little (2)
- Moderately (3)
- Quite a lot (4)
- Extremely (5)

Q63 Bushed/ exhausted

- ○ Not at all (1)
- ○ A little (2)
- ○ Moderately (3)
- ○ Quite a lot (4)
- ○ Extremely (5)

Q64 Embarrassed

- ○ Not at all (1)
- ○ A little (2)
- ○ Moderately (3)
- ○ Quite a lot (4)
- ○ Extremely (5)

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