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The influence of social media addiction on compulsive buying behaviour: A comparative analysis of LGBT+ and heterosexual consumers

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Abstract

Despite the significant research on the impact of social media in people's lives, little is known about the extent to which social media impacts on compulsive buying behaviour (CBB). Moreover, previous studies of this relationship sampled heterosexual or non-sexually identified populations. This study addresses this gap in knowledge by examining the impact of social media use and its addiction on CBB, together with the moderating influence of self-efficacy (SEF), through a comparative analysis of heterosexual and LGBT+ consumers. The results reveal that LGBT+ consumers are significantly more prone to both addictions than heterosexuals, but that social media addiction (SMA) has a stronger impact on CBB amongst heterosexuals. Moreover, SEF has a non-significant influence on CBB amongst both heterosexual and LGBT+ consumers and does not significantly moderate the impact of SMA on compulsive buying behaviour in either sample. Furthermore, the findings suggest that both heterosexual and LGBT+ non-compulsive consumers could be vulnerable to compulsive buying addiction through social media exposure and the fear of missing out.

1 | INTRODUCTION

Social media addiction (SMA) and compulsive buying behaviour (CBB) are complex behavioural conditions which have a serious negative impact on the lives of those affected (Pahlevan Sharif & Yeoh, 2018). Both SMA and CBB are often comorbid with psychiatric disorders, personality disorders, substance abuse (Kwak et al., 2004; Maraz et al., 2015), anxiety (Diez et al., 2018; Weinstein et al., 2016), compulsive hoarding (Frost et al., 1998), compulsive gambling (Claes et al., 2011; Granero et al., 2016; Trautmann-Attmann & Widner Johnson, 2009; Weinstein et al., 2016), and eating disorders (Black et al., 2015; Nicoli de Mattos et al., 2018; Trautmann-Attmann & Widner Johnson, 2009). Previous research has shown that excessive use of social media can contribute to stress, depression, anxiety, low self-esteem and other mental health disorders (Roberts & David, 2019); these conditions can also initiate a spiral of irrational consumption leading to CBB amongst sufferers in an attempt to achieve psychological relief from these afflictions (Faber & O'Guinn, 1989; Valence et al., 1988; Williams & Grisham, 2011). However, little is known about the relationship between SMA and CBB. One recent study by Pahlevan Sharif and Yeoh (2018) explored their association and found that social networking could encourage the development of online CBB amongst young Malaysian consumers because of their raised levels of anxiety, sense of emptiness, perception of money as a symbol of power, and long exposure to online advertisements. The study was restricted to online buying using a sample of young consumers in a specific country. As such, we still know little about the extent to which SMA impacts the development

of CBB, about the factors which moderate the process or about who is most at risk. Therefore, it is important to further explore and develop a deeper understanding of the interrelationship between SMA and CBB given the extant gap in knowledge, the mental distress which both SMA and CBB cause (Brand et al., 2020), and their increasing impact on our societies (Diez et al., 2018).

A range of previous studies has established the influence of self-efficacy (SEF) on mental health (e.g., Jarusalem & Hessling, 2009), addictions (Hamilton & Hassan, 2010) and compulsive behaviour (Diclemente, 2011). Therefore, this study also set out to explore the possible moderating effect of SEF on the relationship between SMA and CBB because SEF may potentially influence individuals' resistance in this context. Furthermore, a study by Black et al. (2001) stated that there could potentially be a high number of compulsive buyers within the gay community, although no subsequent research has ever examined CBB in the context of either sexual orientation or gender identity. Previous studies of the LGBT+ consumption have focused on the preference for products (Eisend & Hermann, 2020), on the viability of the LGBT+ market (e.g., Gudelunas, 2011; Oakenfull, 2013) and on the relationship between internalised homophobia and the purchasing behaviour of gay men (Reilly & Rudd, 2007). Although many studies have found that gay men and lesbian women face significant economic disparities compared to their heterosexual counterparts (e.g., Badgett et al., 2019; Laurent & Mihoubi, 2017), people appear to believe that gay consumers are atypically affluent (Bettinsoli et al., 2021). Not surprisingly, there is considerable confusion about the size and value of the LGBT+ market. This results from media images downplaying the diversity within the LGBT+ community (Ginder & Byun, 2015), inconsistencies in research methodologies and sampling designs (Gates, 2017), and the way in which sexual orientation is operationally defined and measured: as self-identification, same-sex behaviour, same-sex attraction, or a combination of these variables (Witeck & Combs, 2006). Moreover, it is also likely that many individuals are unwilling to disclose their sexual orientation because of the widespread discrimination in society (Wilkinson, 2019).

Previous research has tended to focus on the stigmatisation and marginalisation of the LGBT+ community as the basis of their consumer behaviour despite increasing cultural shifts and social progress, legal protection, and more frequent and nuanced representations of LGBT+ in popular culture in Western societies (Oakenfull, 2013). As such, these assumptions may now be outdated (Nash & Gorman-Murray, 2017; Savin-Williams, 2016), although these developments may obscure the realities that many LGBT+ people still face (Coffin et al., 2019), in part because acceptance and stereotyping in marketing communications have diluted the perception of existing discrimination and prejudice (Bettinsoli et al., 2021). What is certain is that social media is a key means of communication and socialisation for LGBT+ persons because it facilitates the development of online friendships, reduces isolation and loneliness and can supply positive feedback, which can boost self-image (Tandon et al., 2021). However, social media can also become a source of pressure by portraying lifestyle paradigms and images which may be unrealistic and create negative self-images and issues about acceptance in society (Williamson & Spence, 2001). Gay men, in particular, may externalise a preoccupation with their body image (Braun et al., 2015); this may create negative psychological issues and concerns, especially if they compare themselves with unachievable standards, for example, 'ideal' models (Strubel & Petrie, 2018) or are exposed to online aggression; this can result in stress, anxiety, depression and low self-esteem (Bettinsoli et al., 2021). Whilst these risks can be avoided by withdrawing from social media, even for short periods, for many people they are outweighed by their fear of missing out (FoMO) and need for belonging (Grau et al., 2019); this encourages continuation with on-screen socialisation, risking further exposure to negative impacts on self-worth and life satisfaction (Roberts & David, 2019).

Moreover, in striving for the inclusion of LGBT+ individuals in their marketing activities (Gomillion & Giuliano, 2011), companies may project standards that undermine self-image in the most susceptible individuals (Hetz et al., 2015). Consequently, some LGBT+ people struggle with their emotional states and have, consciously or unconsciously, become dependent on coping mechanisms to retain their sense of self-worth whilst others have developed mental health issues, exacerbated by crimes against LGBT+ individuals; hence, they may try to regain their self-esteem through consumption, brand affinity and lavish expenditure (Braun et al., 2015), thereby entering a spiral of dissatisfaction and anxiety which could trigger CBB, in particular amongst younger people (Diedrichs, 2012). Therefore, whilst on the one hand social media provides a sense of community and relief from some of the acceptance issues, on the other hand, it is possible that some LGBT+ individuals could be prone to social media dependency; as such, they may be more vulnerable to SMA and subsequently CBB.

To address the gap in knowledge relating to the above issues, this study explores the relationship between SMA and CBB through a comparative analysis of LGBT+ and heterosexual consumers to establish if LGBT+ consumers are at higher risk of susceptibility to SMA and CBB than their heterosexual counterparts. It also focuses on developing understanding of both the relationship between SMA and CBB, and the potential moderating effect of SEF on the impact of SMA on CBB. In view of the novelty of the study regarding its examination of the interrelationship between these constructs and its comparison of LGBT+ and heterosexual consumers, it offers an important theoretical contribution to the understanding of consumer behaviour. It does this by extending the theoretical underpinning of CBB and to the authors' knowledge, it is the first study to examine both the phenomenon of CBB amongst LGBT+ consumers, and the impact of SMA on compulsive and non-compulsive consumption. It is important to expand the body of knowledge on LGBT+ consumption, particularly bisexual and transgender consumers, because they have hitherto been neglected (Bettany & Rowe, 2015) and, in spite of positive sociocultural changes, members of this community still suffer overt or covert discrimination (Bettinsoli et al., 2021), which may render them more vulnerable to SMA and/or CBB. The findings will inform policy makers about the risks that vulnerable people face when trapped in spirals of behavioural addiction and debt and will facilitate mental health and well-being counselling and therapy.

The remainder of the paper is structured as follows. First, the theoretical background to the study presents the key aspects of the concepts and constructs being examined, namely SMA and the related FoMO, CBB, SEF and LGBT+ buying behaviour. The following section then brings together the connections amongst the constructs which underpin the hypotheses. The quantitative research methodology and the analysis of the constructs are then explained in detail. Finally, the findings are discussed, together with the theoretical contribution of the research, the practical implications of the study, its limitations and suggestions for future research.

2 | THEORETICAL BACKGROUND

Both SMA and CBB present with characteristics of addictive behaviour and are both disruptive of everyday life (Brand et al., 2020). They manifest themselves with irrepressible behaviours in order to release tension caused by the compulsion which could initially be triggered by benign actions and become problematic because of particular stimuli; for example, the use of technology and the enjoyment gained from it (APA, 2020).

2.1 | Social media addiction (SMA)

Technological development supplies platforms to fulfil affiliation needs via networks of social connections which are important to humans for protection and happier lives (Roberts & David, 2019). However, social network platforms are also vehicles for sophisticated marketing activities to target consumers with tailored advertisements (Kostyk & Huhmann, 2020), and importantly, they also provide a means of interaction between social media influencers and their followers (Taillon et al., 2020). The need for socialisation may, over time, become a driver for the increasing use of social media which can lead to the point of addiction (Karahanna et al., 2015), a condition that has been prevalently found in consumers with the vanity personality trait (Okazaki et al., 2019), extraversion, openness and narcissism (Bilgin & Tas, 2018).

The conceptualisation of SMA varies across studies (Kircaburun, 2016), although there is a consensus that gratification and pleasure appear to be the dominant motives for the use of social media (Wang et al., 2014). SMA is also associated with low self-esteem, depression, anxiety and need for belonging (Grau et al., 2019), which can be aggravated by the perceived risk of cyberbullying, concerns about indelible digital footprints, advertising influence and excessive spending behaviour (Schurgin O'Keeffe & Clarke-Pearson, 2011). SMA also affects a person's daily activities (Brand et al., 2020; Kircaburun, 2016) because of the preoccupation with checking technological devices which causes regular interruptions of focus and tasks that individuals are meant to perform (Carr, 2010).

SMA can become intensified through a preoccupation with maintaining contacts with online social groups; therefore, when individuals perceive a form of exclusion because they do not receive messages and/or cannot connect with the internet, a fear of missing out (FoMO) on information, connection or rewarding events and experiences (Przybylski et al., 2013) can raise anxiety. Individuals may perceive that their need for belonging is under threat (Hetz et al., 2015) to the point of resorting to taking comfort from the negative experiences of others (Hayran & Anik, 2021) to garner some satisfaction regarding their own (Lai et al., 2016). Because FoMO amplifies anxiety, it can fuel an obsession with checking for messages on social media with increasing frequency. In addition, it negatively affects daily life by impacting on the use of time, productivity and achievements (Rozgonjul et al., 2020), and may have a long-term negative effect on well-being because of increased anxiety, depression and sleeplessness (Elhai et al., 2016; Roberts & David, 2019). Although FoMO can manifest in social contexts other than social media, its effects have been intensified by the use of this technology (Tandon et al., 2021); therefore, it is intricately associated with the increased time spent on social networks, and with specific information sharing and information seeking tendencies (Hayran & Anik, 2021).

Furthermore, excessive use of social media may also diminish an individual's ability to interact face-to-face with others (Rasmussen et al., 2019). Andreassen et al. (2016) found a relationship between high levels of both anxiety and depression and addictive social networking; socially anxious people appear to be more comfortable communicating online, hence people who suffer from social anxiety may be more vulnerable to SMA (Roberts & David, 2019). The study of SMA overlaps with mobile phone addiction research because social media is often accessed via mobile gadgets (e.g., Billieux et al., 2015; Kuss et al., 2018). Paradoxically, SMA encompasses two unique manifestations, one is addiction to technology and the other is resistance to it when overusing it (Yao & Cao, 2016). Individuals affected by SMA often attempt to suppress and/or avoid the acknowledgement of stressful feelings; this mechanism may cause other mental disorders because people who already have difficulties facing emotions often use social media as a distraction and, over time, they enter a spiral of addictive behaviour (Andreassen et al., 2016; Rasmussen et al., 2019); this loop of behaviour/reward may, as a consequence, intensify tolerance (Bisen & Deshpande, 2018). Indeed, individuals who are near-addictive, manifest a high level of tolerance, which can be worsened by FoMO (Martin et al., 2013).

Social media addiction can manifest withdrawal symptoms such as irritability, anger and distress, if access to social media is denied, together with passive coping such as repression or cognitive distortions (Billieux et al., 2015; Bisen & Deshpande, 2018). This is because SMA involves part of the brain that links to reward-based compensation activities; hence checking for messages on social media provides compensation and relief to the user (Wegmann et al., 2018).

2.2 | Self- efficacy

The perception of one's ability to perform a task, SEF, relates to the use of self-awareness of the motivation and regulation of ones' behaviour. If an individual is satisfied with both the outcome of a task and the level of control exercised on an action by their own SEF, it is

likely that the controlling behaviour is repeated to obtain similar restrained results in other circumstances (Bandura, 1986). The effects of SEF have been studied in relation to team cohesion in human resource studies (Black et al., 2018), job crafting (Tresi & Mihelič, 2018), and mental health in schools (Jarusalem & Hessling, 2009). Moreover, although compulsions are irrepressible and unmanageable (Tangney et al., 2004), the findings from several studies suggest that SEF may positively influence addictive behaviours, for example, boosting SEF was found to combat addiction to nicotine (Hamilton & Hassan, 2010), and to increase resistance to alcohol consumption amongst alcoholics (Bluma, 2018). SEF can also influence smoking abstinence and cessation (Diclemente, 2011), and buffer the impact of smartphone addiction on academic procrastination (Li et al., 2020). Conversely, individuals with low levels of SEF have minimal control over smartphone games addiction (Chen et al., 2020). Interestingly, in their study of internet addiction, Berte et al. (2021) found that both addicted and non-addicted respondents perceived their level of SEF in the same way despite the inverse relationship between SEF and internet addiction. Hitherto, SEF has not been studied in the context of either CBB or SMA. However, it has been examined in relation to multitasking amongst millennials, including their online communication whilst participating in other activities, such as reading or watching a film, albeit with reduced concentration efficiency, which diminishes their recollection of information and their performance (Alghamdi et al., 2019); within this context, SEF was found to have a weak moderating effect on the attention span, particularly amongst young females.

2.3 | Compulsive buying behaviour

The core dimensions of compulsive purchasing are self-regulation deficiency (Maccarrone-Eaglen & Schofield, 2017) and an uncontrollable urge to buy products excessively and/or unnecessarily to release internal tension regardless of the financial implications (Flight et al., 2012; Mousumi Bose et al., 2013). Compulsive buying behaviour prevalently affects females and young consumers in the form of a reaction to counterbalance negative thoughts and feelings related to anxiety and low self-esteem (Faber & O'Guinn, 1989; Valence et al., 1988; Williams & Grisham, 2011). CBB is considered to be a behavioural addiction (Aboujaoude, 2014; Andreassen, 2014), having traits which include increased behavioural repetitions and hypersensitisation of some neurological systems (Wegmann et al., 2018).

Neurological activities, in the decision-making regions of the brain, work differently between compulsive and non-compulsive buyers and, in this context, it is important to distinguish compulsive purchasing from impulsive purchasing, although they are often discussed in parallel in the literature (Raab et al., 2011). Whilst the two types of behaviour present similarities in the spontaneity of the purchase and in the outcomes, CBB is markedly different in relation to the loss of control (Darrat et al., 2016) and in the underlying purchasing motivation which is a negative emotion (Dittmar, 2005) compared with a positive state of mind in the case of impulse purchasing (Weinstein et al., 2016). Therefore, CBB is not an amplified version of impulsive buying (Flight et al., 2012). Tangney et al. (2004) demonstrated that people who are unable to exercise self-control appear unbalanced and prone to excessive behaviour such as compulsions, which are ego-dystonic because they disturb the conscious behaviour with distressing thoughts that can be tamed only by the performance of a specific action like buying (McElroy et al., 1994). Compulsions are beyond the control of the affected individuals (Faber & O'Guinn, 1989; Lejoyeux et al., 1997; Tangney et al., 2004) whilst impulsions are ego-syntonic that is, individuals have a certain span of awareness and rational control to respond to the urge, and their thoughts and behaviour are in harmony (McElroy et al., 1994).

Severely compulsive buyers cannot resist their urge to purchase something for more than 2 h (Maccarrone-Eaglen & Schofield, 2019), irrespective of their income (Nicoli de Mattos et al., 2018; Weinstein et al., 2016) and, as such, they often enter a spiral of debt (Aw et al., 2018). Compulsive buyers are often insecure and may suffer from maladaptation, anxiety, low self-esteem, depression and self-blame (Bani-Rshaid & Alghraibeh, 2017; Black, 2007). Impaired self-control in relation to spending is an important dimension of CBB because the act of spending and buying functions as a mechanism to counteract the build-up of internal tension (Lee & Mysyk, 2004) and the acquisition of products, including branded goods, provides a sense of congruence with the ideal self (Japutra et al., 2019) whilst the purchasing of clothing and books, symbolises a sense of self-expression and self-worthiness (Maccarrone-Eaglen & Schofield, 2019). Buying also represents a way to gain social acceptance (Xu, 2008), to fit and integrate within a group (Attiq & I Azam, 2015; Heisley & Cours, 2007; Khare, 2013; Phau & Woo, 2008), and to socialise (d'Astous, 1990), although many prefer buying online because they can avoid being observed during their dysfunctional consumption (Weinstein et al., 2016).

2.4 | The LGBT+ context: Buying behaviour and social media use

Black et al. (2001) stated that there could possibly be a larger number of compulsive buyers amongst gay men; however, subsequent CBB research has neither examined the validity of this statement nor investigated the link between SMA and CBB in this community or amongst other LGBT+ consumers. Indeed, some literature portrays LGBT+ consumers as a homogeneous group (e.g., Kates, 2002; Visconti, 2008), which could lead to stereotyped consumption myths, reinforced through marketing communications (Coffin et al., 2019), in some cases to avoid offending homophobic audiences (Tsai, 2012). This may serve to reduce discrimination and create an apparent acceptance of LGBT+ persons, but only masks the prejudice which still exists in some societies, including developed countries (Bettinsoli et al., 2021). Given that the LGBT+ community has been exposed to discrimination and homophobia (Mara et al., 2021; Nadal, 2019) and its members disproportionately manifest anxiety and depression, which impact on identity development, self-esteem (Carr, 2010) and

the mental health issues which trigger CBB (Faber & O'Guinn, 1989; Valence et al., 1988), they may be predisposed to the disorder. This may be particularly relevant for specific LGBT+ subgroups. For example, bisexual and transgender individuals manifest higher levels of depression and anxiety than gays or lesbians because of more complex identity issues (Bettany & Rowe, 2015; Ross et al., 2018) and more limited acceptance or understanding of their gender (Cannon et al., 2017).

Studies on LGBT+ consumer behaviour are, however, limited and prevalently focused on gay men (Coffin et al., 2019) whilst neglecting other LGBT+ consumers (Eisend & Hermann, 2020). Moreover, some research has reinforced the 'myth of gay affluence', by claiming that members of the gay community have an income, on average, 20% more than heterosexuals (Strubel & Petrie, 2018). Nevertheless, the perception of affluence in the gay market in European and North American societies has also been questioned in the extant literature because it is unrepresentative of LGBT+ diversity (Coffin et al., 2019), and may not even reflect the reality of gay consumer behaviour given that gays with high levels of internal homophobia may avoid shopping to appear more masculine or heterosexual, or shop online to avoid being seen and evaluated in stores (Reilly & Rudd, 2007).

Socialisation and a sense of community may provide some relief to those affected by the above issues, though in some cases, they do not compensate for feelings of alienation (Williamson & Spence, 2001). The media have, in part, helped to reduce the lack of social acceptance by featuring LGBT+ role models (Gomillion & Giuliano, 2011) and social media, especially, has helped to provide support and connection. However, it can also be a source of distress through cyberbullying (Craig et al., 2021), which appears to be managed by some members of the LGBT+ community using multiple platforms where they portray their different online identities to safeguard their wellbeing (Talbot et al., 2020). Nevertheless, social media could represent a double-edged sword creating a dependency in the most vulnerable individuals (Hetz et al., 2015). In addition, studies have shown that pressure from media images affects young men, in particular (Diedrichs, 2012), who may become dissatisfied with their body image and purchase apparel products because they represent an extension of personal identity; as such, they may be more predisposed to the development of compulsive buying to improve their projection of self via the symbolic representation of fashion items (Strubel & Petrie, 2018).

2.5 | Synthesis of the literature and hypotheses

The review of the pertinent literature has identified significant gaps in the existing body of knowledge relating to the connection between SMA and CBB, and the influence of both FoMO and SEF in the relationship between the two addictions. It has also highlighted that the LGBT+ community, particularly its bisexual and transgender members, have been neglected both in previous consumer behaviour research and more specifically in CBB research to date, despite their potential vulnerability to both SMA and CBB compared with the general population because of their possible non-binary identity-related turmoil (Bettany & Rowe, 2015; Ross et al., 2018) and more limited acceptance or understanding of their gender identity (Cannon et al., 2017). Six hypotheses were developed based on the following rationale.

Compulsive buying behaviour is a complex behavioural condition initiated by mental health issues such as stress, anxiety, depression and low self-esteem (Faber & O'Guinn, 1989; Valence et al., 1988), conditions which are also disproportionately manifested by members of the LGBT+ community who are exposed to discrimination and homophobia (Carr, 2010; Mara et al., 2021), particularly bisexual and transgender individuals (Cannon et al., 2017; Ross et al., 2018). It is therefore interesting that to date, CBB research has not examined CBB amongst LGBT+ consumers. This is surprising given that, despite more recent acceptance of LGBT+ in Western societies (Oakenfull, 2013; Savin-Williams, 2016), members of this community are disproportionately afflicted with mental health disorders which could potentially trigger CBB because of ongoing discrimination, homophobia and limited support (Bettinsoli et al., 2021; Coffin et al., 2019). We therefore hypothesised that:

> **Hypothesis 1.** There are significant differences in CBB between the LGBT+ and the heterosexual populations.

Previous studies have shown that the need for socialisation may drive the increasing use of social media, which can lead to the point of addiction (e.g., Karahanna et al., 2015). Research has also shown that LGBT+ individuals have found a sense of community in social media (Williamson & Spence, 2001) and that SMA has been found to increase through obsessive maintenance of online social group contacts (Hetz et al., 2015). This may increase LGBT+ community members' vulnerability to SMA, particularly where FoMO on information, connection or rewarding experiences raises anxiety because individuals perceive their need for belonging is under threat (Hayran & Anik, 2021). As such, we hypothesised that:

> **Hypothesis 2.** There are significant differences in SMA between the LGBT+ and the heterosexual populations.

One previous study (Pahlevan Sharif & Yeoh, 2018) found that CBB is linked with disproportionate internet and social media use, the former being activated by raised levels of anxiety, a sense of emptiness, perception of money as a symbol of power, and long exposure to online advertisements. The findings were based on a sample of young Malaysian consumers, who engaged in excessive online purchasing to achieve status, and are not generalisable to other countries or offline purchasing. Moreover, no further studies have examined the relationship between SMA and CBB. Nevertheless, previous research has shown that excessive use of social media can contribute to stress, anxiety, depression, low self-esteem and other mental health disorders (Roberts & David, 2019), conditions which can initiate CBB as a coping strategy (Brand et al., 2020; Roberts & David, 2019; Williams & Grisham, 2011). We therefore hypothesised that:

Hypothesis 3. There is a significantly higher level of CBB amongst the social media addicted in both the LGBT+ and heterosexual populations.

Little is known about the extent to which SMA impacts the development of CBB in the general population, and what is known relates to online purchasing only and the moderating effects of some personality traits in this context (Pahlevan Sharif & Yeoh, 2018). Nevertheless, as stated above, studies have shown that members of the LGBT + community may be more vulnerable to SMA in view of their sense of community in social media and need for online socialisation (Hayran & Anik, 2021; Przybylski et al., 2013), although these conditions can potentially create positive feedback (Tandon et al., 2021). Previous studies have also found that excessive use of social media can contribute to CBB triggers such as stress, anxiety, depression, low self-esteem and other mental health disorders (Roberts & David, 2019). Additionally, despite recent positive changes in society, members of the LGBT+ community still suffer discrimination (Bettinsoli et al., 2021; Craig et al., 2021), including unwanted online aggression via social media, which could lead to anxiety and other negative emotions which may render them more vulnerable to CBB (Faber & O'Guinn, 1989). Therefore, we hypothesised that:

Hypothesis 4. SMA has a significantly stronger impact on compulsive buyers amongst the LGBT+ population compared with compulsive buyers in the heterosexual population.

Furthermore, given that FoMO is significantly associated with SMA and can increase preoccupation with checking social media with increased frequency (Roberts & David, 2019), it could also initiate and/or exacerbate CBB because both SMA and CBB have similar underpinning conditions (Faber & O'Guinn, 1989; Roberts & David, 2019; Valence et al., 1988). Given the LGBT+ community's need for online socialisation, the sense of community they have found in social media (Williamson & Spence, 2001), their potential vulnerability to SMA (Hayran & Anik, 2021), and the possible influence of FoMO in stimulating CBB, we posited that:

Hypothesis 5. FoMO has a significantly stronger impact on CBB amongst members of the LGBT+ population compared with the heterosexual population.

Finally, previous research has also shown that SEF can positively influence abstinence from addictive behaviours, although its moderating effect on the relationship between SMA and CBB has hitherto been neglected (Bluma, 2018; Diclemente, 2011; Hamilton & Hassan, 2010). Given that SEF may potentially moderate the negative effects of multi-tasking caused by the excessive use of electronic gadgets (Alghamdi et al., 2019) and may also increase an individual's ability to fight some addictions such as smoking (Diclemente, 2011) and mitigate others such as smartphone addiction (Li et al., 2020), we postulated that:

Hypothesis 6. SEF significantly moderates the impact of SMA on CBB amongst members of both the LGBT+ and heterosexual populations.

3 | STUDY METHOD

A questionnaire survey was used to obtain viable samples from both the LGBT+ and heterosexual communities to perform a comparative analysis and to generalise the findings from the results. The questionnaire was pre-tested for error, clarity and ambiguity (Babbie, 2007). First a protocol analysis was undertaken with three individuals: two academic experts and the Head of External Relations of the LGBT+ Foundation. No particular issues were highlighted, however, the LGBT + Foundation provided their approved questionnaire demographic, which includes a distinction between gender and sexuality and adopts a terminology which is well-defined and ethically correct. The concept of gender, as a social construct, is based on biological characteristics of individuals, though it is difficult to disentangle it from sexuality (Van Anders, 2015), hence the LGBT+ Foundation's input was pivotal to distinguish the respondents' groups based on their sexual orientation; however, where a respondent identified as transgender and considered himself/herself heterosexual, they were considered to be part of the LGBT+ sample. The revised questionnaire was, then, piloted with eight individuals, including academics, students and clerical staff, in one university, including follow-up interviews to discuss the content of the survey. Each individual made reference to the clarity of the questions and instructions and no difficulties were reported; this was not surprising given that, with the exception of four variables, all the scales included in the questionnaire had been validated in previous research and subjected to evaluation in the context of this study, hence it was deemed unnecessary to continue the pilot study further. The questionnaire was then distributed to both sample groups, and respondents were invited to answer on the basis of self-identification with the described characteristics of gender and sexuality.

3.1 | Participants and data collection

The survey produced a sample of 836. The heterosexual sample's demographic profile (Table 7) was obtained from an online survey of staff and students at three universities using the SurveyMonkey platform; a total of 409 responses were received; however, nine were incomplete and were discarded, 35 were transferred to the LGBT+ group because they fitted the LGBT+ profile, and 20 were transferred from the LGBT+ sample because they fitted the heterosexual profile. The heterosexual respondents were grouped in four clusters: UK (63.1%), USA (11.7%), European-Caucasian (16.9%), and other countries, prevalently Latin-American and Asian, (6.8%); the total of usable questionnaires from the heterosexual respondents was 385. The LGBT+ sample's demographic profile (Table 8) was collected using both a snowballing technique and Prolific; 389 usable questionnaires were obtained and checked for completion. As stated above, 35 were

transferred from the heterosexual sample, and 20 transferred to the heterosexual sample. The LGBT+ respondents were from the following areas: UK (36.1%), USA (40.1%), European-Caucasian (16.3%), Other countries (7.4%). The size of both samples satisfied the requirement ($N = 384$) for a 95% confidence level (Cochran, 1977).

Given the possibility of differences in levels of social pressure and acceptance between the LGBT+ sub-samples from the four geographic areas (Oakenfull, 2013), they were screened to identify variances for the interpretation of the findings. Comparative one-way ANOVA tests (Table 1) revealed non-significant geographical differences amongst the LGBT+ and the heterosexual samples for CBB and what we collectively termed 'SMA – CBB relationship variables' ('When I am on social media, I feel a rising urge to buy something'; 'Advertisements on social media stimulate my urge to buy something'; 'I often I have an urge to buy something when I cannot access my social media'; 'When I cannot go out shopping, I find comfort in the use of social media'). There was a difference in SMA between the European sub-group and the other countries sub-group, and a difference in FOMO between the UK and the European sub-groups; however, these differences, although statistically significant, had very small effect sizes (Cohen, 1988). By comparison, in the heterosexual sample, there was a difference in CBB between the USA and the 'others', and a difference in the CBB/SMA relationship variables, however, these significant differences also had very small effect sizes (Cohen, 1988). Given that there were no major differences in the results from the tests, the comparative analysis amongst the two samples was deemed appropriate.

3.2 | Measures

To measure the constructs, the following validated scales were used: 17 items from Van den Eijnden et al. (2016) were selected to measure SMA, and reduced to 14, as explained in Section 4.1.2 (Table 5). The items included the nine aspects of addiction: preoccupation, tolerance, withdrawal, persistence, escape, problems, deception, conflicts and displacement. To assess CBB, the most recent seven item scale from Maccarrone-Eaglen and Schofield (2017) was used (Table 3); they also classify compulsive buyers into mild and severe categories in relation to the aggregate scores; this technique was also adopted in this study to identify differences in the intensity of the screened purchasing disorder manifestation. The SEF construct was measured with Chen et al. (2001) eight item scale (see notes in Table 9). To measure FoMO, two items from Przybylski et al. (2013) scale were adapted to understand the extent to which FoMO, because of SMA, could influence CBB and/or its development (Table 10). Moreover, to further examine the relationship between SMA and CBB, four additional measurement items were designed, included in the questionnaire and validated using both samples (Table 9). For ease of identification, these items are collectively referred to as 'SMA – CBB relationship variables' (specified above in Section 3.1). These were developed to identify possible direct comorbidity between SMA and CBB because other studies have identified comorbidities between SMA or CBB and other

TABLE 1 Differences in CBB, SMA, FoMO, relationship variables, SEF and the countries of origin groups using one-way ANOVA

	LGBT+									Heterosexual								
	Df	F	η^2	USA/UK	USA/EC	USA/Oth	UK/EC	UK/Oth	EC/Oth	*Df*	F	η^2	USA/UK	USA/EC	USA/Oth	UK/EC	UK/Oth	EC/Oth
CBB	3	1.02^{ns}	.00	$-.42^{ns}$	-1.16^{ns}	$.56^{ns}$	1.58^{ns}	$.98^{ns}$	$-.59^{ns}$	3	3.72^{**}	.03	1.76^{ns}	$.62^{ns}$	4.50^{**}	-1.15^{ns}	2.73^{ns}	3.88^{ns}
SMA	3	3.03^{*}	.02	$.21^{ns}$	1.98^{ns}	-5.84^{ns}	1.76^{ns}	-6.06^{ns}	-7.83^{*}	3	2.02^{ns}	.02	2.27^{ns}	-1.57^{ns}	1.05^{ns}	-3.85^{ns}	-1.22^{ns}	2.63^{ns}
FoMO	3	3.22^{*}	.03	$-.35^{ns}$	$.48^{ns}$	$-.27^{ns}$	$.83^{*}$	$.08^{ns}$	$-.76^{ns}$	3	2.24^{ns}	.02	$.45^{ns}$	-1.19^{ns}	$.50^{ns}$	$-.64^{ns}$	$.05^{ns}$	$.69^{ns}$
CBB/SMA relationship variables	3	2.22^{ns}	.02	$-.28^{ns}$	1.02^{ns}	$-.38^{ns}$	1.30^{ns}	$-.09^{ns}$	-1.40^{ns}	3	5.16^{**}	.04	1.98^{**}	$.57^{ns}$	1.62^{ns}	-1.41^{*}	$-.35^{ns}$	1.06^{ns}
SEF	3	2.76^{*}	.02	1.40^{ns}	-1.02^{ns}	-1.45^{ns}	-2.43^{ns}	-2.86^{ns}	$-.43^{ns}$	3	2.06^{ns}	.02	$-.36^{ns}$	$.96^{ns}$	-2.11^{ns}	1.32^{ns}	-1.74^{ns}	-3.07^{ns}

Note: ANOVA and Tukey HSD mean differences.
Abbreviations: CBB, compulsive buying behaviour; EC, European-Caucasian; FoMO, fear of missing out; ns, non-significant; Oth, Others; SEF, self-efficacy; SMA, social media addiction; UK, United Kingdom; USA, United States of America.
$^{*}p < .05$; $^{**}p < .01$.

addictive behaviours (e.g., Diez et al., 2018; Kwak et al., 2004; Maraz et al., 2015). Furthermore, depression, stress, anxiety, and low self-esteem underpin both SMA (Elhai et al., 2016; Roberts & David, 2019) and CBB (Faber & O'Guinn, 1989; Valence et al., 1988; Williams & Grisham, 2011), therefore, comorbidity may exist between the two addictions, particularly given the findings of the only previous study indicating that online CBB could be influenced by social media advertising (Pahlevan Sharif & Yeoh, 2018). All the variables in each measure were presented on five-point Likert-type scales ranging from 1: 'strongly disagree' to 5: 'strongly agree', with all options in between being labelled and numbered accordingly.

3.2.1 | Validation of the measures

The scales were tested for internal consistency with both the heterosexual and LGBT+ samples and produced the following Cronbach alphas: SMA – 17 items from Van den Eijnden et al. (2016): $\alpha = .94$ (heterosexual), $\alpha = .96$ (LGBT+); CBB – seven item scale from Maccarrone-Eaglen and Schofield (2017): $\alpha = .87$ (heterosexual), $\alpha = .86$ (LGBT+); SEF – eight items from Chen et al. (2001): $\alpha = .92$ (heterosexual), $\alpha = .93$ (LGBT+); FoMO – two items from Przybylski et al. (2013): $\alpha = .80$ (heterosexual), $\alpha = .85$ (LGBT+). The 'SMA – CBB relationship variables' were scrutinised for face validity and reliability during the pre-testing; additionally, given that they were designed specifically for this research, they underwent a further process of validation (Table 2), that is, the items represent the intended construct, address the intended thought process, and the construct has good internal consistency, convergent validity and supplied useful information for the analysis (Cook & Beckman, 2006). The scales in the questionnaire were also tested, to identify possible biases in the responses of both samples, using Harman's single factor test for Common Method Bias; the sum of squared percentage of variance was 27.45%, far below the recommended 50% threshold.

3.3 | Procedure and analysis of data

The research design, including a single questionnaire for both samples, received ethical approval from a University Ethical Research Panel before implementation, and demographic definitions relating to LGBT+ categories were obtained from the LGBT+ Foundation. Data analysis was undertaken using SPSS 26 and AMOS 26. The statistical procedure consisted of the following steps. First, the SMA and CBB constructs were factor analysed to verify their dimensions and the relevance of the variables in each measure; the constructs were then tested for invariance across the heterosexual and LGBT+ samples. Both samples were screened for SMA and CBB and clustered into four separate categories: 'non-compulsive' (scores from 1 to 2), 'non-compulsive with occasional compulsive/addictive occurrence' (scores from >2 to 3), 'mildly compulsive/addicted' (scores from >3 to 4) and 'severely compulsive/addicted' (scores from >4 to 5). The compulsive/addicted individuals in both mild and severe categories, for SMA and/or CBB, in each sample were then cross-tabulated with their demographic profiles to examine their characteristics. One-way ANOVA tests were then used to identify statistically significant differences in subjects' SMA, SEF and FoMO ratings across the four levels of CBB. The 'SMA – CBB relationship variables' were also scrutinised individually to verify behavioural differences between the CBB groups. This was followed by a multiple linear regression analysis to identify the impact of these constructs and variables on CBB. Finally, a moderated regression analysis, using structural equation modelling, was used to identify the overall extent of SMA's impact on CBB and to assess the moderating influence of SEF on the relationship between SMA and CBB.

TABLE 2 Validation of SMA – CBB relationship variables

	AVE	CR	α	r SMA	r CBB
Heterosexual sample	.76	.92	.88	.60**	.51**
LGBT Sample	.66	.89	.83	.65**	.46**

Abbreviations: AVE, average variance extracted; CR, composite reliability; r CBB, Correlation with compulsive buying behaviour; r SMA, Correlation with social media addiction; ns: non-significant; α, Cronbach alpha.
**$p < .01$.

4 | STUDY RESULTS

4.1 | Factor analysis and multigroup invariance tests

4.1.1 | Compulsive buying behaviour

An exploratory factor analysis (EFA) was conducted using Maximum Likelihood extraction and Promax oblique rotation; that latter was used because social science factors are often correlated (Field, 2013). The CBB construct confirmed the structure of the scale for the multigroup analysis; the two CBB dimensions explained 70.07% of the variance (Table 3). A structural equation modelling multigroup analysis to identify differences between the heterosexual and the LGBT+ samples was undertaken after a confirmatory factor analysis. The model fit indices were as follows: CMIN/DF: 5.470, NFI: .970, RFI: .952, CFI: .975, RMSEA: .075 (Figure 1); the inflated CMIN/DF value reflects the large sample size (Jöreskog & Sörbom, 1993) and the other indices show a good level of fit between the model and the data, whilst the RMSEA is acceptable (Byrne, 2010). The results from a configural model, used for the multigroup invariance test, were: CMIN/DF: 3.457, NFI: .961, RFI: .940, CFI: .972, RMSEA: .056.

The multigroup invariance test results are presented in Table 4. The style follows Byrne (2009; 2010); which highlights two complementary differences (CMIN/DF and CFI) between the groups analysed as key criteria for evaluation of invariance as well as the specification of each comparative model under examination. The test resulted in non-invariance in the self-control impaired spending (SIS) dimension, and specifically in relation to the variable 'I am a reckless spender', although the overall structural model is invariant across the two

TABLE 3 CBB dimensions – EFA

Compulsive buying behaviour	Dimensions 1	2
Factor 1: Self-control impaired spending		
I often buy things even though I cannot afford them	.79	
I have often bought a product that I did not need, whilst knowing that I have very little money left	.78	
I am a reckless spender	.77	
When I have money, I cannot help but spend part or the whole of it	.57	
Factor 2: Compulsive purchasing		
For me, shopping is a way of facing the stress of my daily life and relaxing		.86
I sometimes feel that something inside pushes me to go shopping		.79
Much of my life centres around buying things		.60
Eigenvalue	3.85	1.06
Variance (%)	54.99	15.08
Cumulative variance (%)	54.99	70.07

Note: KMO measure of sampling adequacy: .86; Bartlett's test of Sphericity: $\chi^2 = 2379.24$; $p < .001$; Correlation between factors 1 and 2: $r = .64$.

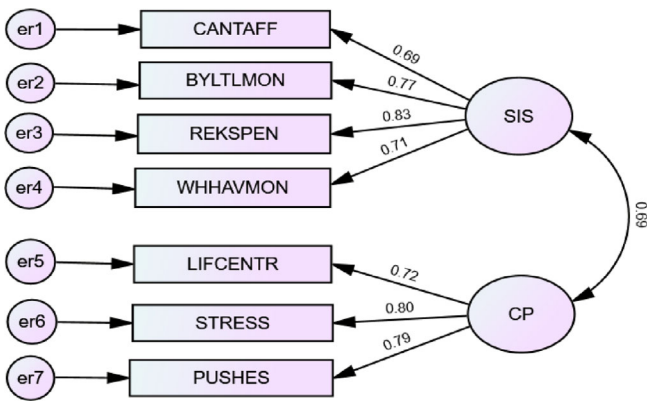

FIGURE 1 CFA and baseline model for CBB. BYLTLMON, I have often bought a product that I did not need, whilst knowing that I have very little money left; CANTAFF, I often buy things even though I cannot afford them; LIFCENTR, Much of my life centres around buying things; PUSHES, I sometimes feel that something inside pushes me to go shopping; REKSPEN, I am a reckless spender; SIS, Self-control Impaired Spending; CP, Compulsive Purchasing; STRESS, For me, shopping is a way of facing the stress of my daily life and relaxing; WHHAVMON, When I have money, I cannot help but spend part or the whole of it. [Colour figure can be viewed at wileyonlinelibrary.com]

groups. Therefore, hypothesis 1 (There are significant differences in CBB between the LGBT+ and heterosexual populations) is unsupported. Figure 2 shows the non-invariance in the SIS dimension across the two groups, and in the higher spectrum responses; the LGBT+ consumers present with stronger spending predisposition compared with the heterosexual group that is, they have a stronger tendency to be reckless in their spending behaviour compared with the heterosexual counterparts.

4.1.2 | Social media addiction

An EFA of the SMA scale produced two dimensions named 'Poor Behavioural Control' and 'Dysfunctional Social Behaviour'; together these explained 60.22% of the variance. However, three of the variables were removed because they loaded on both factors: 'I feel tense and restless if I am not able to use social media'; 'I regularly have arguments with others because of my social media use (factor loadings of .916 and .966, respectively, indicating homoscedasticity)'; and 'I have neglected other activities (e.g., hobbies, sport) because I would rather use social media'. The 14 remaining items explained 70.78% of the variance and retained the original nine characteristics of the addiction (Table 5). The reliability tests of the 14 items scale for the two samples produced an α of .96 for the heterosexuals and .94 for the LGBT+.

The CFA and baseline structural model produced the following fit indices: CMIN/DF: 10.050, NFI: .917, RFI: .901, CFI: .925, RMSEA: .107; however, the modification indices indicated covariance between six pairs of variables; these were acknowledged in the model (Byrne, 2010) and it generated a good level of fit (Figure 3) with the following results: CMIN/DF: 5.379, NFI: .959, RFI: .947, CFI: .966, RMSEA: .075. As in the previous model, the CMIN/DF value reflects the large sample size (Jöreskog & Sörbom, 1993); the other figures indicate a good fit between the model and the data, with an acceptable RMSEA (Byrne, 2010). The structure of the construct was suitable for the multigroup analysis and the results from the configural model were: CMIN/DF: 3.878, NFI: .935, RFI: .926, CFI: .951, RMSEA: .060.

The multigroup test (Table 6), using the same presentation technique specified for Table 4, revealed non-invariance for all variables and for the structural model overall. Figure 4 shows the differences between the LGBT+ and heterosexual responses, and the LGBT+ scores for Poor Behavioural Control are, in part, slightly higher. Therefore, hypothesis 2 (There are significant differences in SMA between the LGBT+ and heterosexual populations) is supported.

4.2 | Addiction and demographics

4.2.1 | Heterosexuals

The results of the screening for both SMA and CBB amongst the heterosexual group are presented in Table 7. The CBB scale identified 2.6% of respondents as severely compulsive buyers (SCBB) and 15.3% as mildly compulsive buyers (MCBB). By comparison, the SMA scale identified 1.4% as severely social media addicted (SSMA) and 8.2% as mildly social media addicted (MSMA). The CBB analysis also revealed that a statistically significant majority of heterosexual compulsive buyers are female, which supports previous research with samples from the general population (e.g., Black, 2007; Faber &

TABLE 4 Multi-group invariance test results for CBB

Model description	Groups	Comparative model	χ^2	*df*	$\Delta\chi^2$	Δdf	*p*	CFI	ΔCFI
Configural Model 1:	LGBT-Heter.	—	92.928	26	—	—	—	.972	—
Measurement Model A: all factor loadings constrained equal	LGBT-Heter.	A v 1	104.720	31	11.972	5	*p* <.05	.969	.003
Measurement Model B: only SIS factor loadings constrained equal	LGBT-Heter.	B v 1	103.172	29	10.244	3	*p* <.05	.969	.003
Measurement Model C: only CP factor loadings constrained equal	LGBT-Heter.	C v 1	94.378	28	1.450	2	*NS*	.972	.000
Measurement Model D: only BYLTLMON constrained equal	LGBT-Heter.	D v 1	93.138	27	0.21	1	*NS*	.972	.000
Measurement Model E: only REKSPEN constrained equal	LGBT-Heter.	E v 1	100.947	27	8.019	1	*p* <.01	.969	.003
Measurement Model F: only WHHAVMON constrained equal	LGBT-Heter.	E v 1	94.409	27	1.481	1	*NS*	.972	.000
Structural Model S: all factor loadings and covariance constrained equal	LGBT-Heter.	S v 1	104.939	32	12.011	6	. *NS*	.969	.003

Abbreviations: BYLTLMON, I have often bought a product that I did not need, whilst knowing that I have very little money left; CP, Compulsive Purchasing; NS, non-significant; REKSPEN, I am a reckless spender; SIS, Self-control Impaired Spending; WHHAVMON, When I have money, I cannot help but spend part or the whole of it.

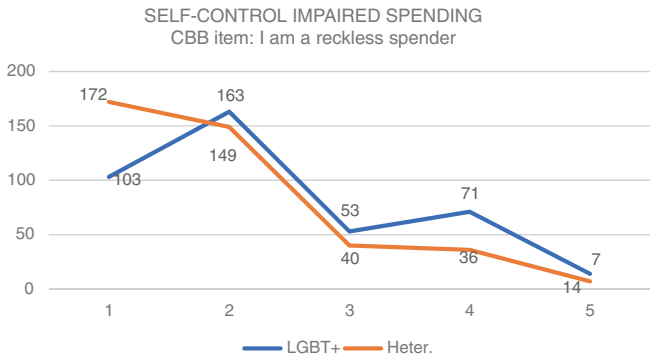

FIGURE 2 Non-invariant CBB item [Colour figure can be viewed at wileyonlinelibrary.com]

O'Guinn, 1989; Valence et al., 1988); they were also from the younger age groups, highly educated and married, which indicates a strong connection between CBB and respondent demographics. However, the SMA screening showed that only age and marital status are significant: those who are in the youngest age groups and single are more prone to SMA. An additional cross-tabulation between SMA and CBB heterosexual consumers was statistically significant (χ^2: 71.4, p < .001) and indicated that almost 31% of MSMA cases experience MCBB, whilst 1.8% suffer from SCBB. Interestingly, no SSMA cases experience MCBB, but 10% of SSMA cases also present with SCBB.

4.2.2 | LGBT+

The screening of the LGBT+ sample (Table 8) shows that 4.2% were SCBB and 20.8% MCBB, whilst 2.2% were SSMA and 13.4% MSMA. Whilst these addiction figures are all higher than in the heterosexual group, there was no significant relationship between either SMA or CBB and respondent demographics. The non-significant result could be due to the fragmentation of the demographic sub-groups which, in some cases, contained less than 10 respondents. Finally, a cross-tabulation between SMA and CBB LGBT+ consumers was significant (χ^2: 39.1, p < .001) and indicates that 41.5% of MSMA cases and 22.2% of SSMA cases experienced MCBB whilst 7.5% of MSMA cases and 11.1% of SSMA cases suffered from SCBB. Therefore, hypothesis 3 (There are significantly higher levels of CBB amongst the social media addicted in both the LGBT+ and heterosexual populations) is supported.

4.3 | Comparative discussion

Although the results of the screening tests were, in part, non-significant (particularly for the LGBT+ sample) in relation to respondent demographics, it is interesting to note the patterns presented in Tables 7 and 8 which may provide some indication about the extent of the SMA and CBB addiction in our societies. Within the heterosexual group, SMA cases represent 31% of MCBB cases and 11.8% of SCBB cases. By comparison, in the LGBT+ group the SMA cases represent 63.7% of MCBB cases and 18.6% of SCBB cases. In both heterosexual and LGBT+ samples, SMA impacts more on the youngest age group, whilst CBB seems to be affecting more individuals between 25 and 44 years; this may be due to the higher level of anxiety in these age categories (Kuss et al., 2018). The SMA and CBB association with level of education seems to reflect the pattern with respondents' age, but with a higher proportion of SCBB cases amongst the more highly educated. Married respondents also appear to have a comparatively higher proportion of both MCBB and SCBB

TABLE 5 SMA dimensions – EFA

Social media addiction	Dimensions 1	2
Factor 1: Poor behavioural control		
I feel the need to use social media more and more often	.89	
I often find it difficult not to look at messages on social media when I am doing something else	.86	
I often feel angry and frustrated if I am not able to use social media	.81	
I regularly feel dissatisfied because I want to spend more time on social media	.77	
I regularly find that I cannot think of anything else but the moment that I will be able to use social media again	.77	
I often use social media to escape from negative feelings and/or problems	.75	
I tried to spend less time on social media usage, but I failed	.65	
I often do not pay attention to tasks (or university classes) because I am using social media	.54	
I regularly do not get enough sleep because I am using social media late at night	.52	
Factor 2: Dysfunctional social behaviour		
I often have conflicts with others (e.g., relative, friends) because of my social media use		.94
I jeopardise or lose important friendships or relationships because I am spending too much time on social media		.91
I often lie to others (e.g., parents, friends) about the amount of time I spend on social media		.72
I regularly hide my social media use from others		.59
I often devote little or no attention to people around me because I am using social media		.55
Eigenvalue	8.86	1.05
Variance (%)	63.30	7.48
Cumulative variance (%)	63.30	70.78

Note: KMO measure of sampling adequacy: .96; Bartlett's test of Sphericity: $\chi^2 = 9137.45$; $p < .001$; Correlation between factors 1 and 2: $r = .76$; Cronbach's Alpha: .92.

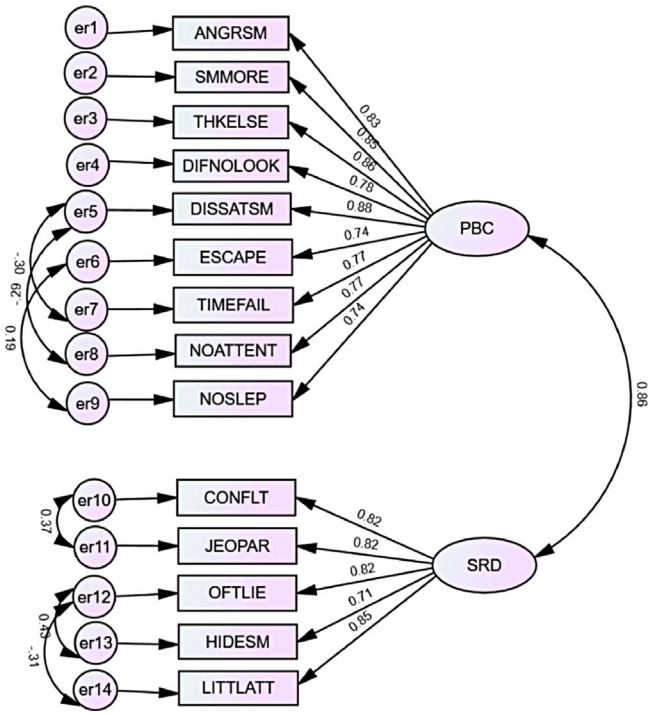

FIGURE 3 CFA and baseline model for SMA. ANGRSM, I often feel angry and frustrated if I am not able to use social media; CONFLT, I often have conflicts with others (e.g., relative, friends) because of my social media use; DIFNOLOOK, I often find it difficult not to look at messages on social media when I am doing something else; DISSATSM, I regularly feel dissatisfied because I want to spend more time on social media; DSB, Dysfunctional Social Behaviour; ESCAPE, I often use social media to escape from negative feelings and/or problems; HIDESM, I regularly hide my social media use from others; JEOPAR, I jeopardise or lose important friendships or relationships because I am spending too much time on social media; LITTATT, I often devote little or no to people around me because I am using social media; NOATTENT, I often do not pay attention to tasks (or university classes) because I am using social media; NOSLEP, I regularly do not get enough sleep because I am using social media late at night; OFTLIE, I often lie to others (e.g., parents, friends) about the amount of time I spend on social media; PBC, Poor Behavioural Control; SMMORE, I feel the need to use social media more and more often; THKELSE, I regularly find that I cannot think of anything else but the moment that I will be able to use social media again; TIMEFAIL, I tried to spend less time on social media usage, but I failed. [Colour figure can be viewed at wileyonlinelibrary.com]

cases, whilst marital status seems to have an impact on the persistence or development of CBB, particularly amongst heterosexuals. It is also interesting to note some of the patterns relating to the addictions amongst the LGBT+ group. There is a slightly higher proportion of compulsive buyers amongst males in both MCBB and SCBB categories; the proportion of gay MCBB cases is twice that of lesbian MCBB cases; this supports the assumption of Black et al. (2001) that gay men could be more affected by CBB. In addition, there is a comparatively high proportion of MCBB amongst bisexual and transgender individuals. This could result from the internal turmoil reported by Ross et al. (2018), Bettany and Rowe (2015) and Cannon et al. (2017) and needs further investigation using larger samples of bisexual and transgender respondents.

In the overall sample, the majority of MCBB cases are between the age of 18 and 44 years, whilst the highest proportion of SCBB cases is in the 25–34 age group. Within the LGBT+ group, there are higher levels of addiction to both SMA and CBB compared with the heterosexual group. This is also supported by the group invariance analysis which verified equal structural invariance between heterosexual and LGBT+ groups, but with a slightly higher predisposition to addiction amongst the LGBT+ group for all aspects of SMA. The results also confirm that LGBT+ addiction to social media is almost

TABLE 6 Multi-group invariance test results for SMA

Model description	Groups	Comparative model	χ^2	*df*	$\Delta\chi^2$	Δdf	*p*	CFI	ΔCFI
Configural Model 2:	LGBT-Heter.	—	530.625	140	—	—	—	.958	—
Measurement Model A1: all factor loadings constrained equal	LGBT-Heter.	A v 2	587.715	158	57.090	18	$p < .001$	.954	.004
Measurement Model B1: only PBC factor loadings constrained equal	LGBT-Heter.	B1 v 2	608.890	154	57.090	18	$p < .001$	.951	.007
Measurement Model C1: only SRD factor loadings constrained equal	LGBT-Heter.	C1 v 2	596.653	150	66.028	10	$p < .001$	.953	.005
Measurement Model D1: only SMMORE constrained equal	LGBT-Heter.	D1 v 2	595.262	147	64.637	7	$p < .001$	.952	.006
Measurement Model E1: only THKELSE constrained equal	LGBT-Heter.	E1 v 2	593.392	147	62.767	7	$p < .001$	.952	.006
Measurement Model F1: only DIFNOLOOK constrained equal	LGBT-Heter.	F1 v 2	600.092	147	69.467	7	$p < .001$	.951	.007
Measurement Model G1: only DISSATSM constrained equal	LGBT-Heter.	G1 v 2	592.892	147	62.267	7	$p < .001$	.952	.006
Measurement Model H1: only ESCAPE constrained equal	LGBT-Heter.	H1 v 2	594.615	147	63.990	7	$p < .001$	.952	.006
Measurement Model I1: only TIMEFAIL constrained equal	LGBT-Heter.	I1 v 2	600.933	147	70.308	7	$p < .001$	.951	.007
Measurement Model J1: only NOATTENT constrained equal	LGBT-Heter.	J1 v 2	594.497	147	63.872	7	$p < .001$	.952	.006
Measurement Model K1: only NOSLEP constrained equal	LGBT-Heter.	K1 v 2	587.284	147	56.659	7	$p < .001$	.952	.006
Measurement Model L1: only JEOPARD constrained equal	LGBT-Heter.	L1 v 2	594.766	147	64.141	7	$p < .001$	.952	.006
Measurement Model M1: only OFTLIE constrained equal	LGBT-Heter.	I1 v 2	594.479	147	63.854	7	$p < .001$	.952	.006
Measurement Model N1: only HIDESM constrained equal	LGBT-Heter.	N1 v 2	594.167	147	63.542	7	$p < .001$	.952	.006
Measurement Model O1: only LITTLATT constrained equal	LGBT-Heter.	O1 v 2	595.795	147	65.170	7	$p < .001$	.952	.006
Structural Model: S1 all factor loadings & covariance constrained equal	LGBT-Heter.	S v 2	613.615	159	82.990	19	$p < .001$	.951	.007

Abbreviations: ANGRSM, I often feel angry and frustrated if I am not able to use social media; CONFLT, I often have conflicts with others (e.g., relative, friends) because of my social media use; DIFNOLOOK, I often find it difficult not to look at messages on social media when I am doing something else; DISSATSM, I regularly feel dissatisfied because I want to spend more time on social media; DSB, Dysfunctional Social Behaviour; ESCAPE, I often use social media to escape from negative feelings and/or problems; HIDESM, I regularly hide my social media use from others; JEOPAR, I jeopardise or lose important friendships or relationships because I am spending too much time on social media; NOATTENT, I often do not pay attention to tasks (or university classes) because I am using social media; NOSLEP, I regularly do not get enough sleep because I am using social media late at night; NS, non-significant; OFTLIE, I often lie to others (e.g., parents, friends) about the amount of time I spend on social media; PBC, Poor Behavioural Control; SMMORE, I feel the need to use social media more and more often; THKELSE, I regularly find that I cannot think of anything else but the moment that I will be able to use social media again; TIMEFAIL, I tried to spend less time on social media usage, but I failed.

double that in the heterosexual group, with higher levels amongst male, gay and bisexual members compared with females and lesbians. The multigroup analysis for CBB, instead, highlighted invariance of the structural model and amongst all the components except for a higher tendency to spend in the LGBT+ sample. Amongst the heterosexual CBB cases, there are twice as many females compared with males, which reflects the wide consensus that CBB predominantly affects females (e.g., d'Astous, 1990; Neuner et al., 2005; Ridgway et al., 2008) in both MCBB and SCBB groups (Maccarrone-Eaglen & Schofield, 2017). However, the CBB cases amongst males and females in the LGBT+ sample are almost in equal proportion, with a slightly higher majority of males amongst the MCBB group; there are also twice as many MCBB cases amongst gays and bisexuals compared with lesbians.

These findings confirm the relevance of this study and the importance of understanding tendencies and addictions which could lead to

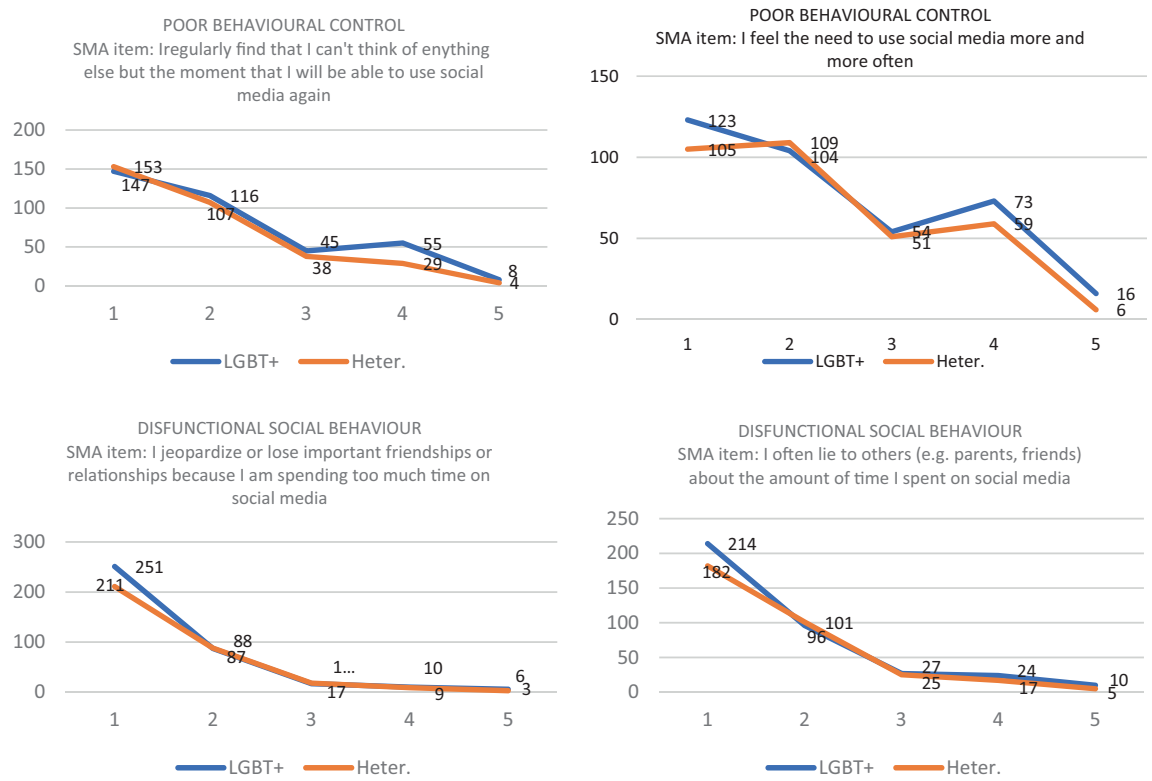

FIGURE 4 Examples of SMA invariant items [Colour figure can be viewed at wileyonlinelibrary.com]

devastating compulsive buying for the minority group under examination. The differences between the heterosexual and LGBT+ groups' results are important because they not only challenge the findings from previous research which has, for the most part, examined heterosexual samples, but they also highlight a hidden predicament for the LGBT+ community which needs to be addressed to alleviate the detrimental consequences for those affected. The findings, however, are unsurprising and, in part, confirm Black et al. (2001) statement that gay men could be at higher risk of CBB than heterosexuals. LGBT + individuals are more affected by both SMA and CBB, which may result from their vulnerability, exposure to discrimination and anxiety relating to identity issues (Carr, 2010). The disparity between the heterosexual and LGBT+ groups in the number and severity of SMA and CBB cases also demonstrates the importance of studying minority groups because they may manifest behavioural addictions differently compared with most of the population. The results from this study also highlight the importance of both recognising SMA and CBB as addictions and providing specialist support for those affected. Although the differences in addiction levels based on subgroup demographics were non-significant, they highlight the extent of the problem amongst the LGBT+ community (Roberts & David, 2019). Further research should be undertaken, using larger samples from the LGBT+ sub-groups, to investigate the connection between level of education and both SMA and CBB, and the association between relationship status and CBB, to channel support accordingly.

4.4 | The impact of SMA on CBB

Hypotheses 4, 5, and 6 were tested together because of the interrelationship between SMA, FoMO and SEF in the heterosexual and LGBT + populations.

4.4.1 | Heterosexual

Before examining the impact of SMA on CBB amongst the heterosexual group, a one-way ANOVA test was used to identify statistically significant differences in SMA, SEF, FoMO and the 'SMA-CBB relationship variables' between the four CBB categories: non-compulsive (NCBB), non-compulsive with occasional episodes (NCBO), mildly compulsive (MCBB) and severely compulsive (SCBB) in the heterosexual sample (Table 9). The results showed non-significant differences in SMA between the SCBB and both MCBB and NCBO categories, but significant differences between all other categories, which suggests that SMA prevalently affects individuals who are not affected by CBB. No differences in SEF were found between the CBB categories despite presenting a statistically significant result overall, albeit with a very small effect size. By contrast, significant differences were found amongst most CBB categories in relation to FoMO, with a large effect size, although the differences between SCBB and both MCBB and NCBO were non-significant. Additionally, there were significant differences, with large effect sizes, between the CBB categories for the

TABLE 7 Demographic profile of compulsive buyers and social media addicted – heterosexual sample

	Sub-category	Total	%	χ^2	*df*	CrV	MCBB	%	SCBB	%	χ^2	*df*	CrV	MSMA	%	SSMA	%
Gender	Male	147	38.9	28.3***	3	.27	14	9.5	3	2.0	.6^{ns}	3	.04	12	8.2	2	1.4
	Female	231	61.1				45	19.5	7	3.0				19	8.2	2	1.4
Total of compulsive/addictive							*59*	*15.0*	*10*	*2.6*				*31*	*8.2*	*4*	*1.4*
Age	18-24 years	73	19.5	37.8**	18	.18	11	15.1	–	–	34.5**	15	.18	10	13.7	0	–
	25-34 years	106	28.3				22	20.8	4	3.8				8	7.5	4	3.8
	35-44 years	86	23.0				14	16.3	4	4.7				7	8.1	–	–
	45-54 years	63	16.8				7	11.1	2	3.2				4	6.3	–	–
	55-64 years	35	9.4				4	11.4	0	–				2	5.7	–	–
	65-74 years	10	2.7				–	–	–	–				–	–	–	–
	75 years and over	1	0.3				–	–	–	–				–	–	–	–
Education	Compulsory educ.	78	20.7	33.3***	12	.17	8	10.3	2	2.6	16.3^{ns}	12	.13	6	7.7	1	1.3
	Bachelor	130	34.6				27	20.8	2	1.5				14	10.8	2	1.5
	Masters	114	30.3				19	16.7	6	5.2				7	6.1	1	0.9
	PhD	33	8.8				4	12.1	2	6.1				4	12.1	–	–
	Post-doctoral	21	5.6				1	4.7	–	–				–	–	–	–
Relationship	Single	103	27.4	32.9**	15	.17	20	19.4	2	1.9	35.2**	15	.19	12	11.7	4	3.9
	In relat. (non co-h)	45	12.0				10	22.2	1	2.2				8	17.8	–	–
	Co-habiting	85	22.6				15	17.6	2	2.4				4	4.7	–	–
	Married	136	50.0				15	41.7	5	3.7				7	5.1	–	–
	Widowed	3	0.8				–	–	–	–				–	–	–	–
	Divorced	4	1.1				–	–	–	–				–	–	–	–
SMA/CBB	MSMA	55		71.4**	9	.27	17	30.9	1	1.8							
	SSMA	10					–	–	1	10.0							

Note: The Chi Square is calculated using the whole sample, only the compulsive and addicted are reported.

Abbreviations: CrV, Cramer's V; MCBB, mildly compulsive buyers; MSMA, mildly social media addicted; ns, non-significant; SCBB, severely compulsive buyers; SSMA, severely social media addicted.

**p < .01; ***p < .001.

TABLE 8 Demographic profile of compulsive buyers and social media addicted – LGBT+ sample

	Sub-category	Total	%	χ^2	*df*	CrV	MCBB	%	SCBB	%	χ^2	*df*	CrV	MSMA	%	SSMA	%
Gender	Male	109	27.0	19.7^{ns}	15	.13	23	24.8	3	2.7	13.9^{ns}	15	.11	18	16.7	2	1.8
	Female	86	21.3				21	24.4	2	2.3				12	14.0	3	3.5
	Non-binary	181	44.8				33	18.2	10	5.5				21	11.6	4	2.2
	Agender	14	3.5				4	28.8	2	14.3				–	–	–	–
	Undefined	12	3.0				1	8.3	–	–				2	16.6	–	–
	Genderfluid	2	0.5				2	100.0	–	–				1	50.0	–	–
Total of compulsive/addictive							*84*	*20.8*	*17*	*4.2*				*54*	*13.4*	*9*	*2.2*
Sexuality	Gay	49	12.1	23.3^{ns}	24	.14	12	24.5	2	4.1	33.1^{ns}	24	.17	7	14.3	–	–
	Lesbian	40	9.9				5	12.5	2	5.0				4	10.0	–	–
	Bisexual	151	37.4				39	25.8	7	4.6				30	19.9	5	3.3
	Heterosexual trans.	8	2.0				2	25.0	0	–				3	37.5	–	–
	Undefined/fluid	35	8.7				4	11.4	1	2.8				–	–	2	
	Asexual	47	11.6				7	14.9	3	6.4				4	8.5	–	–
	Pansexual	34	8.4				7	20.6	0	–				2	5.9	2	5.9
	Queer	33	8.2				6	18.2	1	3.0				3	9.1	–	–
	Other definitions	7	1.7				2	28.6	0	–				1	14.3	–	–
Age	18-24 years	209	51.7	14.4^{ns}	12	.11	45	21.5	6	2.9	26.1^{ns}	12	.15	34	16.3	3	1.4
	25-34 years	146	36.1				30	20.5	8	5.5				16	11.0	5	3.4
	35-44 years	35	8.7				8	22.9	1	2.8				3	8.6	1	2.8
	45-54 years	10	2.5				1	10.0	1	10.0				1	10.0	–	–
	55-64 years	4	1.0				–	–	–	–				–	–	–	–
Education	Compulsory educ.	220	54.5	13.0^{ns}	12	.10	43	19.5	12	5.5	13.5^{ns}	12	.11	35	15.9	4	1.8
	Bachelor	123	30.4				32	26.0	2	1.6				14	11.4	5	4.1
	Masters	48	11.9				6	12.5	2	4.2				5	10.4	–	
	PhD	9	2.2				1	11.1	–	–				–	–	–	–
	Post-doctoral	4	1.0				2	50.0	–	–				–	–	–	–
Relationship	Single	211	52.2	16.6^{ns}	15	.12	40	19.0	6	2.8	13.0^{ns}	15	.10	28	13.3	5	2.4
	In relat. (non co-h)	82	20.3				22	26.8	5	6.1				16	19.5	2	2.4
	Co-habiting	61	15.1				15	24.6	4	6.6				4	6.6	1	1.6
	Married	45	11.1				6	13.3	1	2.2				6	13.3	1	2.2
	Civil partnership	3	0.7				1	33.3	–	–				–	–	–	–
	Divorced	1	0.2				–	–	–	–				–	–	–	–
SMA/CBB	MSMA	80		31.4**	9	.17	23	28.8	3	3.8							
	SSMA	14					2	14.3	1	7.1							

Note: The Chi Square is calculated using the whole sample, only the compulsive and addicted are reported.

Abbreviations: CrV, Cramer's V; MCBB, mildly compulsive buyers; MSMA, mildly social media addicted; ns: non-significant; SCBB, severely compulsive buyers; SSMA, severely social media addicted.

**$p < .01$.

'SMA-CBB relationship variables' except for the comparison between SCBB and MCBB, indicating that the buying behaviour of individuals in both categories is equally affected by SMA.

Given the non-significant difference between MCBB and SCBB categories, they were combined for the regression analyses (as were the non-compulsive NCBB and NCBO groups), to identify more specifically which aspects of social media use affect CBB. First, the combined CBB group ratings were regressed against both SMA and the two components of FoMO to determine the individual influence of each one (Table 10); no outliers were detected since the Mahalanobis distances were all below the critical value of 13.82 for two variables (Tabachnick & Fidell, 2007). The results show that SMA significantly affects heterosexual compulsive buyers slightly more than non-compulsive buyers, though both groups are affected. Both FoMO variables also present statistically significant results, though the variable 'I often have an urge to buy something when I think that others are having a good experience on social media without me', has a greater influence; this indicates that exclusion may increase anxiety which, in turn, may trigger the need to buy compulsively. However, the results show a significantly stronger impact of FoMO on non-compulsive heterosexual buyers which could indicate a trigger for initiating buying behavioural addiction.

Compulsive buying behaviour was then regressed against the 'SMA-CBB relationship variables' for both compulsive and non-compulsive buyers to identify any further behavioural differences (Table 11). The significant results indicate mounting tension caused by

TABLE 9 Differences in SMA, SEF, FoMO and SMA-CBB relationship variables between the CBB categories using one-way ANOVA – heterosexual sample

	df	*F*	η^2	NCBB/ NCBO	NCBB/ MCBB	NCBB/ SCBB	NCBO/ MCBB	NCBO/ SCBB	MCBB/ SCBB
SMA	3	20.98**	.14	−7.36**	−14.03***	−12.28*	6.67*	−4.92^{ns}	1.74^{ns}
SEF	3	2.89*	.02	1.44^{ns}	.16^{ns}	−1.45^{ns}	.16^{ns}	−2.89^{ns}	3.05^{ns}
FoMO	3	29.08***	.19	−1.08***	−2.24***	−2.59***	−1.16***	−1.05*	−.34^{ns}
SMA-CBB Relationship Variables:									
When I am on social media, I feel a rising urge to buy something	3	26.82***	.17	−.71***	−1.28***	−1.84***	−.58**	−1.13*	−.56^{ns}
Advertisements on social media stimulate my urge to buy something	3	29.50***	.19	−.93***	−1.47***	−2.26***	−.55**	−.13**	.78^{ns}
I often I have an urge to buy something when I cannot access my social media	3	19.64***	.14	−.42***	−.96***	−1.26***	−.54***	−.84*	.30^{ns}
When I cannot go out shopping, I find comfort in the use of social media	3	25.02***	.17	−.65***	−1.30***	−1.19**	−.66***	−.55^{ns}	.11^{ns}

Note: ANOVA and Tukey HSD mean differences. SEF 8 items' scale from Chen et al. (2001): I will be able to achieve most of the goals that I have set for myself; when facing difficult tasks, I am certain that I will accomplish them; in general, I think that I can obtain outcomes that are important to me; I believe that I can succeed at any endeavour to which I set my mind; I will be able to successfully overcome many challenges; I am confident that I can perform effectively on many different tasks; compared to other people, I can do most tasks very well; even when things are tough, I can perform quite well.
Abbreviations: FoMO, fear of missing out; MCBB, mildly compulsive buyers; NCBB, non-compulsive buyers; NCBO, non-compulsive buyers with occasional CBB occurrence; ns, non-significant; SCBB, severely compulsive buyers; SEF, self-efficacy; SMA, social media addiction.
*p < .05; **p < .01; ***p < .001.

TABLE 10 Regression of CBB on the FoMO items – heterosexual sample

	Compulsive buyers					Non-compulsive buyers				
	R^2	B	SE B	Beta	Max Mahal.	R^2	B	SE B	Beta	Max Mahal.
SMA	.07	.09	.02	.27***	6.68	.11	.11	.02	.34**	10.72
FoMO:										
I often have an urge to buy something when I do not receive messages on social media	.07	.57	.26	.25*	3.62	.14	1.61	.38	.37***	7.52
I often have an urge to buy something when I think that others are having a good experience on social media without me	.10	.63	.24	.31**	5.36	.13	1.82	.27	.36***	10.89

Abbreviations: FoMO, fear of missing out; Max Mahal, Mahalanobis Distances; ns, non-significant.
*p < .05; **p < .01; ***p < .001.

TABLE 11 Regression of CBB on social media relationship variables – heterosexual sample

	Compulsive buyers				Non-compulsive buyers			
	R^2	B	SE B	Beta	R^2	B	SE B	Beta
When I am on social media, I feel a raising urge to buy something	.11	.68	.24	.33**	.13	1.35	.20	.36***
Advertisements on social media stimulate my urge to buy something	.09	.59	.23	.30*	.14	1.21	.17	.38***
I often I have an urge to buy something when I cannot access my social media	.11	.74	.26	.33**	.11	1.57	.26	.32***
When I cannot go out shopping, I find comfort in the use of social media	.00	.13	.24	.07ns	.11	1.33	.22	.33***

Abbreviation: ns, non-significant.
*p < .05; **p < .01; ***p < .001.

attempting to control SMA which externalises in an urge to buy compulsively and stimulation from social media to buy products in both the compulsive and non-compulsive groups. However, the variable: 'When I cannot go out shopping, I find comfort in the use of social media', produced a non-significant result for compulsive buyers; this indicates that social media is not a viable consolation or substitution for compulsive buying that is, relief from one behavioural addiction cannot be found in the other behavioural addiction. Moreover, the results indicate that overall, compulsive buyers are significantly less influenced by external stimuli to make a purchase compared with non-compulsive buyers. This supports the idea that neurological activities, in the decision-making areas of the brain, work differently for compulsive buyers (Raab et al., 2011) because compulsions are ego-dystonic, stimulated by negative emotion (Dittmar, 2005) and beyond an individual's control (Darrat et al., 2016).

The results show that the use of social media and FoMO are also significant stimuli for non-compulsive individuals, which may indicate that social media can activate CBB. The overall impact of SMA on CBB in the heterosexual sample was measured using a structural equation model in which the moderating effects of SEF were also measured (Figure 5). The results show that overall, SMA contributes to CBB (β .407, p < .001) whilst SEF presents a non-significant result (β −.077, p = .106); the interaction is also non-significant (β .017, p = .706); therefore, SEF does not moderate the impact of SMA on CBB amongst heterosexuals.

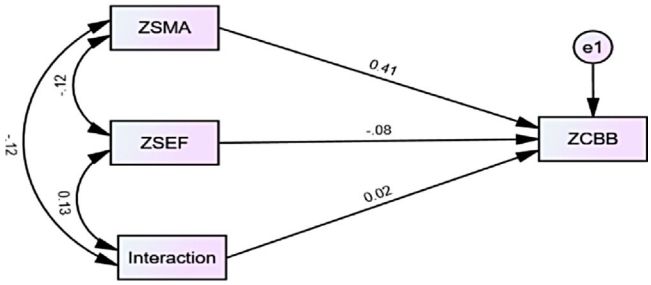

FIGURE 5 Self-efficacy moderation of the impact of SMA on CBB – heterosexual sample. ZCBB, Z-standardised CBB; ZSEF, Z-standardised SEF; ZSMA, Z-standardised SMA. [Colour figure can be viewed at wileyonlinelibrary.com]

4.4.2 | LGBT+

The same tests were repeated with the LGBT+ sample for a comparative analysis. The one-way ANOVA test identified differences between the four categories of CBB in relation to SMA, SEF, FoMO and the 'SMA-CBB relationship variables' (Table 12). The results show significant differences in SMA between the CBB categories with a medium effect size, except for non-significant differences between the SCBB and both the NCBO and MCBB categories. By comparison, SEF did not present significant differences amongst the groups. There were significant differences between the CBB categories in FoMO and the 'SMA-CBB relationship variables' with large effect sizes except for the two compulsive groups (MCBB and SCBB), where differences were non-significant.

As with the heterosexual sample, given the non-significant results between the SCBB and MCBB categories, they were combined for the regression analyses (as were the non-compulsive NCBB and NCBO groups); one outlier was detected in the regression of the variable 'I often have an urge to buy something when I do not receive messages on social media'; the Mahalanobis distance was 20.73, but after deletion of the outlier (Byrne, 2010), the result was 12.01, below the critical value of 13.82 for two variables (Tabachnick & Fidell, 2007). The results from the regression (Table 13) show that SMA does not affect LGBT+ non-compulsive buyers; however, it presents a significant result for the LGBT+ compulsive buyers. The two FoMO items and the four 'SMA-CBB relationship variables' (the latter in Table 14) show that both FoMO and the 'SMA-CBB relationship variables' are significant for the non-compulsive group but non-significant for the compulsive group. This indicates that, interestingly, these social media triggers significantly stimulate buying behaviour amongst the non-compulsive group whilst they do not significantly influence the compulsive consumers.

The impact of SMA on CBB in the LGBT+ sample, and the moderating effect of SEF, were measured using a structural equation

TABLE 12 Differences in SMA, SEF, FoMO and SMA-CBB relationship variables between the CBB categories using one-way ANOVA – LGBT sample

	df	*F*	η^2	NCBB/ NCBO	NCBB/ MCB	NCBB/ SCB	NCBO/ MCBB	NCBO/ SCBB	MCBB/ SCBB
SMA	3	9.04**	.06	−2.76^{ns}	−8.85**	−9.00*	−6.09*	−6.24^{ns}	−.15^{ns}
SEF	3	2.30^{ns}	—	1.09^{ns}	2.29^{ns}	2.35^{ns}	1.20^{ns}	1.25^{ns}	.05^{ns}
FoMO	3	28.72***	.18	−.66**	−1.95***	−2.68***	−1.28***	−2.02***	−.74^{ns}
SMA-CBB Relationship Variables:									
When I am on social media, I feel a raising urge to buy something	3	19.83***	.13	−.48***	−1.03***	−1.42***	−.54**	−.93**	−.39^{ns}
Advertisements on social media stimulate my urge to buy something	3	13.20***	.09	−.45*	−1.04***	−.93*	−.59**	−.48^{ns}	.11^{ns}
I often I have an urge to buy something when I cannot access my social media	3	29.63***	.18	−.29*	−.89***	−1.42***	−.60***	−1.13***	−.53^{ns}
When I cannot go out shopping, I find comfort in the use of social media	3	34.81***	.21	−.41*	−1.48***	−1.63***	−1.06***	−1.21***	−.15^{ns}

Note: ANOVA and Tukey HSD mean differences. SEF: see notes in Table 9

Abbreviation: FoMO, fear of missing out; MCBB, mildly compulsive buyers; NCBB, non-compulsive buyers; NCBO, non-compulsive buyers with occasional CBB occurrence; ns, non-significant; SCBB, severely compulsive buyers; SEF, self-efficacy; SMA, social media addiction.

*p < .05; **p < .01; ***p < .001.

TABLE 13 Regression of CBB on the FoMO items – LGBT sample

	Compulsive buyers					Non-compulsive buyers				
	R^2	B	SE B	Beta	Max Mahal.	R^2	B	SE B	Beta	Max Mahal.
SMA	.03	.06	.02	.17**	6.18	.01	.02	.02	.11^{ns}	9.10
FoMO:										
I often have an urge to buy something when I do not receive messages on social media	.29	.43	.26	.17^{ns}	5.86	.05	1.13	.28	.23***	12.01
I often have an urge to buy something when I think that others are having a good experience on social media without me	.01	.16	.22	.07^{ns}	3.45	.05	.97	.24	.23***	8.19

Abbreviations: FoMO, fear of missing out; Max Mahal., Mahalanobis Distances; ns, non-significant.

**p < .01; ***p < .001.

TABLE 14 Regression of CBB on the SMA-CBB relationship variables – LGBT sample

	Compulsive buyers				Non-compulsive buyers			
	R^2	B	SE B	Beta	R^2	B	SE B	Beta
When I am on social media, I feel a raising urge to buy something	.06	.29	.24	.12^{ns}	.05	.80	.21	.21***
Advertisements on social media stimulate my urge to buy something	.00	.12	.22	.05^{ns}	.03	.57	.18	.18**
I often I have an urge to buy something when I cannot access my social media	.01	.26	.27	.10^{ns}	.07	1.50	.32	.26***
When I cannot go out shopping, I find comfort in the use of social media	.00	.09	.22	.04^{ns}	.05	.87	.21	.23***

Abbreviations: CBB, compulsive buying behaviour; ns, non-significant; SMA, social media addiction.

**p < .01; ***p < .001.

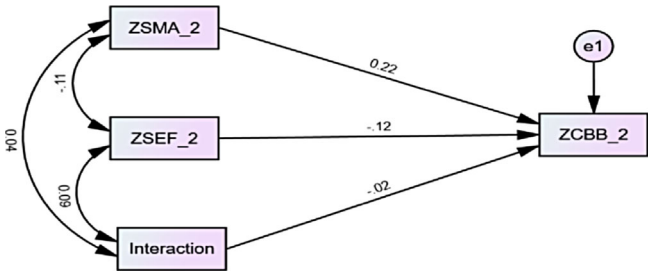

FIGURE 6 Self-efficacy moderation of the impact of SMA on CBB – LGBT+ sample. ZCBB_2, Z-standardised CBB; ZSEF_2, Z-standardised SEF; ZSMA_2, Z-standardised SMA. [Colour figure can be viewed at wileyonlinelibrary.com]

model (Figure 6). The results show that SMA contributes to CBB (β .223, $p < .001$) and that SEF negatively impacts on CBB (β −.123, $p = .011$), although the interaction is non-significant (β −.021, $p = .645$). Therefore, SEF does not moderate the impact of SMA on CBB amongst the LGBT+ group.

Hypothesis 4 (SMA has a significantly stronger impact on compulsive buyers amongst the LGBT+ population compared with compulsive buyers in the heterosexual population) is therefore unsupported; SMA has a stronger impact on heterosexual compulsive buyers compared with the LGBT+ counterparts, and the heterosexuals are also affected by the interdependence of the two disorders whilst the LGBT+ present less connected levels of CBB and SMA dependency. Hypothesis 5 (FoMO has a significantly stronger impact on CBB amongst members of the LGBT+ population compared with the heterosexual population) is also unsupported; FoMO is non-significant for LGBT+ compulsive buyers, but significant for both heterosexual compulsive and non-compulsive buyers. Hypothesis 6 (SEF significantly moderates the impact of SMA on CBB amongst members of the LGBT+ and heterosexual populations) is also unsupported; SEF does not moderate the SMA – CBB relationship in either LGBT+ or heterosexual groups.

4.4.3 | Comparative discussion of the impact of SMA on CBB in the heterosexual and LGBT+ groups

The analysis of the relationship between SMA and CBB revealed that heterosexuals appear to be stimulated in their buying behaviour by social media, and heterosexual compulsive buyers have a stronger dependency on social media than their LGBT+ counterparts. FoMO and social media activities have an impact on both heterosexual and LGBT+ non-compulsive buyers and heterosexual compulsive buyers, although the latter do not perceive the use of social media as a source of comfort for not being able to buy; this indicates that, despite stimulating CBB, engaging in social media activities is not substitutive of the act of buying to release tension generated by CBB. By comparison, LGBT+ compulsive buyers are not affected by FoMO and by any scenario from the 'SMA-CBB relationship variables'. Therefore, it appears that the patterns of dependency from the SMA/CBB relationship are less strong amongst the LGBT+ compulsive buyers; overall, they are less affected by SMA than their heterosexual counterparts and their CBB manifestation is not affected by social media activities or FoMO. By comparison, amongst heterosexuals affected by CBB, SMA, social media activities and FoMO manifest themselves in a more blended form.

The use of social media may start as a non-threatening behaviour and can transform over time into addiction (Karahanna et al., 2015); therefore, heterosexual compulsive and non-compulsive buyers, could be at risk of developing buying tolerance because of their compensatory interaction with social media to address their need for affiliation (Roberts & David, 2019) and belonging (Hetz et al., 2015); as such, they may enter a loop of dependency. Moreover, social isolation could compound this problem because it contributes to excessive use of social media since individuals may need to interact more frequently to both feel less isolated and obtain information (Huynh, 2020; Wilder-Smith & Freedman, 2020).

4.4.4 | The relevance of self-efficacy

The results related to SEF show non-significant differences amongst the compulsive categories of both heterosexual and LGBT+ groups; its impact on CBB, revealed through the structural equation modelling, shows that both heterosexual and LGBT+ compulsive buyers were not influenced by SEF; SEF neither impacts CBB nor moderates the influence of SMA on CBB, which highlights the power of CBB to affect consumers. Given that SEF impacts on an individual's ability to perform tasks, it is possible that their inability to exert control could reduce further the self-esteem of individuals who may already be suffering from low self-esteem, particularly LGBT+ consumers who are exposed to covert (Nadal, 2019) and explicit forms of discrimination (Carr, 2010); this, in turn, could influence their ability to control behaviour according to their perceived social parameters (Bandura, 1986). This mechanism may stimulate a reaction materialised in buying behaviour and affect their ability to refrain from the addiction.

5 | CONCLUSION

Previous research has found that excessive use of social media can contribute to anxiety, distress, depression and low self-esteem, which can lead to SMA; the same psychological manifestations can also initiate CBB, a coping strategy adopted to overcome mounting internal tension. Studies have also shown that FoMO on social media can result from online social exclusion, which, in turn, can exacerbate mental health disorders related to SMA. However, the extent to which SMA and/or FoMO impact on the development of CBB has been hitherto neglected. Previous research has also shown that SMA increases through obsessive maintenance of online social group contacts, that LGBT+ individuals have found a sense of community in social media, and that members of the LGBT+ community are disproportionately

afflicted by anxiety, distress, depression and low self-esteem, which are potential triggers of CBB. It is therefore surprising that whilst one study has investigated the impact of SMA on CBB in the general population, no previous research has examined the relationship between SMA and CBB within the LGBT+ community compared with heterosexuals. Indeed, whilst studies have examined LGBT+ consumers, albeit with a focus on gay males, CBB research has ignored LGBT+ consumers despite reports of mental health characteristics which could predispose them to compulsive behaviours, particularly amongst gays, bisexuals and transgender individuals. Moreover, whilst previous studies have shown that SEF can positively influence addictive behaviours, its effects on SMA and CBB and their interrelationship has also been neglected.

This study has addressed these gaps in knowledge and is the first to research the impact of SMA on CBB using a comparative analysis of heterosexual and LGBT+ groups; it also examines the effect of FoMO in this context, together with the moderating influence of SEF on the relationship between SMA and CBB. The study makes an important contribution to the LGBT+ and CBB literature in relation to the impact of SMA on CBB within the LGBT+ community in direct comparison with heterosexual consumers. A further contribution of the research results from the categorisation of CBB severity within both samples, which provides a more in-depth analysis of the impact of SMA, FoMO and SEF, and their influence at different stages in the development of CBB. More specifically, there are three key findings, which contribute to several strands of theory.

First, LGBT+ consumers are more prone to both social media and compulsive buying addictions and that, in contrast to heterosexual males, the majority of LGBT+ males present with addiction. Moreover, the incidence of CBB addiction amongst gay and bisexual males is twice as high as amongst lesbians. This extends the theory relating to SMA and CBB by adding a neglected LGBT+ dimension, whilst also indicating that LGBT+ consumers should not be regarded as one segment with a common subculture, and that LGBT+ males continue to experience social anxiety through discrimination and prejudice despite changing attitudes in more recent years. It also suggests that people who suffer from social anxiety may be more vulnerable to SMA and CBB, and highlights the plight of bisexuals and transgenders, whose identity is less settled and/or socially visible, but who have hitherto been neglected in previous research.

Second, this study has identified a strong connection between social media use, SMA and CBB amongst heterosexuals; overall, this relationship is much weaker amongst the LGBT+ group; the findings show that social media use and FoMO do not influence LGBT+ compulsive buyers whilst heterosexual compulsive buyers have an interconnected dependency between the two addictions and are more affected by FoMO in relation to the development of CBB. These are important findings which extend our understanding of the relationship between these addictions amongst consumers, and highlight the complexity of, and the variation in SMA, CBB and FoMO across heterosexual and LGBT+ consumers.

Third, the findings also show that SEF has a non-significant effect on CBB amongst the LGBT+ group and does not moderate the influence of SMA on CBB in either the heterosexual or LGBT+ groups. This indicates that SEF does not diminish the influence of SMA on CBB and is therefore ineffective as a means of controlling these addictions. This lends some support to previous studies which suggest that compulsions are irrepressible, notwithstanding research which has demonstrated the positive influence of SEF on some addictive behaviours.

More broadly, the findings have also underlined the importance of both research into the behaviour of minority groups and the need for support as well as social education for the acceptance of human differences. In addition, the findings relating to the levels of addiction amongst LGBT+ males, their continuing experience of social anxiety through discrimination and prejudice, and the strong connection between social media use, FoMO, SMA and CBB amongst heterosexuals could inform both policies relating to mental health and well-being, and mental health practitioner counselling and therapy in both communities. The latter should include CBB screening to facilitate early identification of the disorder to avoid its serious long-term psychological and financial implications.

Whilst the study provides new insights, its limitations should also be acknowledged. First, although the overall sample size for the study is relatively large, its subdivision into heterosexual and LGBT+ groups and LGBT+ sub-groups precluded a more detailed analysis of sub-group heterogeneity. Future research should examine gay, lesbian, bisexual and transgender differences across the study variables, particularly bisexual and transexual individuals, who have been neglected in previous studies; this should include in-depth qualitative research to further understand their lifestyles, preferences, feelings and attitudes towards social media communications and buying behaviour. Moreover, localised research should focus on developing an understanding of both rational and irrational LGBT+ consumption given the cultural differences amongst societies and the different levels of acceptance of diversities. Second, the cross-sectional design of the study has highlighted some important gaps in knowledge which need to be investigated with longitudinal studies, to understand whether the same level of addiction to social media and compulsive buying persists into the later life stages of the afflicted individuals. This is important because SMA affects younger generations, in particular, because of their greater exposure to internet communication compared with older age groups, and because we know relatively little about the nature and rate of both SMA and CBB development over time.

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CONFLICT OF INTEREST

The authors declare no conflicts of interest.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

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