UNIVERSITÀ DEGLI STUDI DI NAPOLI
FEDERICO II

DIPARTIMENTO DI STUDI UMANISTICI

CORSO DI DOTTORATO IN MIND, GENDER AND LANGUAGE
XXXII CICLO

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Look at me and #myself.
Boys' and girls' bodies on social networking sites

Settore Scientifico Disciplinare M-PSI/08

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Anno Accademico 2018-2019

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Premise

Over the last years, scholar research has increasingly focused the attention on social networking sites (SNSs) (mis)use and boys' and girls' experiences in online environments. The teenagers' widespread use of SNSs greatly animated the scientific debate about risky opportunities they provide (Livingstone, 2008; Munno, Saroldi, Bechon, Sterpone, & Zullo, 2016). Indeed, on the one hand, SNSs might represent ideal places for adolescents' identity construction and exploration processes (Boursier & Manna, 2019; Kuss & Griffiths, 2017; Pelosi, Zorzi, & Corsano, 2014; Riva, 2010), supporting some pivotal social needs, such as the need to belong and self-presentation (Boursier & Manna, 2018b; Griffiths & Kuss, 2017; Nadkarni & Hofmann, 2012; Pelosi et al., 2014). However, on the other hand, social networking sites could also lead simultaneous risks (Franchina & Lo Coco, 2018; Livingstone, 2008; Munno et al., 2016), especially linked to the online teenagers' body image, such as problematic body monitoring (Boursier & Manna, 2019), photo manipulation (McLean, Paxton, Wertheim, & Masters, 2015), and self-objectification experiences (Caso, Fabbricatore, Muti, & Starace, 2019; Cohen, Newton-John, & Slater, 2018; de Vries & Peter, 2013; Manago et al., 2015). The disclosure of adolescents' bodies on SNSs assumes greater and increasing relevance, not without risks (e.g., Boursier & Manna, 2019; Franchina & Lo Coco, 2018; Katz & Rice, 2002; Pelosi et al., 2014; Stern, 2004; Turkle, 1995; Valkenburg & Peter, 2008). Moreover, previous studies showed that the problematic nature of social networking sites use might concern the great opportunity to elude difficulties provided by face-to-face interactions, operate a

greater control over personal information disclosure, and be strategic in managing own self-presentation (Casale & Fioravanti, 2017), especially via visual content, such as pictures, videos, and stories shared on SNSs. Thus, the growth of social media platforms and the sharing of personal visual content make the teenagers' body image on displays an extremely contemporary issue.

Based on these several evidences, the present research aims at contributing to the ongoing scientific debate and widening the literature about these contemporary issues. Specifically, the present research firstly will examine the recent literature concerning the scientific debate about the controversial conceptual and operational definitions of problematic Internet use and problematic SNSs use, the widespread use and creation of visual content in adolescents' social networking, and the consequent several online body image-related risks and opportunities (Chapter 1). Then, it will focus on possible predictors of photo-editing strategies (Chapter 2) and, finally, on the relationships between self-objectification experiences and problematic SNSs use (Chapter 3).

Chapter 1

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Adolescents' online body image. The role of Objectified Body Consciousness and Problematic Social Networking sites use

1.1. Internet use and Internet-related activities: terminological, conceptual, and operational definitions

In recent years, Internet use increasingly grew all over the world. In January 2017, there were almost 4 billion Internet users, with a penetration of 50% (We are social, 2017), and adolescents were a large proportion of Internet users. Among younger Internet users, 95% of teenagers and 99% of young adults were web users (Pew Research Center, 2016; Online Safety Site, 2017). Only two years later, in January 2019, the Internet users were more than 4.3 billion, with a penetration of 57% (We are social, 2019), and young people were still the main users of the web, especially via mobile (Statista, 2019). The widespread Internet use, its excessive usage, and the emergence of abuse symptoms have animated the scholar debate concerning the validity of the term "Internet addiction" (IA) (Kuss, Griffiths, Karila, & Billieux, 2014). Specifically, to date, unanimous conceptual and operational definitions of Internet addiction (or problematic Internet use more generally) are still lacking (e.g., Billieux, Schimmenti, Khazaal, Maurage, & Heeren, 2015; Gioia & Boursier, 2019b; Kuss & Lopez-Fernandez, 2016; Laconi, Rodgers, & Chabrol, 2014; Rumpf et al.,

2019; Spada, 2014; Starcevic & Aboujaoude, 2017; van den Eijnden, Lemmens, & Valkenburg, 2016).

In 1996, Ivan Goldberg satirically introduced the term "Internet Addiction Disorder", comparing this maladaptive condition with substance dependence and highlighting analogue symptoms (such as tolerance, withdrawal, lack of control, etc.). Later, thanks to the increasing scholar interest concerning the Internet addiction, the American Psychiatric Association (APA) (2013) included the Internet Gaming in the Section III of the Diagnostic and Statistical Manual for Mental Disorders (DSM-5), requiring further research before IA inclusion in the main manual (Kuss & Lopez-Fernandez, 2016). Nevertheless, after more than 20 years since the first description of Internet addiction (Young, 1996), its classification is still matter of a contentious debate (Brand, Laier, & Young, 2014), and a unanimous scientific consent on IA definition is still lacking (Laconi et al., 2014; Spada, 2014; Starcevic & Aboujaoude, 2016). In last decades, numerous terms have been used to name the general "problematic Internet use" (Caplan, 2002; Jaafar, Bahar, Ibrahim, Ismail, & Baharudin, 2017; Kuss, Griffiths, Karila, & Billiux, 2014; Morahan-Martin & Schumacher, 2000; Tokunaga & Rains, 2016), such as Internet addiction disorder (Young, 1998), (generalized and specific) pathological Internet use (Davis, 2001), excessive Internet use (Widyanto & Griffiths, 2006), and compulsive Internet use (Meerkerk, Eijnden, & Garretsen, 2006). This terminological and conceptual conundrum might testify the great scholar interest on problematic Internet use, reflecting possible sign of progress in scientific understanding of the phenomenon or, on the contrary, it might denote also an overuse of the term (Starcevic & Aboujaoude, 2016). In this regard, Billieux et al. (2015) showed how some daily activities might be too easily overpathologized and medicalised (Starcevic, Billieux, & Schimmenti, 2018) and highlighted the multi-faceted nature of web-related disorders, without minimizing undoubted negative outcomes nor

psychological distress linked to Internet misuse. According to Kardefelt-Winther (2014), IA construct could not clarify the complexity of problematic Internet use and the comparison with substance addiction symptoms for a conceptual and operational definition of this behavioral addiction might lead to pathologizing common activities (Kardefelt-Winther et al., 2017). As Starcevic and Aboujaoude (2016) stated, IA certainly concerns excessive behaviors, but, on the contrary, excessive Internet-related behaviors do not necessarily imply an addiction. Accordingly, many researchers used the term "problematic Internet use" instead of "addiction" and "dependence" (Caplan, 2002; Lee, Ho, & Lwin, 2017; Yellowlees & Marks, 2007). In this regard, according to Beard and Wolf (2001), Caplan (2002) specified that labels such as 'excessive', 'maladaptive', or 'problematic' involved fewer theoretical meanings than terms as 'addiction', and thus they were the most suitable to describe this behavior. Consequently, the 'problematic Internet use' (PIU) has been described as the set behaviors and cognitions related to Internet use that result in negative personal and professional outcomes for the users (Caplan, 2002; Davis, 2001). Specifically, Caplan (2003, 2005, 2006, 2010) showed that one pivotal cognitive symptom of problematic Internet use is the preference for online social interactions, characterized by beliefs that online relationships are safer, more efficacious, more confident, and more comfortable than face-to-face traditional interactions. This preference might mitigate people's anxiety about self-presentation in interpersonal situations, motivating the use of the Internet as a mood regulator (Caplan, 2007). Moreover, according to several studies, problematic Internet use involves deficient self-regulation-related difficulties (Caplan, 2010). On the one hand, the preoccupation about the Internet and what is happening in the online environments represents the cognitive manifestation of deficient self-regulation. On the other hand, the compulsive and uncontrolled Internet use indicates a behavioral aspect of deficient self-regulation. Thus, according to the model proposed by Caplan (2010),

salient cognitive symptoms of PIU might lead to behavioral symptoms, which in turn might result in negative outcomes. Furthermore, Davis (2001) and, then, Caplan (2002) distinguished between specific and generalized PIU. Specific problematic Internet use is referred to overuse or abuse of specific functions or content of the Internet (for example, gaming, shopping, sexual content viewing), stimuli that might lead to alternative behavioral disorders whether the access to the web was unable. On the contrary, generalized PIU refers to a multidimensional overuse of the Internet that leads to negative personal and professional outcomes. Accordingly, many other researchers, even though from different perspectives, have supported this distinction between specific and generalized Internet misuse (e.g., Brand et al., 2014; Davis et al., 2002; Griffiths, 2000; Griffiths & Szabo, 2013; Griffiths & Wood, 2000; Starcevic & Aboujaoude, 2016; van den Eijnden et al., 2016; Young et al., 1999).

Thus, despite the widespread use of umbrella construct of 'Internet addiction' (Starcevic & Billieux, 2017), it might appear overinclusive due to the heterogeneous activities carried out online (Starcevic & Aboujaoude, 2016). In this perspective, Internet-related disorders might be conceptualized within a spectrum in which behavioral addictions (such as social networking addiction, Internet gaming disorder, or cyber-sexual addiction) represent different online dysfunctional behaviors related to both common factors (i.e., impulsivity, personality) and specific factors (i.e., different purposes and dysfunctional web-related cognitions) (Billieux, 2012; Griffiths et al., 2016; Starcevic & Billieux, 2017). According to previous findings, it seems necessary to primarily consider the diverse aetiological factors (Billieux, 2012), the key role played by expectations underlying online behaviors (Boursier & Manna, 2018b; Brand et al., 2014), and the different nature of several (potentially) addictive Internet-related activities (Gioia & Boursier, 2019b; Király et al., 2014; Starcevic & Billieux, 2017; Van Rooij et al., 2018).

1.2. Social media use and social networking

In the Internet-related disorders research field, Internet gaming disorder (IGD) and the problematic social media use are likely the two most debated and explored online activities (e.g., Al-Menayes 2015; Andreassen, Billieux, Griffiths, Kuss, Demetrovics, Mazzoni, & Pallesen, 2016; Kuss & Griffiths, 2012; Sriwilai & Charoensukmongkol 2015; Zajac, Ginley, Chang, & Petry, 2017). Nevertheless, as van den Eijnden et al. (2016) stated, research examining problematic social media use started about ten years after problematic online gaming, largely lagging behind it.

Social media refers to producing, collaborating, and sharing content online and it consists of a wide range of Internet-related social applications, such as virtual game worlds, blogs, and social networking sites (Kuss & Griffiths, 2017). In recent years, social media use became such an everyday life activity to be arguably considered also as a "way of being" (Griffiths & Kuss, 2017). However, concerns have been raised about possible unhealthy, dysfunctional, excessive, and potentially "addictive" use of social media (e.g., Andreassen et al., 2016; D'Arienzo, Boursier, & Griffiths, 2019; Griffiths, Kuss, & Demetrovics, 2014).

Recently, Kuss and Griffiths (2017) highlighted the great controversy within the social media research field, in which unanimous terminological and operational definitions of various concepts are still lacking (for example, social media 'addiction', problematic SNSs use, etc.). Within this research field, some studies found that excessive social networking might lead to symptoms that are criteria of the components model of addiction: (i) salience, (ii) mood modification, (iii) tolerance, (iv) withdrawal, (v) relapse, and (vi) conflict, (Andreassen et al., 2016; D'arienzo et al., 2019; Griffiths, 2005; Kuss & Griffiths, 2017; Monacis et al., 2017). On the contrary, other studies proposed the application of research

concerning problematic Internet use to the context of SNSs use (Baker & White, 2010; Casale & Fioravanti, 2017; LaRose, Kim, & Peng, 2010; Lee, Ho, & Lwin, 2017). In line with this last perspective, problematic online activities might consist of difficulties in impulse control and mood regulation, subsequent negative outcomes due to web misuse, and preference for online social interactions (Caplan, 2003, 2010; Pontes, Caplan, & Griffiths, 2016). According to Casale and Fioravanti (2017), problematic SNSs use could be determined by the perceived lack of social skills. Thus, SNSs might allow users to (i) avoid face-to-face interactions difficulties, (ii) provide greater control over the disclosure of personal information, and (iii) strategically manage own self-presentation, often through visual content (such as pictures, selfies, videos, and stories).

In terms of gender differences, the lack of a consensual definition of problematic social media and the use of numerous and different assessment tools led a difficult estimation of its prevalence (Bányai et al., 2017). Recently, some studies found a higher prevalence of problematic social media use among females than male users (Andreassen, 2015; Andreassen, Pallesen, & Griffiths, 2017; Andreassen, Torsheim, Brunborg, & Pallesen, 2012; Griffiths et al., 2014; Mcandrew, & Jeong, 2012). On the contrary, Çam and Isbulan (2012) found higher estimates among males and other researchers revealed no association between gender and problematic SNSs use (Turel, & Serenko, 2012; Wu, Cheung, Ku, & Hung, 2013). Overall, several discrepancies and inconsistencies in the gender-related findings (Tifferet, & Vilnai-Yavetz, 2014).

However, several studies highlighted that virtual communities on social media allow users to create individual public and/or private profiles, chat, interact with and reinforce "offline" relations, share common interests with other people and new friends, view, comment, and "like" others' activities, and share different forms of content (e.g., Balakrishnan & Griffiths, 2017; Bányai et al., 2017; Boursier & Manna, 2018a; Boursier,

Gioia, Coppola, Schimmenti, 2019; Boursier, Manna, Gioia, Coppola, & Venosa, 2018; boyd & Ellison, 2007; Cohen et al., 2018; Holland & Tiggemann, 2016; Kircaburan & Griffiths, 2018; Kuss & Griffiths, 2011a, 2011b; Monacis, De Palo, Griffiths, & Sinatra, 2017; Perloff, 2014; Tiggemann & Slater, 2017; van den Eijnden, Meerkerk, Vermulst, Spijkerman, & Engels, 2008). Moreover, unlike traditional mass media (such as movies, television, magazines), content generally shared on SNSs is peer-generated. Indeed, social networking sites allow users to be not only passive receivers, but also active creators of content, in turn improving function of users engagement (Balakrishnan, & Griffiths, 2017; Butkowski, Dixon, & Weeks, 2019; Cohen et al., 2018; Fox, & Vendemia, 2016; Holland & Tiggemann, 2016; Perloff, 2014; Veldhuis, Alleva, Bij de Vaate, Keijer, & Konijn, 2018). Several initial studies concerning problematic social networking sites use focused on the use of one particular social network site (especially Facebook) (Griffiths, Kuss & Demetrovics, 2014), but the social media landscape has rapidly evolved, with many platforms often replaced by new ones (for example Instagram and Snapchat), especially among adolescents (Griffiths & Kuss, 2017; van den Eijnden et al., 2016).

1.3. Adolescents and social networking

Adolescents' and young people's engagement in Internet-based activities has dramatically and rapidly grown over the past few years (Boursier & Manna, 2018a; Franchina & Lo Coco, 2018; Gioia & Boursier, 2019b; Kırcaburun, Kokkinos, Demetrovics, Király, Griffiths, & Çolak, 2019), especially in SNSs-related activities (D'Arienzo, Boursier, & Griffiths, 2019; Kuss & Griffiths, 2017). In early 2019, there were more than 3.4 billion active social media users (We Are Social, 2019) and adolescents represented a high percentage of social media users. Specifically, according to Mascheroni and Ólafsson (2018), 79% of teenagers aged 13 to 14 years and 84% aged between 15 and

17 years had almost an active social media profile. *YouTube*, *Instagram*, and *Snapchat* appear the most popular online platforms among teenagers (Pew Research Center, 2018).

The adolescents' widespread use of SNSs animated the scientific debate concerning the risky opportunities they provided (Livingstone, 2008; Munno, Saroldi, Bechon, Sterpone, & Zullo, 2016). Some researchers found that SNSs might represent ideal places for their identity construction processes (Boursier & Manna, 2019; Kuss & Griffiths, 2017; Pelosi, Zorzi, & Corsano, 2014; Riva, 2010). Moreover, social networking seems to provide entertainment, help individuals (especially adolescents) to develop their cognitive skills, increase social capital, and promote social interactions. According to Perloff (2014), SNSs consist of 24/7 available communities that allow to view, create, and edit personal content, anywhere and anytime, providing users almost unlimited opportunities for social and peer-to-peer comparisons, which in turn might encourage the identity construction process via a digital screen (Manago et al., 2015; Pelosi et al., 2014; Zhao, Grasmuck, & Martin, 2008). Therefore, SNSs use could support some of the teenagers' pivotal social needs, such as the need to belong and self-presentation (Boursier & Manna, 2018b; Griffiths & Kuss, 2017; Nadkarni & Hofmann, 2012; Pelosi et al., 2014).

Nevertheless, social networking sites could also lead to simultaneous risks (Franchina & Lo Coco, 2018; Livingstone, 2008; Munno et al., 2016). According to Lee et al. (2018), there are different gender-based patterns of (potentially problematic) SNSs use among adolescents, especially concerning content, activities, motives of use, and ways to access the online environments. According to previous studies, it seems possible to distinguish between Internet use for social and non-social purposes, between the instrumental and expressive Internet (Gross, 2004; Tufekci, 2008). In this regard, girls seem to be expressive Internet users, in search of virtual emotional interactions (Demirer & Bozoglan, 2017). They spend significantly more time using social network sites, instant messages, and blogs

(e.g., Barker, 2009; Carbonell, Chamarro, Griffiths, Oberst, Cladellas, & Talarn, 2012; Demirer & Bozoglan, 2017; Dufour et al., 2016; Fioravanti, Dèttore, & Casale, 2012; Guglielmucci, Saroldi, Zullo, Munno, & Granieri, 2017; Kojima et al., 2019; Lee et al., 2018; Mihara et al., 2016; Tahiroglu, Celik, Uzel, Ozcan, & Avci, 2008; Vink, van Beijsterveldt, Huppertz, Bartels, & Boomsma, 2016), sometimes to reinforce their offline-relations (Boursier & Manna, 2018a). On the other hand, boys spend significantly more time playing online games, visiting sex Web sites, gambling, file downloading, shopping, and indiscriminate surfing than girls (e.g., Barker, 2009; Demirer & Bozoglan, 2017; Dufour et al., 2016; Fioravanti et al., 2012; Guglielmucci et al., 2017; Gür, Yurt, Bulduk, & Atagöz, 2015; Kojima et al., 2019; Lee et al., 2018; Munno et al., 2016; Munoz-Miralles et al., 2016; Perrella & Caviglia, 2017; Tahiroglu et al., 2008; Vigna-Taglianti, Brambilla, Priotto, Angelino, Cuomo, & Diecidue, 2017; Vink et al., 2016; Wang, Zhou, Lu, Wu, Deng, & Hong, 2011; Zhou et al., 2018). Joiner et al. (2012), differently by their previous findings (Joiner et al., 2005), also found that females used social network sites more than males and stated that gender differences in the use of the Internet were essentially a reflection of gender differences in wider society and thus very resistant to change.

Recently, SNSs-related activities have become increasingly focused on visually presented stimuli (Caso et al., 2019; Feltman & Szymanski, 2018) and likely disembodied environments, as well as SNSs and online body image-based activities, allow people who are dissatisfied with their appearance to create and edit their best online self-presentation, often overinvesting in own body image (Boursier & Manna, 2018b; Casale & Fioravanti, 2017; Cohen et al., 2018; Fox & Rooney, 2015; Lonergan et al., 2019; Manago et al., 2015; McLean et al., 2015). The visual attention directed toward body appearance, like in a mirror or pictures, might trigger and promote potentially problematic behaviors such as

body monitoring, body image control in pictures, and photo investment (Boursier & Manna, 2019; McLean et al., 2015).

1.4. Adolescents' online body image

As aforementioned, in recent years social networking sites use became increasingly focused on sharing of digital visual content (Caso et al., 2018), transforming contemporary daily life in a more photographic life (d'Aloia & Parisi, 2016), in which editing, filtering, posting, sharing, tagging, and commenting represent common everyday activities (d'Aloia & Parisi, 2016; Fox & Vendemia, 2016). Furthermore, everyone might become a self-artist due to the great availability of photo-editing tools, software, webcams, and smartphones (Tomassoni, Galetta, & Gargano, 2016). In this regard, selfie practices represent likely the most popular activities carried out on social networking sites, especially among teenagers (Dhir et al., 2016; McLean, Jarman, & Rodgers, 2019).

The Oxford Dictionary elected "selfie" as the 'Word of the Year 2013' and defined it as a self-taken picture, via smartphones or webcams, and shared on social media (Oxford Dictionary, 2013). Later, Albury (2015) described selfie-taking and -posting as a gendered processes and, accordingly, several studies observed a higher females' engagement in selfie practices (Boursier & Manna, 2018b; Chae, 2017; Nguyen, 2014; Qiu, Lu, Yang, Qu, & Zhu, 2015; Sorokowska, Oleszkiewicz, Frackowiak, Pisanski, Chmiel, & Sorokowski, 2016). However, both males and females seemed to utilize selfies for self-presentation purposes (Katz&Crocker, 2015) and the inclusion of boys in future research, as well as girls, has been defined crucial (McLean et al., 2019).

Gradually selfie practices have appeared nuanced, recognizing the photographers' centrality in the pictures, the intentional creation of self-portraits, and the multiple behaviors involved in taking (for example, preparation and posing), modifying (for

example editing and filtering), and posting selfies (McLean et al., 2019). Moreover, as interestingly Boursier and Manna (2018b) found, selfie-taking represent a very common activity, regardless of the intention to share photos on SNSs. Thus, selfie behavior consists of a complex and multidimensional phenomenon and its research field requires further research (Boursier & Manna, 2018b; Bruno, Pisanski, Sorokowska, & Sorokowski, 2018; McLean et al., 2019).

In the last few years, an increasing scholar interest focused on opportunities and possible psychopathological risks linked to selfie practices (e.g., Balakrishnan & Griffiths, 2017; Boursier & Manna, 2018b; Diefenbach & Christoforakos, 2017; Griffiths & Balakrishnan, 2018; McLean et al., 2019; Pakpour, Lin, Lin, Imani, Griffiths, 2019). Indeed, on the one hand, recent research named 'selfitis' the obsessive taking of selfies, emphasizing the potentially addictive and compulsive nature of selfie behavior among a minority of individuals (Balakrishnan & Griffiths, 2018; Pakpour et al., 2019). On the other hand, some studies have shown that selfie-related activities might provide new content for creative works, helping creators to manage emotions (Bruno et al., 2018; Diefenbach & Christoforakos, 2017), contribute to individuals' self-esteem and mood thanks to "likes" and other people positive feedback (Reich, Schneider, & Heling, 2018; Toma, 2013), improve individuals' self-confidence and self-attractiveness (Boursier & Manna, 2018b; Grogan, Rothery, Cole, & Hall, 2018), and promote new relationships construction (Chua & Chang, 2016; Sorokowska et al., 2016; Taylor, Hinck, & Lim, 2017). Moreover, selfie practices represent habitual behaviors that might help pass the time and satisfy the needs to belong, document, archive, retain special moments, and be creative (Bij de Vaate, Veldhuis, Alleva, Konijn, & van Hugten, 2018; Etgar & Amichai-Hamburger, 2017; Sung et al., 2016). Additionally, empirical findings revealed the value of selfies as medium for self and identity exploration, promoting self-study and self-observation (Diefenbach &

Christoforakos, 2017; Rutledge, 2013). Nevertheless, selfies are typically shared on social networking sites where self-presentation seems to play a pivotal role in selfie-practice, not without risks, especially regarding body image-related concerns (Boursier & Manna 2018b; Chae, 2017; Bij de Vaate et al., 2018; Diefenbach & Christoforakos, 2017; Lowe-Calverley & Grieve, 2018; Lyu, 2016; McLean et al., 2019).

The adolescence triggers tremendous changes in body shape and boys and girls are required to face the integration of an adult sexual body, the mentalization of this "new" body, and many identity construction processes (Blos, 1966, 1967; Cahn, 2005; Genovese, 1990; Laufer & Laufer, 1986, 2018). Facing with these dramatic changes, the disclosure of adolescents' body images on SNSs assumes greater and increasing relevance, not without risks (e.g., Boursier & Manna, 2019; Franchina & Lo Coco, 2018; Katz & Rice, 2002; Pelosi et al., 2014; Stern, 2004; Turkle, 1995; Valkenburg & Peter, 2008). As Diefenbach and Christoforakos (2017) stated, individuals might relate to the smartphone self-camera as well as a mirror, often over-controlling self-presentation on SNSs that begins when taking a photo. Indeed, whereas on the one hand the teen SNSs users' perceived control on own body image and the online self-presentation might improve their social confidence (Pelosi et al., 2014; Rodgers, Melioli, Laconi, Bui, & Chabrol, 2013), on the other hand, this great attention given to the own online presentation might intensify adolescents' and young people's appearance-related concerns, leading potentially problematic monitoring of own body image in photos (Fox & Vendemia, 2016; Perloff, 2014).

Likely, the disembodied, asynchronous, and often anonymous nature of SNSs and online environments might lead individuals to present their best and ideal self on social media through photo-related activities (such as editing) and problematically overinvest in their online self-presentation (Boursier & Manna, 2018b; Casale & Fioravanti, 2017;

Cohen et al., 2018; Bij de Vaate et al., 2018; Fox & Rooney, 2015; Fox & Vendemia, 2016; Lonergan et al., 2019; McLean et al., 2015; Zhao, Grasmuck, & Martin, 2008). Moreover, researchers have shown that teenagers' SNSs friends' networks are larger than older users' ones (Kuss & Griffiths, 2011a). Thus, young people can share and observe their own and peers' visual content edited as commercially produced images, learning what is considered attractive and what is not (Manago et al., 2015). According to Chen et al. (2019), social networking sites provide endless opportunities for people to share own best self (even if digitally modified or edited), likely altering their perception of their beauty and authenticity (Diefenbach & Christoforakos, 2017; Rajanala, Maymone, & Vashi, 2018). In line with this, Casale and Fioravanti (2017) stated that social networking might allow individuals to strategically manage their self-presentation, increasingly through pictures, selfies, videos, and other visual content. As previous studies highlighted (Caso et al., 2019; Feltman & Szymanski, 2018; Fox & Vendemia, 2016; Perloff, 2014), on the one hand, the great attention towards own photographic self-presentation on SNSs might promote body image-related concerns and potentially problematic monitoring and control over bodily appearance in photos. On the other hand, a greater engagement in body image control might trigger greater problematic social networking, especially among adolescents (Hawk, van den Eijnden, van Lissa, & ter Bogt, 2019; Wang, Xie, Fardouly, Vartanian, & Lei, 2019b), confirming a possible bidirectional nature of (problematic) social networking-body image issues relation and an *appearance-based behavior-reward feedback loop* (Boursier, Gioia, & Griffiths, 2020a, 2020b; Hawk et al., 2019).

Photo investment and control over body image in pictures have been defined as adolescents' and emerging adults' behaviors aimed at managing worries about own pictures quality and how their selfies portray them on SNSs, following specific strategies in selfie-taking and selfie-choosing before online sharing (Boursier & Manna, 2019; Bij

de Vaate et al., 2018; McLean et al., 2015; Pelosi, Zorzi, & Corsano, 2014). Like photo investment, selfie-editing also seems to be related to the individuals' attempt to make a virtual makeover, fulfilling their need to create and share own ideal online self-presentation (Chae, 2017; Lowe-Calverley & Grieve, 2018). Through photo manipulation selfies and photos might be altered and enhanced before sharing on social media, thanks to editing programs, computer software, or smartphone apps (Chae, 2017; McLean et al., 2015). In this regard, the high engagement in photo-editing and manipulation might be problematically related to narcissism (Fox, Bacile, Nakhata, & Weible, 2018; Sanecka, 2017; Fox & Rooney, 2015; Lowe-Calverley & Grieve, 2018; Moon, Lee, Lee, Choi, & Sung, 2016), physical appearance concerns (Chae, 2017; Cohen, Newton-John, & Slater 2017; McLean et al., 2015; Perloff, 2014), and the internalization of culturally promoted (and idealized) beauty standards (Bij de Vaate et al., 2018; McLean et al., 2015), which in turn might promote self-objectification experiences (Caso et al., 2019; Cohen et al., 2018; de Vries & Peter, 2013; Lyu, 2016; Veldhuis, Alleva, Bij de Vaate, Keijer, & Konijn, 2018).

1.5. Objectification Theory and Objectified Body Consciousness framework

The Objectification Theory (Frederickson & Roberts, 1997) represents a useful feminist theoretical framework to understand females' sexual objectification experiences and their consequences in Western societies. According to Frederickson and Roberts (1997), sexual objectification arises whenever a female's body, its parts, or sexual functions are considered apart from her person, reducing women as mere instruments. This sexualization occurs in many forms and very often, likely because the most important medium for sexualized evaluations is other people's gaze on bodies (Kaschack, 1992). Thus, the Objectification Theory framework (Fredrickson & Roberts, 1997) posits that in Western

societies the women's and girls' bodies are often considered as objects and suitable to be looked at and evaluated, principally based on physical appearance (e.g., Dakanalis et al., 2015a; Holland & Tiggemann, 2016; Karsay, Knoll, & Matthes, 2018; Manago, Ward, Lemm, Reed, & Seabrook, 2015; Moradi, 2010; Moradi & Huang, 2008). In this perspective, repeated objectification experiences might gradually influence women in treating themselves as objects, assuming and internalizing an outside observer's point of view on their physical selves. This internalization process has been named *self-objectification* (Fredrickson & Roberts, 1997; Moradi & Huang, 2008). As McKinley and Hyde (1996) stated, females internalize cultural body standards and gradually these standards begin to appear originated from the self, leading women and girls to believe that accomplishing these standards is possible, even when they are not. According to Moradi (2010), self-objectification consists of persistent body surveillance or monitoring, which might consequently promote body shame, increase anxiety, reduce awareness of internal bodily states and psychological well-being.

Appearance-focused self-objectification and body surveillance found a clear predecessor in *Objectified Body Consciousness* (OBC) framework (McKinley & Hyde, 1996). McKinley and Hyde (1996) operationalized OBC including three pivotal components in women's (and men's) body experience: (i) body surveillance, (ii) body shame, and (iii) appearance control beliefs. Specifically, *body surveillance* refers to persistent thinking and habitual monitoring of own bodily appearance as an outside observer (Dakanalis, Timko, Clerici, Riva, & Carrà, 2015b; McKinley & Hyde). Traditionally, as McKinley and Hyde (1996) explained, the main tenet of OBC is that female bodies are considered objects of male desire, suitable to be looked at by male gazes. Seeing themselves as other people see them (self-surveillance) is essential to guarantee women's compliance with cultural body standards and avoid negative judgments. Thus,

"women's relationships to their bodies becomes that of objects and external onlooker; they exist as objects to themselves" (McKinley & Hyde, 1996; p. 183). Therefore, cultural body standards provide ideals to which women and girls compare themselves monitoring their bodies. The internalization of these cultural ideals and standards gradually appear as a desire come from within individuals rather than a product of social pressure. According to Spitzack (1990), when this desire is constructed as a personal choice, females might be more willing to conform to cultural standards. In this regard, *body shame* refers to feelings of shame about own body that extends to the self as a whole due to the perceived failure to comply cultural ideals and standards (Dakanalis et al., 2015b; McKinley & Hyde, 1996; Moradi & Huang, 2008). Finally, the inclusion of *appearance control beliefs* in OBC framework represents a clear conceptual and empirical point of divergence between objectification theory and OBC (Dakanalis & Riva, 2013; Dakanalis et al., 2015b; Moradi, 2010; Moradi & Varnes, 2017). Within the objectified body consciousness framework, appearance control beliefs refer to beliefs that, given enough effort, physical appearance and body shape/size can be controlled, assuming that females are responsible for how their bodies look (Dakanalis et al., 2015b; McKinley & Hyde, 1996) and for their compliance to cultural standards of attractiveness (Moradi, 2010). The achievement of cultural appearance standards as a choice promotes women's beliefs that they can control and are responsible for their look, encouraging the acceptance of attractiveness as a reasonable standard by which to judge themselves (McKinley & Hyde, 1996; Wolf, 1991). However, despite many aspects of bodily appearance cannot be controlled, believing in appearance control might offer some benefits. Indeed, on the one hand, body surveillance, body shame, and appearance control beliefs occur due to the internalization of cultural standards attractiveness. Nevertheless, on the other hand, unlike body surveillance and body shame, appearance control beliefs might be related to a sense of competence, personal agency, and

locus of control, likely providing positive psychological outcomes (Laliberte, Newton, McCabe, & Mills, 2007; McKinley, 1998, 1999; McKinley & Hyde, 1996; Moradi, 2010; Moradi & Varnes, 2017; Sinclair & Myers, 2004). In this regard, appearance control beliefs represent a controversial and debated factor of OBC. McKinley and Hyde (1996) themselves discussed the paradoxical position of appearance control beliefs within OBC theory (John & Ebbeck, 2008). Although the authors hypothesized that individuals' higher beliefs in control over own appearance might contribute to negative body-related experiences, their findings and several subsequent studies found a negative or absent correlation between appearance control beliefs and body surveillance and body shame (John & Ebbeck, 2008; McKinley & Hyde, 1996; Moradi, 2010; Moradi & Varnes, 2017; Sinclair, 2010; Sinclair, & Myers, 2004). However, according to Moradi and Varnes (2017), further investigation about appearance control beliefs and their inclusion within the OBC framework are required.

In recent years, according to several researchers, self-objectification experiences are becoming prevalent among males (Daniel, & Bridges, 2010; Dakanalis et al., 2015; Holland & Tiggemann, 2016; Karsay, Knoll, & Matthes, 2018; Manago et al., 2015; Moradi, 2010; Moradi & Huang, 2008; Vandenbosch & Eggermont, 2012). As Vandenbosch and Eggermont (2013) stated, the self-objectification is no longer a boys' singular process. In Western societies, males appeared increasingly subjects of sexual objectification and boys seemed to strongly strive for a hypermasculine body ideal (Lindberg, Hyde, & McKinley, 2006). Consequently, further research on the outcomes of the objectifying 'macho' culture on male adolescents is necessary (Vandenbosch & Eggermont, 2013).

Thus, objectified body consciousness framework might help to interpret the individuals' contradictory relationship with their body. Indeed, behaviors such as loving the self and

body through surveillance, choosing to comply with cultural body standards, and appearance controlling skills might appear positive experiences. Nevertheless, persistent comparison of themselves to cultural standards, trying to reduce possible discrepancies, might have negative implications for females (and males) (McKinley & Hyde, 1996). In this regard, research has explored and associated several factors to the individuals' self-objectification experiences (Lindberg et al., 2006), such as eating disorders (e.g., Cohen, Newton-John, & Slater, 2018; Dakanalis et al., 2015a, 2015b; Fitzsimmons-Craft, Bardone-Cone, & Kelly, 2011; Holland & Tiggemann, 2016; McKinley & Hyde, 1996; Sinclair, 2010; Slater & Tiggemann, 2010; Tiggemann, 2013.), body dissatisfaction and body image-related issues (McKinley, 1998; Meier & Gray, 2013; Noser, & Zeigler-Hill, 2014; Slater & Tiggemann, 2010), and depressive symptoms (Lamp, Cugle, Silverman, Thomas, Liss, & Erchull, 2019; Sinclair, 2010; for a review Jones & Griffiths, 2015). Moreover, the self-objectification framework has typically operated within a traditional mass media paradigm (such as magazines, movies, television) (for a review, see Grabe Ward, & Hyde, 2008). In this perspective, some researchers suggested that mass media might promote objectified body images and that increased exposure to objectifying media leads to individuals' body self-objectification, often related to body shame (Aubrey, 2006; Fredrickson & Roberts, 1997; Meier & Gray, 2014; Vandenbosch, & Eggermont, 2012). More recently, and despite traditional media still being widely consumed, online social media seem to increasingly replace them, promoting in parallel the increasing socialization of young people with self-objectification experiences (Caso et al., 2019; Cohen et al., 2018; Daniel, & Bridges, 2010; de Vries & Peter, 2013; Lyu, 2016; Vandenbosch & Eggermont, 2013; Veldhuis et al., 2018).

1.6. Social media use and self-objectification experiences

Unlike traditional mass media, in which consumers are mostly passive spectators of objectified images, social media platforms, especially social networking sites, allow individuals to be both passive recipients as well as active creators of digital content (Cohen et al., 2018; Perloff, 2014; Vandenbosch & Eggermont, 2012, 2013). In this regard, social media use (including the creation and sharing of content and peer interactions) might provide a novel and highly accessible medium for socializing with self-objectification and objectified body consciousness experiences (Caso et al., 2019; Cohen et al., 2018; de Vries & Peter, 2013; Manago et al., 2015).

In recent years, researchers have specifically explored the relationship between social networking sites use and self-objectification (Bell, Cassarly, & Dunbar, 2018; Fardouly, Diedrichs, Vartanian, & Halliwell, 2015), highlighting how, on SNS profiles, individuals seem to literally look at themselves from an outside observer's perspective (Fardouly et al., 2015). Some studies focused on the amount of time spent on SNSs, highlighting its association with greater self-objectification and OBC experiences (Andrew, Tiggemann, & Clark, 2016; Barzoki, Mohtasham, Shahidi, & Tavakol, 2017; Fox & Rooney, 2015; Melioli, Rodgers, Rodrigues, & Chabrol, 2015; Slater, & Tiggemann, 2015; Vandenbosch & Eggermont, 2012, 2015). In 2013, de Vries and Peter explored women's online self-photos activity and suggested that females' online self-portrayals, if combined with sexually objectified stimuli, might enhance self-objectification. Furthermore, several studies showed that high exposure to photos, appearance-related conversations, and body image comparisons on SNSs (such as Facebook) are strongly associated to appearance-related concerns and self-objectification (Arroyo & Brunner, 2016; Fardouly et al., 2015; Fardouly & Vartanian, 2015; Manago et al., 2015; Meier & Grey, 2014; Trekels, Ward, & Eggermont, 2018). More recently, some studies found that Instagram use, similarly to

Facebook, was positively correlated with self-objectification (Bell et al., 2018; Cohen et al., 2018; Fardouly, Willburger, & Vartanian, 2018; Feltman & Szymanski, 2018). In several studies, social networking has been considered and investigated as a pivotal predictor of self-objectification experiences (Bell et al., 2018; Butkowski et al., 2019; Cohen, Newton-John, & Slater, 2017; De Vries & Peter, 2013, Fardouly et al., 2015; Fardouly et al., 2018; Feltman & Szymanski, 2018; Holland & Tiggemann, 2016; Manago et al., 2015; McLean et al., 2015; Tiggemann & Barbato, 2018; Vandenbosch & Eggermont, 2012). On the contrary, some studies, though few, explored the predictive role of body self-objectification on social networking sites use (Boursier et al., 2020a, 2020b; Veldhuis et al., 2018). According to Strelan and Hargreaves (2005) and their circle of self-objectification, these studies seem to confirm the possible bidirectional nature of social networking-self-objectification relation. Likely, social networking might promote self-objectification experiences, allowing individuals who already self-objectify their body to present, manage, and enhance their online appearance, supporting self-objectification processes (Bell et al., 2018; Fardouly et al., 2015, 2017; Veldhuis et al., 2018). Consequently, these body image-related concerns and issues might be potentially linked to a problematic SNSs use (Boursier et al., 2020a; Cohen et al., 2018).

However, in terms of objectified body consciousness, social networking sites have been described as clear socialization medium for the three main components of OBC.

1.6.1. Body surveillance and social networking sites use

Within the OBC framework, researchers largely explored the association between social networking and body surveillance. Some studies showed that involvement in and exposure to content of Facebook predicted body surveillance (Hanna et al., 2017; Manago et al., 2015; Slater & Tiggemann, 2015; Tiggeman & Slater, 2013, 2015; Vandenbosch, &

Eggermont, 2012). Furthermore, a few studies have explored the predictive role of adolescents' risky online sex-related behaviors on body surveillance (Doornwaard, Bickham, Rich, Vanwesenbeeck, van den Eijnden, & Ter Bogt, 2014; Vandenbosch, & Eggermont, 2013). On the contrary, Veldhuis et al. (2018) hypothesized and confirmed the predictive role of body surveillance on selfie-related activities on SNSs, agreeing with the circle of self-objectification (Strelan & Hargreaves, 2005) and the possible bidirectional nature of SNS-self-objectification pathway. Recently, other studies explored the association between all components of OBC and online activities. Graff and Czarnomska (2019) highlighted the strong and positive association between the amount of time spent on Facebook, Instagram, and Pinterest and the higher levels of objectified body consciousness in women. Moreover, Bianchi et al. (2017) found that OBC predicted teenagers' sexting for sexual purposes. However, the relationships between social media use and the other components of objectified body consciousness framework are still understudied.

1.6.2. Body shame and the gaze of the other

Within the OBC research field, a few studies explored the effect of SNSs on body surveillance, which in turn predicted greater body shame experiences (Manago et al., 2015; Slater & Tiggemann, 2015; Tiggemann & Slater, 2015). Only recently, a Chinese study showed the predictive role of older adolescents' body-related conversations on SNSs on body shame via body surveillance (Wang, Wang, Yang, Zeng, & Lei, 2019a). Nonetheless, the *gaze of the other* in digital context represents a crucial issue (Pietropolli Charmet, 2018): online environments have likely changed the gaze of the other that is now directed towards images of the selves generated through the social media use (King, 2016). In this regard, a psychodynamic perspective might provide a useful point of view for the analysis

of the shame transformations. Indeed, shame not only refers to experience of objectification, but it also protects individuals from and binds them to the other (Sheff, 2000), contributing to individuals' psychological development and subjectivity construction (King, 2016). As Kohut (1971) stated, the self delineates itself within the shine of the mother's eye. Thus, the gaze of the (m)other might be considered a mirror of the self that not only reflects but gives meanings to the interactions and mutual relations among individuals. Winnicott (1965, 1967, 1971) clearly described the pivotal 'mirror role' of the mother and resonance of the other in infants' experiences: the baby who looks at the mother might see reflected in the mother's face his/her feelings and him/herself (Steiner, 2016). Later, in the gaze of the other, the I recognizes itself, its value, and becomes aware of its self (King, 2016). The shame represents a developmental-psychological feature of this process that simultaneously leads individuals to successfully affirm themselves, avoid potential failure in the gaze of the other, and reveal the self's dependence from the others and the relationships with them (King, 2016). During adolescence, the peer group became the significant other, the mirror in which adolescents might see themselves and being recognized. According to Genovese (1990), in a stage of life characterized by dramatic and unpredictable transformations, the adolescent peer group represent a landmark that ensures the needed stability and consistency. The needs of enhancement and approval can be satisfied whether adolescents meet peers who perform as mirror (Lancini, 2015). Nevertheless, at the same time, the gaze of the others might provide feelings of shame (Pietropolli Charmet, 2018). Therefore, as Schimmenti (2012) explained, shame is not a merely negative phenomenon that forces individuals to appear at themselves through other people's eyes and to face their failure to comply ego-ideal. On the other hand, the integration of shame into the self might strength individuals' mentalization ability and motivate them to change their behaviors in order to promote

socially responsible adjustment and avoid threatens against own self-esteem, social status, and sense of belonging. Nevertheless, when shame becomes pervasive it might negatively impact on individuals' life (Schimmenti, 2012). In this regard, within social media environments, 'see and be seen' (and recognized) phenomena, online self-presentation, and the permanent connection to physically distant people might promote changes in meaning of the gaze of the other (King, 2016). According to Pietropolli Charmet (2018), on the one hand, the great diffusion of self-images on social networking sites is likely related to the adolescents' fear of not being seen and thus forgotten. On the other hand, the gaze of the other turn on the shame leading to the need to disappear or hide behind a screen or social media profile. Accordingly, but from a different perspective mainly, Casale and Fioravanti (2017) supposed that the use of SNSs by young adults who experience shame might allow them to hide themselves and own negatively perceived characteristics and decrease their negative shame-related feelings. In their study, the authors confirmed the predictive role of behavioral and bodily shame experiences on problematic social networking with the mediating effect of perceived benefits of computer-mediated communication. Previously, in another Italian study, Craparo et al., (2014) highlighted the predictive role of feelings of shame upon internet addiction.

However, further research on the relationship between body shame and use and misuse of social networking sites is needed.

1.6.3. Appearance control beliefs: a controversial and debated factor of OBC

Concerning the third OBC component, no studies have specifically focused on the relationship between SNSs use and the unexplored appearance control beliefs. As aforementioned, appearance control beliefs represent a controversial and debated factor of OBC framework. Differently from body surveillance and body shame, despite some mixed

results, several studies have showed a significant positive association between appearance control beliefs and measures of psychological wellbeing, body esteem, and body satisfaction (Crawford et al., 2009; John & Ebbeck, 2008; McKinley, 1999; McKinley & Hyde, 1996; Noser, & Zeigler-Hill, 2014; Sinclair, & Myers, 2004). Specifically, researchers have found that believing in control over own physical appearance might lead to a decrease of body monitoring and feelings of shame concerning own bodily appearance (Noser, & Zeigler-Hill, 2014; Taylor, 1989) and an increase of healthy behaviors (Sinclair, 2010). In this regard, appearance control beliefs have been found strongly and positively associated with personal agency, sense of competence, and perceived controllability of life events (Laliberte et al., 2007; McKinley, 1998, 1999; McKinley & Hyde, 1996; Moradi, 2010; Sinclair & Myers, 2004). Moreover, other studies highlighted the association between appearance control beliefs and locus of control (Parsons & Betz, 2001; Sinclair, 2010) that has been conceptualized as a protective function concerning the evaluation of stressful situations and coping efforts, strictly related to beliefs in control over own life (Chak & Leung, 2004; Kliewer & Sandler, 1992). Other empirical findings confirmed a strong relationship between internal locus of control and adaptive behaviors (such as creativity and healthy behaviors), also in children and adolescents (Eiser, Eiser, Gammage, & Morgan, 1989; Gilmor, 1978; Kliewer & Sandler, 1992; Kulas, 1996). More recently, some studies explored the internal locus of control association with behavioral addictions (for example online gaming addiction, addictive Internet use), showing that individuals more internally-oriented and people who believe they can have the control over own life appear less likely to be problematic Internet users (Chak & Leung, 2004; Ko, Yen, Chen, Chen, & Yen, 2005; İskender & Akin, 2010; Shonin, Van Gordon, & Griffiths, 2014). Thus, perceived control seems to affect individuals' behaviors and emotions (Schall, Wallace, & Chhuon, 2016) and, likely, believing in the ability to control own appearance

might be seen as a skill, decrease of body monitoring (Noser, & Zeigler-Hill, 2014; Taylor, 1989), and promote healthy behaviors (Sinclair, 2010). Instead, in a different perspective, some scholar findings showed that the loss of limitations and concerns about self-presentation (like appearance control beliefs may be) might constitute a risk factor for the development of PIU (Niemz, Griffiths, & Banyard, 2005). As Joinson et al. (2010) stated, the perception of control over information (and likely also over own appearance) might improve individuals' confidence about their ability to manage it, consequently increasing their trust in the SNSs online environment. However, increased confidence and trust might reduce the perception of SNSs-related risks (Krasnova, Spiekermann, Koroleva, & Hildebrand, 2010; Taddei & Contena, 2013). Accordingly, increasing scientific attention has been paid to the effect of metacognitions on addictive behaviors (Casale, Caplan, & Fioravanti, 2016; Casale, Rugai, & Fioravanti, 2018; Spada & Marino, 2017; Spada, Langston, Nikčević, & Moneta, 2008; for a review see Spada, Caselli, Nikčević, & Wells, 2015). Metacognitions have been defined as knowledge and cognitive processes involved in the appraisal, control, and monitoring of thinking (Spada et al., 2015). Specifically, metacognitions refer to implicit or explicit beliefs about meaning of own cognition and coping/controlling strategies that have an impact on it (Brown, 1987; Spada & Marino, 2017; Wells & Matthews, 1996) and recently Spada and Marino (2017) highlighted the pivotal role of these beliefs on the initiation and engagement in unhelpful coping strategies, such as threat monitoring, maladaptive behaviors, etc.). In addictive behaviors research field, metacognitions have been distinguished in positive and negative metacognitions (Spada et al., 2015). On the one hand, negative metacognitions have been defined as concerns about the uncontrollability and dangers related to addictive behavior. On the other hand, positive metacognitions have been conceptualized as specific beliefs related to a behavior as a way to control and regulate cognition and emotion and they have been found

to play a pivotal role in promoting individuals' engagement in addictive behaviors (Casale et al., 2016; Spada et al., 2015). Indeed, as researchers explained, individuals' positive metacognitions are focused on capturing how the use of an object (or substance) might help them to achieve their mental control by improving problem-solving strategies, acting as a form of thought control, regulating attention, and managing self-image, promoting in parallel an addictive use of the object (or substance) (Casale et al., 2016; Spada et al., 2007; Spada et al., 2015).

However, no studies have been focused on appearance control beliefs and social networking sites use, neither on OBC components and possible problematic social media use.

1.7. The present research

In recent years, scientific literature provided several evidences concerning the increasing centrality of appearance-related activities (such as selfie-sharing, viewing, commenting, and "liking" peers' photos) on social networking sites (e.g., Balakrishnan & Griffiths, 2017; boyd & Ellison, 2007; Caso, Fabbricatore, Muti, & Starace, 2019; Feltman & Szymanski, 2018; Franchina & Lo Coco, 2018), which in turn might allow adolescents to satisfy their need of self-presentation (Boursier & Manna, 2018b; Griffiths & Kuss, 2017; Nadkarni & Hofmann, 2012; Pelosi et al., 2014). Nevertheless, this increasing visual attention directed toward body appearance might enhance adolescents' potentially problematic control over own body image in pictures and photo manipulation (Boursier & Manna, 2019; Fox & Vendemia, 2016; McLean et al., 2015; Perloff, 2014).

Selfie behavior has been described as a complex phenomenon (Boursier & Manna, 2018b; Bruno et al., 2018; McLean et al., 2019) that comprises not only selfie-sharing on SNSs but also following specific control and manipulation strategies to take and edit

personal pictures. However, scientific interest appeared focused on selfie-posting, leaving aside research on photo-taking, photo manipulation, their predictors and outcomes (e.g., Bij de Vaate et al., 2018; Chae, 2017; Dhir et al., 2016; McLean et al., 2015, 2019). Specifically, some researchers evaluated the extent to which individuals edit or manipulate own pictures before sharing on SNSs. Few studies assessed selfie- and photo-editing asking participants (mainly young adults) to indicate how often they apply filters or effect to improve their photo appearance (Bij de Vaate et al., 2018; Chae, 2017; Dhir et al., 2016; Lowe-Calverley & Grieve, 2018; Lyu, 2016). Instead, exploring photo-editing among adolescents, some studies administered the Photo Manipulation scale developed by McLean et al. (2015) (Lamp et al., 2019; Mingoia, Hutchinson, Gleaves, & Wilson, 2019; Terán, Yan, & Aubrey, 2019). Nevertheless, there are no Italian validation or adaptation of these measures.

Furthermore, as aforementioned, few studies focused on possible predictors of selfie-related behaviors prior to sharing on SNSs. Bij de Vaate et al. (2018) explored motives (i.e., entertainment, habitual passing of time, and social interactions) and pre-occupations (i.e., looking at, tagging, sharing, and commenting friends' visual content), and selfie-related behaviors (among which photo-taking and -editing) preceding selfie-sharing. Within the Italian context, Boursier and Manna (2018b) explored what boys and girls expected from selfies and the relationship between selfie-expectancies and selfie frequency. However, no researchers investigated the expectations underlying preceding selfie-sharing behaviors, such as control over body image before selfie-taking and selfie-editing.

Additionally, appearance monitoring and control over body image in pictures have been considered closely linked to SNSs use and potentially related to self-objectification experiences (Butkowski, Dixon, & Weeks, 2019; de Vries & Peter, 2013; Fox &

Vendemia, 2016; Vandenbosch & Eggermont, 2012). However, within the objectified body consciousness research field, body shame and appearance control beliefs components are still understudied, and no previous studies have explored their effect on body image control in photos before sharing on SNSs, neither the predictive role of these objectified body consciousness components on problematic social networking.

Thus, three studies were designed. Study 1 was conducted to revise and validate the Photo Manipulation scale (McLean et al., 2015), aiming at providing a useful instrument to evaluate photo manipulation strategies among Italian adolescents.

Using the revised and validated Photo Manipulation scale, Study 2 was conducted to contribute to the understudied research field concerning predictive factors in boys' and girls' control over body image in pictures and photo manipulation. Specifically, the aims of this second study were: (i) evaluate the predictive role of teens' selfie-expectancies on photo manipulation, (ii) test the mediating effect of body image control in photos on the relationships between expectation underlying selfie practice and photo manipulation, and (iii) evaluate the moderating role of gender on this mediation model. It was expected that selfie-expectancies would be positively associated with photo manipulation and that this relationship would be mediated by selfie appearance management. In particular, higher selfie expectancies have been expected associated with greater selfie appearance management, which in turn would be linked to greater frequency of manipulation of photos. In terms of gender moderation, it was supposed that gender would moderate the relationship between selfie-expectancies and photo manipulation, but, due to the lack of previous findings on this matter, a direction for this effect was not indicated.

Finally, in Study 3 two mediation models have been tested. Firstly, (i) the predictive role of body shame on problematic social networking sites use, (ii) the mediating role of body image control in photos on the relationships between these variables, and (iii) the validity of this mediation model across male and female groups have been tested. It was expected that body shame would be positively associated with problematic social networking sites use and that this relationship would be mediated by body image control in photos. Specifically, higher body shame has been expected associated with greater self-appearance management, which in turn would be linked to greater problematic SNSs use. Moreover, gender differences have been supposed in this mediation model. According to self-objectification and objectified body consciousness frameworks, it was expected that body shame would, directly and indirectly, affect problematic social networking via body image control in photos more in girls than boys.

Similarly, the aims of the second mediation model were: (i) evaluate the predictive role of appearance control beliefs on problematic social networking sites use, (ii) test the mediating role of body image control in photos on the relationships between these variables, and (iii) test the validity of this mediation model across male and female groups. It was expected that appearance control beliefs would influence problematic social networking and that this relationship would be mediated by selfie appearance management. However, due to the controversial scholar findings concerning this OBC component and the unexplored gender-related differences, a direction for these effects was not specified.

Chapter 2

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Study 1.

Revision and validation of the Photo Manipulation Scale

2.1. Introduction

Nowadays, social networking sites use represent a ubiquitous activity that largely impacts on individuals' daily routine. SNSs have been defined as useful medium to promote own online self-presentation (Boursier & Manna 2018b; Chae, 2017; Bij de Vaate et al., 2018; Diefenbach & Christoforakos, 2017; Lowe-Calverley & Grieve, 2018; Lyu, 2016; McLean et al., 2019), providing easy strategies for body image and photos digital alteration (Lowe-Calverley & Grieve, 2018; Lyu, 2016). Thus, photo-editing and manipulation seem to be a new matter for cyberpsychology research field (Lowe-Calverley & Grieve, 2018).

Photo manipulation has been defined as the alteration of photos or their elements before sharing them on social networking sites, using editing programs or apps (McLean et al., 2015). Some researchers assessed young adults' selfie- and photo-editing activity asking participants how often they used to apply filters or effect to improve photo appearance before sharing online (Bij de Vaate et al., 2018; Chae, 2017; Dhir et al., 2016; Lowe-Calverley & Grieve, 2018; Lyu, 2016). For example, Lowe-Calverley and Grieve (2018) administered three dichotomous items to assess the use of filters and editing capabilities

provided by own smartphones, additional apps, and professional editing software, such as Photoshop. Previously, Chae (2017) asked the photo-editing frequency in the past 30 days. Furthermore, other studies adapted some items from Fox and Rooney (2015) to evaluates participants' photo-editing behavior (e.g., Bij de Vaate et al., 2018; Dhir et al., 2016; Lyu et al., 2016). Nevertheless, these items did not represent specific measures for the photo-editing behavior assessment. Mainly used in the studies involving adolescent samples (e.g., Lamp et al., 2019; Mingoia et al., 2019; Terán et al., 2019), the Photo Manipulation scale (PMS), developed by McLean et al. (2015), evaluated the extent to which teenagers used photo-editing strategies (such as smoothing skin, making body parts bigger, correcting red eyes) before sharing pictures on social media. The McLean et al.'s (2015) PMS, together with *selfie-taking frequency*, *selfie-sharing*, and *photo investment* scales, composed the Photo Activities measure. Specifically, the PMS showed a very good internal consistency (α=.85) and a good agreement in test-retest reliability (ICC=.74, p<.003; M_{T1}=18.62, SD_{T1}=4.92; M_{T2}=18.15, SD_{T2}=6.48)

However, there is no Italian validation or adaptation of this scale. Translation of PMS and consequent evaluation of its psychometric properties might facilitate future research on this matter and on photo manipulation-related factors (e.g., Ahadzadeh et al., 2017; Chae, 2017; Chen et al., 2019; Diefenbach & Christoforakos, 2017; Lyu, 2016; McLean et al., 2019). Thus, the main goal of the present study was to determine the factor structure, validity, and reliability of a revised version of Photo Manipulation scale (McLean et al., 2015) among a large sample of Italian adolescents.

2.2. Methods

2.2.1. Participants and procedure

A total of 1353 participants were recruited from six high schools of Naples, Southern Italy. Parents and school principal of each school were informed of the nature of the research and the measures being used in generating the data. General information about the aim of the study was also declared in the classrooms. Participation was voluntary and no course credits or remunerative rewards were given for participation. Information confidentiality was assured, and all participants were informed that they could omit any information they did not wish to give and could withdraw from the study at any time. All students accorded their consensus and completed the online questionnaire in a classroom setting via their smartphones, while researchers and teachers supervised the survey completion. The research team's University Research Ethics Committee approved the study and it was conducted in accordance with the ethical guidelines for psychological research by the Italian Psychological Association.

2.2.2. Measures

After reported their gender and age, participants were asked to complete the translated version of the Photo Manipulation Scale (McLean et al., 2015). The measure consists of 10 items rated on a 5-point-Likert scale, from 1 (*Never*) to 5 (*Always*) and evaluates how often adolescents used recourse to photo manipulation and editing before sharing pictures on SNSs (for example, "*How often do you make yourself look skinnier?*", "*How often do you adjusting the light/darkness of the photo?*"). Due to the increasing use of interactive filters among teenagers (Rajanala et al., 2018), in the present study, an extra item has been added ("*How often do you use interactive filters (e.g., puppy ears, crown of flowers, etc.)?*"). The original 10-item PMS has been translated by two independent researchers and

then it was back-translated into English by a professional English-speaking translator, in order to minimize the risk of linguistic distortions (Van de Vijver & Poortinga, 2004). The final Italian version of PMS seemed not to show meaningful differences from the original English version. The 11-item revised PMS has been used.

2.2.3. Statistical analysis

The exploratory factor analysis (EFA) has been conducted to explore the psychometric properties of the 11-item revised PMS. Later, the factor structure based on EFA was confirmed through confirmatory factor analysis (CFA). Two independent samples were obtained during two different data collection moments. 653 adolescents (Sample 1) were recruited in the first data collection to perform the initial EFA on the original 11-item PMS was performed. Then, in the second data collection, 700 participants (Sample 2) were involved to conduct the CFA. All structural equation modeling analyses were carried out using Mplus 8 (Muthén & Muthén, 2012). Due to the deviation from the normal distribution, the maximum likelihood estimation robust to non-normality (MLR) has been employed. In order to evaluate the overall model fit, the χ^2 goodness-of fit statistic, several indexes have been used: the comparative fit index (CFI), the Tucker-Lewis Fit Index (TLI), root mean square error approximation (RMSEA), and the standardized root mean square residuals (SRMR). CFI and TLI are indices related to the total variance accounted by the model, and values higher than 0.90 are desired (Bentler, 1990). RMSEA is related to the variance of residuals, and values smaller than 0.08 are desired (Browne & Cudeck, 1993). Value of the SRMR below 0.08 is considered a good fit (Kline, 2015).

2.3. Results

2.3.1. Descriptive statistics

The total sample was nearly gender-balanced (47.4% males) and the mean age was 16.3 years (SD=2.29 years). Sample 1 (N=653) consisted of 361 girls (55.3%) and 292 boys (44.7%) with a mean age of 16.4 years (SD=3.06 years). Sample 2 (N=700) comprised 351 girls (50.1%) and 349 boys (49.9%) and the mean age was 16.1 years (SD=1.52 years).

2.3.2. Exploratory factor analysis

The EFA was performed on Sample 1 (N=653), with MLR estimator to evaluate the factor structure of the 11 items. The goodness of fit index, the interpretability of the solution, and salient factor loadings (.30) were considered to evaluate the acceptability of the factor solution. 1-, 2-, and 3-factor solutions were examined. The first adequate fit to the data has been provided by the three-factor solution: MLRχ^2 (25) = 38.368, p=.04; CFI= .99; TLI=.98; RMSEA=.03, 90% C.I. [.005-.046]; SRMR=.02 (Table 2.1.).

In Table 2.2. are showed factor loadings. Items for the further development of this scale were selected according to the following criteria: (i) items that had factor loadings lower than .30 were excluded, (ii) items with critical cross-loadings were excluded, (iii) in cases with more than two cross-loadings, a .30 as a cutoff was used to exclude items. As a result of the aforementioned criteria, three items have been excluded and they have been highlighted in italics in Table 2.2. Thus, items 1, 3, and 8 of the original 11-items scale were removed from the final revised version of PMS.

2.3.3. Confirmatory Factor Analysis

Based on the previous EFA, the CFA of three-factor solution was tested on Sample 2 (N=700). This model provided a good fit to the data (MLRχ^2 [17] = 72.771, p<.001; CFI=

.95; TLI=.91; RMSEA=.068, 90% C.I. [.053-.085]; SRMR=.045) (Figure 2.1.). The first factor, named *photo filter use*, comprised three items concerning the use of filters to modify or adjust the overall look of the photo (e.g., colours, brightness, contrast, etc.). The second factor, concerning body image modification, comprised three items and it was referred to making specific parts of the body look larger or smaller and making body shape skinnier or larger. This second factor has been labeled *body image manipulation*. The third factor has been named *facial image manipulation* and it comprised two items regarding the digital correction of skin imperfections, in order to improve the facial image.

In Table 2.3., factor loadings and internal consistencies are showed. The revised eight-item PMS showed an optimal Cronbach's α value (.80). The Cronbach's α values for each PMS subscales ranged from .67 to .75. Furthermore, the Spearman-Brown coefficient for the two-item *facial image manipulation* subscale was .75.

Means, standard deviations, and bivariate correlations among factors of the 8-item PMS are shown in Table 2.4.

2.4. Brief discussion

The revised Italian version of Photo Manipulation scale provided good psychometric properties for assessing photo manipulation strategies. The present measure showed an optimal Cronbach's α (.80) indicating very good internal consistency reliability of the instrument, in line with the original version of the instrument (α=.80) (McLean et al., 2015). The three-factor model of the eight-item PMS provided a good fit to the data and all items loaded significantly on their respective latent factors All factors were positively correlated with one another, from moderate to large strength.

The Italian 8-item Photo Manipulation scale has been confirmed as a useful instrument to evaluate photo manipulation strategies among Italian adolescents.

2.5. Limitations

The main limitation of the present study was the employment of a self-report survey of which potential biases are well-known. Indeed, individuals might be often biased reporting mainly socially acceptable or preferred experiences. Within the present adolescent sample, questions based on body image and physical appearance might promote participants' attempt to enhance their social desirability. Moreover, individuals might differently understand or interpret the survey questions, accounting for another potential bias.

Model	MLRχ^2(df)	*p*	CFI	TLI	RMSEA	90% CI	SRMR
One-factor Model	287.984 (44)	<.001	.82	.77	.092	.082-.102	.068
Two-factor Model	123.963 (34)	<.001	.93	.89	.064	.052-.076	.033
Three-factor Model	38.368 (25)	.04	.99	.98	.029	.005-.046	.020

Table 2.1. – Fit indices of the 1–3 factor solutions of the Exploratory Factor Analysis.

	Factor 1	Factor 2	Factor 3
4. How often do you use a filter to change the overall look of the photo (e.g., making it black and white, or blurring and smoothing images)?	**.913*** **	.025	-.013
6. How often do you adjust the light/darkness of the photo?	**.484*** **	-.028	.281
11. How often do you use interactive filters (e.g., dog's snout, flower crown, etc.)?	**.330*** **	.165	.129
9. How often do you make specific part of your body look larger or look smaller?	.011	**.835*** **	-.014
5. How often do you make yourself look skinner?	.042	**.752*** **	-.001
2. How often do you make yourself look larger?	-.069	**.480*** **	.035
7. How often do you edit to hide blemishes like pimples?	.124	.002	**.749*** **
10. How often do you edit or use apps to smooth skin?	.005	.156	**.662*** **
8. How often do you whiten your teeth?	*-.034*	*.371*	*.458****
3. How often do you highlight facial features (e.g., cheekbones ore eye color/brightness)?	*.197*	*.292*	*.305****
1. How often do you get rid of red eye?	*.078*	*.120*	*.218**

Table 2.2. – Exploratory factor analyses of the generated items.

Note: Excluded items (1,3,8) are in italic. Factor loadings >.30 are in bold. * p<.05; ***p<.001.

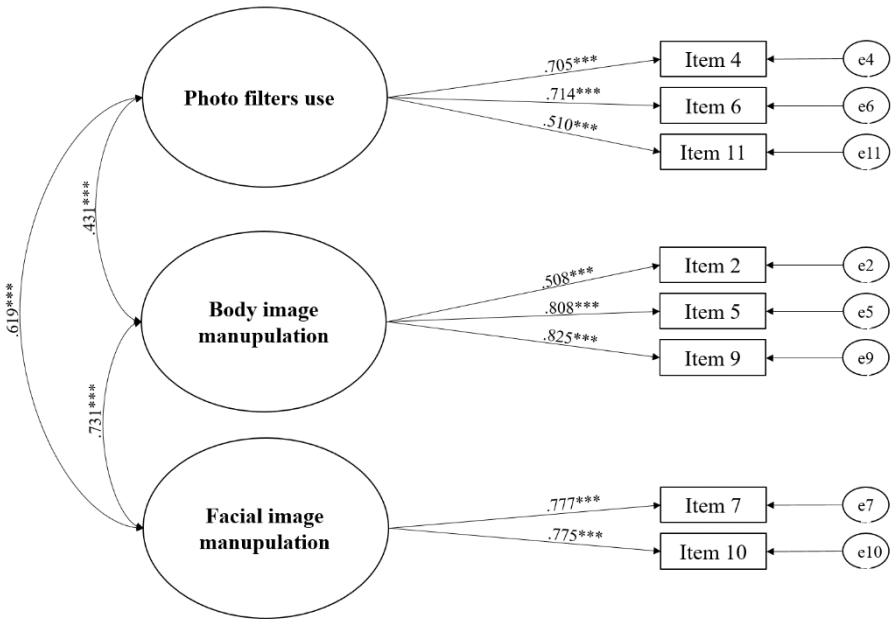

Figure 2.1. – Three-factors model tested with Confirmatory Factor Analysis.

Note. Errors linked to three latent variables are not showed in order to improve figure readability.

***p<.001.

	Photo filters use	Body image manipulation	Facial image manipulation
6. How often do you adjust the light/darkness of the photo?	.714***		
4. How often do you use a filter to change the overall look of the photo (e.g., making it black and white, or blurring and smoothing images)?	.705***		
11. How often do you use interactive filters (e.g., dog's snout, flower crown, etc.)?	.510***		
9. How often do you make specific part of your body look larger or look smaller?		.825***	
5. How often do you make yourself look skinner?		.808***	
2. How often do you make yourself look larger?		.508***	
7. How often do you edit to hide blemishes like pimples?			.777***
10. How often do you edit or use apps to smooth skin?			.775***
Cronbach's α	**.670**	**.753**	**.738**

Table 2.3. – Confirmatory factor analyses of 8-item Photo Manipulation Scale

***p<.001.

	Means (SD)	1	2	3
Photo filters use	2.692 (1.028)	-		
Body image manipulation	1.310 (.685)	.431***	-	
Facial image manipulation	1.696 (1.025)	.619***	. 731***	-

Table 2.4 – Means, standard deviations, and bivariate correlations among factors of 8-item Photo Manipulation scale.

*** p<.001

Chapter 3

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Study 2.

Selfie-expectancies, body image control in photos and photo manipulation in boys and girls. A moderated mediation model

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3.1. Introduction

In recent years, the widespread use of more photographic social networking sites leads personal photography to become increasingly a strategy for constructing own online identity (Bij de Vaate et al., 2018; van Dijck, 2008). Online self-presentation via SNSs profiles allow individuals to control and manage their image perceived by others, more than self-presentation in offline environments, since images could be edited and modified before sharing online (Diefenbach & Christoforakos, 2017; Stănculescu, 2011). In this regard, selfie practice largely allows individuals, especially adolescents and young adults, to visually present themselves on SNSs, representing medium for self and identity exploration (Bij de Vaate et al., 2018; Dhir et al., 2016; Diefenbach & Christoforakos, 2017).

Despite some studies highlighted that both boys and girls used to self-present themselves on social media through selfies (Dutta et al., 2016; Guo et al., 2018; Katz &

Crocker, 2015), traditionally females appeared more engaged in selfie-posting than boys (e.g., Albury, 2015; Boursier & Manna, 2018b; Dhir et al., 2016; Qiu et al., 2015; Sorokowska et al., 2016; Sorokowski et al., 2015). Moreover, girls have been found also active in manipulating photos and using photographic filters, more than male adolescent SNS users (Chae, 2017; Dhir et al., 2016; McLean et al., 2015, 2019; Mingoia et al., 2019). On the contrary, Fox and Rooney (2015) showed that self-objectifying males more frequently edited their photos to improve attractiveness. Differently, according to Mascheroni et al. (2015), both boys and girls reported commonly editing their pictures (for example, smoothing out skin, making body parts smaller or bigger, adding interactive filters), in order to convey an ideal appearance, achieve an ideal form of online self-presentation, and receive positive feedback by peers (for example 'likes' or comments) (Boursier & Manna, 2018b; Chae, 2017; Chua & Chang, 2016, Nelson, 2013; Rajanala et al., 2018).

In 2015, McLean et al. proposed the attitudinal construct of photo manipulation, defining it as the alteration of the overall photo look or its elements using editing programs, before sharing pictures on SNSs. Strictly associated to photo manipulation, photo investment (McLean et al., 2015) and body image control in photos (Boursier & Manna, 2019) refer to individuals' awareness and concerns about photo quality, how pictures online will portray themselves, and strategies in body checking, photo-taking, and photo-choosing prior to sharing on social media. However, despite the increasing centrality of teenagers' selfie-related activities on social media, scholar interest appeared largely focused on selfie-sharing, leaving aside the exploration of possible predictors (such as motivations and expectancies) of prior sharing selfie-related practices (e.g., Bij de Vaate et al., 2018; Chae, 2017; Dhir et al., 2016; McLean et al., 2015, 2019). Among motivations for selfie-posting, Sung et al. (2016) highlighted the pivotal role of attention seeking,

improving self-confidence, acknowledgment, and self-affirmation thanks to peers' positive reactions, interacting with potential partners, communication, archiving, and entertainment. More recently, Bij de Vaate et al. (2018) evaluated motivations and selfie-related behaviors before sharing self-portraits on social networking sites. They showed that individuals may follow specific steps: (i) firstly, individuals might have specific motives (for example retention of good memories, entertainment, habitual passing of time, social interactions, and peer pressures) and pre-occupations (such as looking at, tagging, sharing, and commenting other people's visual content) for selfie-taking; (ii) secondly, after taking several selfies, individuals might strategically select the perceived best photo they would like to post on SNSs; (iii) thirdly, individuals might edit their photos applying filters and/or manipulating photo elements; (iv) finally, they will post their pictures. Moreover, expectancies have also been explored in relation to some online behaviors.

Expectations have been defined as conscious or unconscious beliefs (Goldman, 1994) that might influence individuals' perceptions concerning the effects and consequences of assumed behaviors (Jung, 2010). Scientific literature confirmed the pivotal influence of expectancies on adolescents' and young adults' Internet-related activities, such as Internet use and misuse, sexting, problematic SNSs use, and internet communication disorders (Brand, Laier & Young, 2014; Dir, Coskunpinar, Steiner, & Cyders, 2013; Wegmann & Brand, 2016; Wegmann, Oberst, Stodt & Brand, 2017). More recently, Boursier and Manna (2018b) investigated the expectations underlying selfie behavior and they identified three kinds of selfie-expectancies: (i) positive expectancies, related to self-presentation, self-promotion, self-confidence, and self-attractiveness issues, (ii) negative expectations, linked to the lack of control over own photos, privacy concerns, web exposure, and the possible negative outcomes on significant relationships, and (iii) neutral expectancies in which selfie-making represents a daily activity. However, no studies evaluated the possible

predictive role of boys' and girls' selfie-expectancies on body image control in pictures and photo manipulation. Thus, the present study involved a sample of Italian adolescents and aimed at testing a moderated mediation model, evaluating the direct and indirect effects of selfie-expectancies and body image control in photos on photo manipulation and the moderating role of gender on this mediation model. It was expected that selfie-expectancies would be positively associated with photo manipulation and that this effect would be mediated by body image control in photos. Specifically, it was hypothesized that higher selfie-expectancies would be associated with greater body image control in photos, which in turn would be associated with greater frequency of photo manipulation. Concerning the moderating effect of gender, it was expected that gender would moderate the relationship between selfie-expectancies and photo manipulation. However, due to the lack of previous findings, a direction for this effect was not specified.

3.2. Methods

3.2.1. Participants and procedure

A total of 453 adolescents (47% males), aged between 13 and 19 years (mean age = 16.1 years, SD = 1.46), participated in a survey study from four high schools in Naples, Southern Italy. General information about the aim of the study, nature of the research, and the measures to be used in generating the data were provided to school principals and parents. Adolescents' participation was voluntary. No course credits or payments were given for participation. Confidentiality was assured and all participants were informed that they could withdraw from the study at any time. All students completed the survey questionnaires in a classroom setting via their smartphones, supervised by teachers and researchers. The study was approved by the research team's University Research Ethics

Committees and was conducted in accordance with the ethical guidelines for psychological research by the Italian Psychological Association.

3.2.2. Measures

Socio-demographic information and selfie activity patterns. In this section were asked gender, age, hours per day spent on social network sites, and selfie-related patterns. Specifically, participants were asked to answer 5 items: (i) "*How many hours do you spend on social networking sites every day?*", from 1 (*Less than 1 hour*) to 8 (*More than 6 hours*), (ii) "*How many selfies do you share on social networking sites?*", from 1 (*No one*) to 8 (*More than 2 per day*), (iii) "*How often do you share selfies in chats (for example in WhatsApp chat-rooms or Instagram Direct)?*", from 1 (*Never*) to 8 (*More than 2 times per day*), (iv) "*How often do you take more selfies to choose the best one to sharing on social networking sites?*", from 1 (*Never*) to 5 (*Always*), and (v) "*How often your profile pictures on social networking sites are selfies?*", from 1 (*Never*) to 5 (*Always*).

Selfie-Expectancies Scale (SES). The SES (Boursier & Manna, 2018b) assesses positive, negative, and neutral expectancies concerning selfie-behavior. The scale consists of 23 items corresponding to seven different factors: relational worries (e.g., *"How much are you agree with the following statement: Selfie-taking might damage your reputation?"*), web-related anxieties (e.g., *"How much are you agree with the following statement: Selfie-taking might worry you because your photos/identity could be stolen?"*), sexual desire (e.g., *"How much are you agree with the following statement: Selfie-taking improves your sexual fantasies?"*), ordinary practice (e.g., *"How much are you agree with the following statement: Selfie-taking is a habit?"*), self-confidence (e.g., *How much are you agree with the following statement: Selfie-taking improves your self-esteem?"*), self-presentation (e.g., *"How much are you agree with the following statement: Selfie-taking is*

a way to show to the others the best part of you?"), and generalized risks (e.g., *"How much are you agree with the following statement: Selfie-taking might cause you problems in the future?"*). Each item is ranged on a 5-point Likert scale, from 1 (*totally disagree*) to 5 (*totally agree*). In the present study, the total scale showed an optimal Cronbach's α value (.88). The Cronbach's α values for each SES subscale ranged from .65 to .87.

Body Image Control in Photos-Revised (BICP-R). The original Body Image Control in Photos scale (Pelosi et al., 2014) assessed adolescents' photo management and control online and offline and it was a 27-item scale, rated on a five-point-Likert scale from 1 (*Never*) to 5 (*Always*). In 2019, Boursier and Manna revised and reduced the length of the original instrument. The short version consists of 16 items, corresponding to five different factors: selfie-related factors (e.g., "*I prefer my image as it appears in self-portraits because I know how to make it look better*"), privacy filter behaviors (e.g. "*I use privacy filters in order to show photos in which I appear more attractive only to certain people*"), positive body image factors (e.g., *"I post those photos which I hope will receive praise for my appearance"*), sexual attraction factors (e.g., "*I have posted provocative photos on Facebook, in order to attract attention to myself*"), and negative body image factors (e.g., "*I feel awkward if I notice that someone has posted photos that show my body's defects*")[1]. In the present study, the Cronbach's α value for the scale was very good (.81), and Cronbach's α values for each BICP-R subscale ranged from .62 to .76. Moreover, in their study, Boursier and Manna (2019) established a cut-off score to identify individuals who problematically control their body image in photos. Four categories have been distinguished: occasional (scores of 0-24), habitual (scores of 25-50), at-risk (scores of 51-55), and problematic (scores higher than 55).

[1] In order to improve the intelligibility, the BICP-R factors have been renamed compared to the previous version of the scale (Boursier & Manna, 2019).

Photo Manipulation Scale-Revised (PMS-R). The 8-item revised and validated PMS (original English version, McLean et al., 2015) has been used to evaluate participants' strategies of photo manipulation. The Cronbach's α value for the PMS-R was very good (.79), and values for each subscale ranged from .66 to .73.

3.2.3. Statistical analysis

All statistical analyses were performed using the Statistical Package for Social Sciences SPSS (Version 23 for Windows). First, means, standard deviation of the variables, and confidence interval of means (CI: 95%) estimated with 1000 bootstrap samples have been assessed. In order to evaluate gender differences, independent *t*-tests have been used and the effect sizes of the differences were evaluated with Cohen's *d*. Second, by using Model 4 of Hayes's (2017) Process Macro for SPSS a mediation analysis has been conducted with 1000 bias-corrected bootstrap samples to test the mediating effect of body image control in photos on the relationship between adolescents' selfie expectancies and photo manipulation. Finally, a moderated mediation model has been tested using Model 5 of the Process Macro (Hayes, 2017), with 1000 bias-corrected bootstrap samples. In this model, the moderating role of gender on the mediation model was specifically tested on the selfie-expectancies-photo manipulation pathway. According to Preacher et al. (2007), a moderating effect appears significant whereas interaction of the independent variable and the moderator variable with the bootstrapped confidence intervals does not contain zero.

3.3. Results

3.3.1. Descriptive statistics

In Tables 3.1., descriptive analyses and gender differences are reported. Statistically significant differences between boys' and girls' scores have been found. Girls reported

higher mean scores than boys for all selfie activity patterns with small to moderate effect sizes, SES web-related anxieties, BICP privacy filter behaviors, BICP positive body image factors, BICP negative body image factors, BICP total score, and PM photo filters use, but with small effect sizes. On the contrary, boys showed higher mean scores than girls in SES relational worries, SES sexual desire, SES generalized risks, SES total score, and PMS body image manipulation. Effect sizes were small to moderate. Concerning BICP descriptive cut-off categories, 9.3% of the sample occasionally controlled their own body image in photos, 77.5% habitually controlled it, 7.1% controlled it in a risky way, and 6.2% controlled it in a problematic way. In particular, girls reported a higher percentage of risky control (7.5% vs. boys' 6.6%; $p<.01$), while males had higher problematic control (7.5% vs. girls' 5%; $p<.01$) on their body images in photos.

Bivariate correlations between all variables are shown in Table 3.2. Significant positive correlations have been found between selfie expectancies, body image control in photos, and photo manipulation subscales and total variables. In addition, significant positive correlations have been found between subscales of each assessment measure.

Within the male sample, positive correlations of large effect size have been observed between SES self-confidence and SES self-presentation and BICP selfie-related factors, BICP privacy filter behaviors, and PMS photo filters use. Additionally, the SES self-confidence was correlated at large effect size with the BICP negative body image factors and PMS facial image manipulation. A similar pattern of significant associations was observed between these variables for girls, however, they did not show a large effect size.

3.3.2. Mediation analysis

Figure 3.1. shows the tested mediation model. As showed in Table 3.3., selfie-expectancies had a significant direct effect on body image control in photos (a: β=.580;

SE=.042; t=13.728; p<.001) and photo manipulation (c': β=.580; SE=.042; t=13.728; p<.001). Moreover, body image control in photos had a significant direct effect on photo manipulation (b: β=.353; SE=.048; t=7.316; p<.001). Finally, the total effect of selfie-expectancies on photo manipulation was significant (c: β=.412; SE=.045; t=9.126; p<.001) and the bias-corrected bootstrapping mediation test indicated that selfie-expectancies predicted photo manipulation via body image control in photos (a*b: β=.239; SE=.039; Bootstrap 95%CI [.166, .316]; p<.001). The Sobel test showed that this model was significant (Z=7.586; SE=.032; p<.001) and it explained 39.7% of the total variance of photo manipulation.

3.3.3. Moderated mediation analysis

The moderated mediation test was conducted on the previous significant mediational model (Hayes, 2017) to examine the moderating effect of gender on the mediation model, specifically on the relationship between adolescents' selfie-expectancies and photo manipulation (Figure 3.2.). Gender added to the model (girls coded as 1 and boys coded as 2) negatively directly predicted photo manipulation (β=-1.081; SE=.195; t=-5.54; p<.001) and the interaction between selfie-expectancies and gender showed a significant moderating effect on the adolescents' selfie-expectancies-photo manipulation pathway (β=.471; SE=.08; t=5.893; p<.001). The 1000 bias-corrected bootstrapped estimates showed a significant indirect effect of selfie-expectancies on photo manipulation via body image control in photos (β=.219; SE=.039; Bootstrap 95%CI [.15, .308]). Moreover, for conditional direct effects of selfie-expectancies on photo manipulation bootstrapping estimates confirmed the significant effect of gender on the relationship between the variables. In particular, being female had no significant direct effect on the relationship between selfie-expectancies and photo manipulation (β=.108; SE=.063; t=1.715; p=.09;

Bootstrap 95%CI [-.016, .231]). On the contrary, being male had a significant and positive direct effect on the relationship between the variables (β=.579; SE=.062; *t*=9.380; *p*<.001; Bootstrap 95%CI [.458, .700]). The simple slopes representing the relationship between gender and photo manipulation scores at −1SD, mean, and +1SD values of selfie-expectancies are shown in Figure 3.3. The overall model was significant (R^2=.441; SE=.305; $F_{(4,448)}$=88.345; *p*<.001) and it explained 44.1% of the total variance of photo manipulation.

3.4. Brief discussion

In the present study, gender differences in selfie-expectancies, body image control in photos, and photo manipulation have been tested, and correlations between variables were examined in both male and female samples. Additionally, selfie-expectancies and body image control in photos have been examined in a mediation model as direct and indirect predictors of photo manipulation. Finally, the moderating effect of gender on this mediation model has been tested.

Gender differences in mean scores for selfie-expectancies have been found. According to previous findings (e.g., Albury, 2015; Boursier & Manna, 2018b; Dhir et al., 2016; Qiu et al., 2015; Sorokowska et al., 2016; Sorokowski et al., 2015), in the present study girls appeared more engaged than boys in selfie practices. Specifically, female participants showed higher scores in hours per day spent on SNSs, more often than boys posted own selfies on social media, shared them via chat-rooms, took multiple selfies to choose the best one to post/share, and used selfies as profile pictures on social media. Moreover, in line with previous Boursier and Manna's (2018b) findings, girls appeared more worried than boys about the risk of 'losing control' over their personal visual content shared online and that unknown people could steal or manipulate their selfies. On the contrary, boys

expected more than girls that selfie practice might increase their excitement, sexual fantasies, and sexual feelings. Interestingly, and in contrast to Boursier and Manna (2018b), in which SES relational worries did not point out a significant gender difference and SES generalized risks mean score was higher among girls, in the present study both mean scores appeared higher among males compared to females. Likely, despite (or due to) the pivotal role of sexuality in boys' selfie-related experiences, they showed higher mean scores than girls in negative expectancies underlying selfie practice. In terms of body image control in photos, previously Boursier & Manna (2019) found a girls' main condition of risk in body checking and control in photos, online and offline. In the present study, despite female participants appeared more engaged in managing body images to promote their best self-presentation and avoid the negative one, boys showed the greater problematic control over their appearance in photos. Finally, gender-related differences have been detected in photo manipulation scores. Girls used (more frequently than boys) photo filters (such as black and white effect, interactive filters, etc.) to improve the overall look of the photos. Instead, boys manipulated their body image making specific parts of the body look larger, smaller, or skinnier, more than girls. Likely, boys' greater risky control on their body image in photos might be strictly related to their higher engagement in the manipulation of body parts in photos, before sharing them on SNSs. According to these descriptive findings, the correlational analysis confirmed that body image control in photos and photo manipulation significantly and positively co-occurred, especially in boys. In this regard, according to Rajanala et al. (2018), the use of interactive filters (such as puppy ears or crown of flowers) might represent photo embellishment strategies, whereas other kinds of photo-editing might promote a subtler pressure to look a certain way. Additionally, edited selfies and photos could have harmful effects especially among adolescents who might internalize these new digitally modified body standards.

A moderated mediation model has been tested, evaluating the mediating effect of body image control in photos on the relationship between expectancies underlying selfie behavior and photo manipulation, and the moderating effect of gender on this relationship, in a sample of Italian adolescents. As expected, the tested mediation model demonstrated that selfie-expectancies were both directly and indirectly positively associated with photo manipulation via body image control in photos. Previous studies highlighted the influence of expectations on risky decisions and behaviors, such as drinking alcohol, sexual activities, sexting, and problematic Internet use (Boursier & Manna, 2018b; Brand et al., 2014; Dermen & Cooper, 1994; Dir et al., 2013; Turel & Serenko, 2012; Wegmann & Brand, 2016; Wegmann et al., 2017). Accordingly, the expectancies underlying selfie practice appeared to predict the (problematic) investment in photo-related activities and monitoring, likely in order to share an ideal appearance when posting self-images on SNS (Bij de Vaate et al., 2018; Fox & Rooney, 2015; Fox & Vendemia, 2016; Lonergan et al., 2019; McLean et al. 2015). Furthermore, in the present study, the body image control in photos appeared as another significant predictor of teens' photo manipulation and mediator between selfie-expectancies and photo-editing. In this regard, as Bij de Vaate et al. (2018) stated, being engaged in strategic picture selection and controlling over own appearance in photos to take the best picture to share online go hand-in-hand with photo-editing. Likely, the expectations underlying selfie practice might promote a possible excessive interest and commitment in a self-presentation tending to ideal appearance. Together, these factors might result in greater photo manipulation before sharing online.

Recently, McLean et al. (2019) raised the need to include not only girls but also boys in research concerning selfie practices. In this regard, in the present study, the inclusion of both males and females allowed the exploration of gender influence upon some selfie-related behaviors. In fact, the moderating effect of gender might help to clarify the

predictive role of selfie-expectancies in photo manipulation. Several previous scholar findings found a female predominance in selfie-related activities, including selfie-taking strategies and photo-editing (Albury, 2015; Bij de Vaate et al., 2018; Boursier & Manna, 2018b; Dhir et al., 2016; McLean et al., 2015; Mingoia et al., 2019; Qiu et al., 2015; Sorokowska et al., 2016; Sorokowski et al., 2015; Terán et al., 2019). On the contrary, the present findings demonstrated that being male had a significant and positive direct effect on selfie-expectancies and photo manipulation pathway, while being female did not influence the association between them. Likely, boys' expectations underlying selfie-taking and selfie-sharing (mainly negative or related to the sexual component of the selfies) directly predicted their photo manipulation, especially to alter their body image or body parts. Moreover, the predictive role of selfie-expectancies increased due to the mediating role of control over body image in photos, more problematic among boys. Different interpretations of the current findings are possible. Girls might be involved in a consistent level of photo manipulation irrespective of selfie-expectancies and body image control in photo behaviors. For example, according to McLean et al. (2015), females' photo-editing might be primarily predicted by body-related concerns rather than selfie-expectancies. On the contrary, likely boys are increasingly becoming concerned about their appearance and more involved in body image-related activities (Vandenbosch & Eggermont, 2013), in online and disembodied environments. Differently from Albury's findings (2015), in which males showed more freedom in online bodies exhibition without risks of disapproval, in the present study male participants appeared more engaged in photo manipulation (especially in modification of specific body parts), which in turn might allow them to edit and often problematically overinvest in their online appearance (Boursier & Manna, 2018b; Casale & Fioravanti, 2017; Cohen et al., 2018; Bij de Vaate et al., 2018; Fox & Rooney, 2015; Fox & Vendemia, 2016; Lonergan et al., 2019; McLean et al., 2015;

Zhao, Grasmuck, & Martin, 2008). This result might additionally indicate how rapidly social media landscape evolves and adolescents' use of SNSs (Gioia & Boursier, 2019a). On the contrary, females, who are generally considered more engaged in the creation and sharing of visual content on SNSs, perhaps are dangerously underestimating selfie-related risks. In this regard, as Griffiths (2018) stated, habitual behaviors (as well as selfie-related activities are among adolescents, especially females) are powerful reinforcers: the more individuals invest in some behaviors, the more they will persevere in repeating them. Accordingly, Rudd and Lennon (2000) highlighted that individuals might tend to normalize behaviors that improve their attractiveness, regardless of possible involved risks. Nevertheless, during adolescence, boys and girls are engaged in facing "new" body mentalization and identity construction processes, thus sharing own body images on SNSs assumes greater and increasing relevance (Boursier & Manna, 2019; Cahn, 2005; Franchina & Lo Coco, 2018; Pelosi et al., 2014). Likely, social media and body image might mutually reinforce each other. Thus, adolescents who are particularly concerned about their own body image might be more involved in appearance-focused social media activities and, at the same time, activities carried out on social media might exacerbate boys' and girls' body image concerns due to the constant peer-to-peer comparison (Chen et al., 2019; Perloff, 2014). According to McLean et al. (2015), the present study seems to confirm that it might not be sharing selfies the problematic issue, but the approach to doing so, interestingly and innovatively especially among male adolescents.

3.5. Limitations

Some limitations of the present study also need to be addressed. Firstly, the cross-sectional rather than longitudinal design did not allow to make inferences about causal directions among variables. Despite present findings supported the hypothesized causal

relationships, confirming the causal associations among selfie-expectancies, body image control in photos, and photo-editing, future longitudinal studies are needed to clarify key predictive processes involved. Moreover, longitudinal designs are needed to avoid the assumption that the psychological models here explored could be assumed as specific patterns of online body image use. In this regard, also the comparison between clinical and non-clinical samples might be useful. Finally, the study used a self-report survey with its aforementioned potential method biases.

	Total sample	Males	Females		
	Mean (SD) [95% CI]	Mean (SD) [95% CI]	Mean (SD) [95% CI]	*t*	*d*
Hours per day on SNSs	3.31 (1.178) [3.19-3.42]	3.17 (1.245) [3.00-3.34]	3.44 (1.102) [3.30-3.57]	2.454*	.23
Selfie-posting	3.06 (2.245) [2.86-3.27]	2.74 (2.387) [2.41-3.06]	3.34 (2.076) [3.08-3.61]	2.879**	.27
Selfie-sharing via chat	3.93 (2.596) [3.69-4.15]	3.20 (2.552) [2.85-3.53]	4.57 (2.466) [4.27-4.88]	5.825***	.55
Multiple selfie-taking	2.99 (1.480) [2.85-3.13]	2.67 (1.448) [2.48-2.86]	3.27 (1.454) [3.08-3.45]	4.355***	.41
Selfie as profile image on SNSs	2.49 (1.418) [2.36-2.62]	2.24(1.349) [2.06-2.42]	2.71 (1.443) [2.53-2.88]	4.594***	.34
SES relational worries	1.939 (.947) [1.852-2.035]	2.039 (.99) [1.9-2.176]	1.851 (.901) [1.736-1.975]	-2.119*	.20
SES web-related anxieties	2.54 (1.361) [2.405-2.662]	2.354 (1.302) [2.179-2.534]	2.704 (1.394) [2.515-2.886]	2.752**	.25
SES sexual desire	1.645 (.857) [1.571-1.725]	1.939 (.973) [1.814-2.075]	1.386 (.638) [1.305-1.468]	-7.230***	.68
SES ordinary practice	3.291 (1.113) [3.185-3.391]	3.338 (1.114) [3.194-3.485]	3.250 (1.112) [3.103-3.385]	-.837$^{n.s.}$	.08
SES self-confidence	2.107 (1.067) [2.006-2.208]	2.156 (1.093) [2.02-2.301]	2.064 (1.044) [1.927-2.194]	-.909$^{n.s.}$	.09
SES self-presentation	2.428 (1.074) [2.325-2.526]	2.516 (1.136) [2.371-2.674]	2.351 (1.011) [2.225-2.482]	-1.629$^{n.s.}$	.15
SES generalized risks	2.326 (.903) [2.24-2.414]	2.429 (.987) [2.312-2.561]	2.235 (.814) [2.131-2.343]	-2.293*	.22
SES TOTAL	2.325 (.665) [2.265-2.389]	2.396 (.724) [2.303-2.488]	2.263 (.602) [2.187-2.338]	-2.127*	.20
BICP selfie-related factors	2.28 (.901) [2.197-2.358]	2.208 (.959) [2.074-2.336]	2.344 (.843) [2.24-2.449]	1.606$^{n.s.}$	.15
BICP privacy filter behaviors	2.52 (1.124) [2.422-2.62]	2.293 (1.165) [2.132-2.444]	2.72 (1.049) [2.588-2.853]	4.108***	.39
BICP positive body image factors	2.941 (.619) [2.881-2.996]	2.857 (.64) [2.778-2.951]	3.015 (.591) [2.94-3.086]	2.716**	.26
BICP sexual attraction factors	2.124 (1.134) [2.027-2.224]	2.028 (1.132) [1.876-2.18]	2.208 (1.132) [2.062-2.363]	1.681$^{n.s.}$	.16
BICP negative body image factors	2.038 (.88) [1.96-2.119]	1.95 (.921) [1.825-2.073]	2.116 (.837) [2.018-2.232]	2.016*	.19
BICP TOTAL	2.381 (.71) [2.317-2.444]	2.267 (.782) [2.16-2.369]	2.48 (.626) [2.406-2.563]	3.221**	.30
PMS photo filters use	2.643 (1.031) [2.55-2.732]	2.404 (1.076) [2.255-2.541]	2.853 (.942) [2.733-2.978]	4.738***	.45
PMS body image manipulation	1.343 (.724) [1.28-1.408]	1.506 (.912) [1.373-1.635]	1.199 (.458) [1.139-1.258]	-4.607***	.43
PMS facial image manipulation	1.711 (1.009) [1.624-1.799]	1.757 (1.103) [1.613-1.908]	1.67 (.92) [1.553-1.788]	-.915$^{n.s.}$	.09
PMS TOTAL	1.899 (.735) [1.833-1.962]	1.889 (.878) [1.772-2.009]	1.908 (.583) [1.835-1.989]	.266$^{n.s.}$	.03

Table 3.1. – Means, standard deviations (SDs), confidence intervals (CIs) estimated with 1000 bootstrap samples, *t*-test, and effects sizes (Cohen's d) for both genders.

Note. SES: Selfie Expectancies Scale; BICP: Body Image Control in Photos; PM: Photo Manipulation. *p<.05; **p<.01; ***p<.001; $^{n.s.}$non-significant

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1 SES relational worries	-	**.405****	**.246****	**.241****	**.312****	**.240****	**.345****	**.650****	**.346****	**.149***	.125	**.175****	**.218****	**.288****	**.152***	**.254****	**.160***	**.232****
2 SES web-related anxieties	**.483****	-	.088	.055	**.128***	**.166****	**.431****	**.600****	.041	-.034	.059	.051	**.146***	.068	.069	**.156***	.042	.100
3 SES sexual desire	**.360****	**.208****	-	**.221****	**.404****	**.416****	.042	**.499****	**.209****	.118	**.213****	**.185****	**.303****	**.284****	.036	**.230****	**.139***	**.153***
4 SES ordinary practice	**.294****	**.253****	**.269****	-	**.432****	**.384****	.052	**.576****	**.428****	**.185****	**.308****	.082	**.142***	**.303****	**.173****	**.134***	.100	**.181****
5 SES self-confidence	**.492****	**.323****	**.440****	**.432****	-	**.620****	.086	**.697****	**.406****	**.332****	**.312****	**.231****	**.304****	**.445****	**.208****	**.220****	**.208****	**.279****
6 SES self-presentation	**.500****	**.352****	**.398****	**.541****	**.707****	-	**.175****	**.698****	**.369****	**.293****	**.260****	**.220****	**.380****	**.428****	**.227****	**.146***	**.150***	**.239****
7 SES generalized risks	**.307****	**.359****	**.241****	.087	.100	**.180****	-	**.493****	.095	.022	-.078	.109	**.196****	.110	.025	.105	.017	.050
8 SES TOTAL	**.731****	**.665****	**.606****	**.625****	**.752****	**.795****	**.474****	-	**.439****	**.244****	**.284****	**.235****	**.382****	**.441****	**.217****	**.286****	**.186****	**.290****
9 BICP selfie-related factors	**.454****	**.289****	**.358****	**.390****	**.528****	**.539****	.077	**.567****	-	**.551****	**.412****	**.279****	**.314****	**.717****	**.389****	**.281****	.116	**.344****
10 BICP privacy filter behaviors	**.461****	**.300****	**.352****	**.306****	**.510****	**.507****	.070	**.539****	**.755****	-	**.444****	**.313****	**.357****	**.776****	**.243****	.116	.075	**.201****
11 BICP positive body image factors	**.293****	**.224****	**.226****	**.297****	**.416****	**.439****	-.012	**.409****	**.559****	**.580****	-	**.258****	**.127***	**.576****	**.211****	**.130***	**.174****	**.239****
12 BICP sexual attraction factors	**.450****	**.367****	**.359****	**.317****	**.427****	**.371****	**.241****	**.543****	**.534****	**.499****	**.415****	-	**.476****	**.718****	**.152***	**.169****	.116	**.187****
13 BICP negative body image factors	**.457****	**.375****	**.363****	**.292****	**.551****	**.458****	**.245****	**.589****	**.607****	**.515****	**.449****	**.687****	-	**.668****	**.174****	**.201****	.117	**.208****
14 BICP TOTAL	**.535****	**.392****	**.419****	**.396****	**.603****	**.571****	**.165***	**.663****	**.860****	**.844****	**.700****	**.799****	**.811****	-	**.328****	**.254****	**.162***	**.329****
15 PM photo filters use	**.451****	**.448****	**.328****	**.301****	**.510****	**.501****	**.152***	**.584****	**.593****	**.585****	**.389****	**.537****	**.485****	**.653****	-	**.250****	**.365****	**.796****
16 PM body image manipulation	**.496****	**.317****	**.497****	**.262****	**.481****	**.406****	**.299****	**.584****	**.542****	**.432****	**.307****	**.502****	**.550****	**.587****	**.464****	-	**.318****	**.564****
17 PM facial image manipulation	**.476****	**.429****	**.478****	**.303****	**.501****	**.460****	**.238****	**.619****	**.572****	**.521****	**.286****	**.526****	**.515****	**.616****	**.625****	**.664****	-	**.806****
18 PM TOTAL	**.556****	**.472****	**.506****	**.341****	**.585****	**.538****	**.265****	**.700****	**.670****	**.607****	**.385****	**.613****	**.605****	**.729****	**.831****	**.814****	**.904****	-

Table 3.2. – Bivariate correlations between all variables estimated with 1000 bootstrap sample.
Males' data below the diagonal, females' data above the diagonal.

Note. SES: Selfie Expectancies Scale; BICP: Body Image Control in Photos; PM: Photo Manipulation.*. *p*=.05; **. *p*=.01

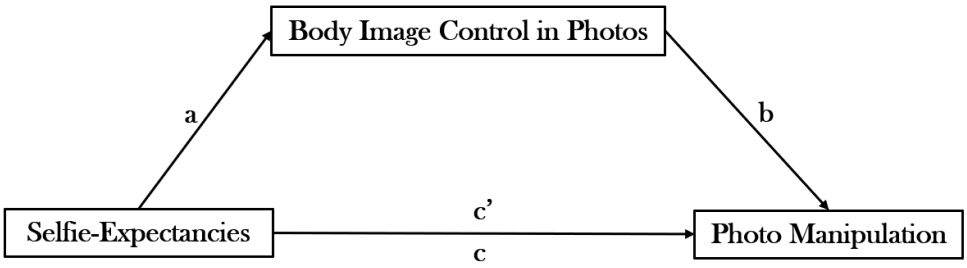

Figure 3.1. – The proposed mediation model.

	Model 1 (Photo manipulation)		Model 2 (Body image control in photos)		Model 3 (Photo manipulation)	
	β	*t*	*β*	*t*	*β*	*t*
Selfie-expectancies	.353	7.316***	.580	13.728***	.591	13,436***
Body image control in photos					.412	9.126***
R^2	.397***					
$F_{(2,450)}$	148.366					

Table 3.3. – Models of the effect of adolescents' selfie-expectancies on photo manipulation with mediating effect of body image control in photos.

****p*<.001

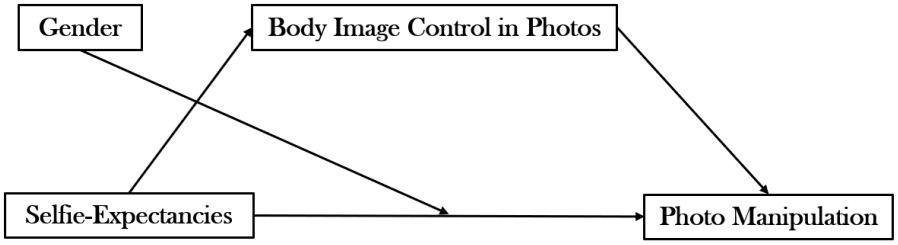

Figure 3.2. – Conceptual model of the moderated mediation relationship.

Note: Gender should moderate the relationship between adolescents' selfie-expectancies and photo manipulation.

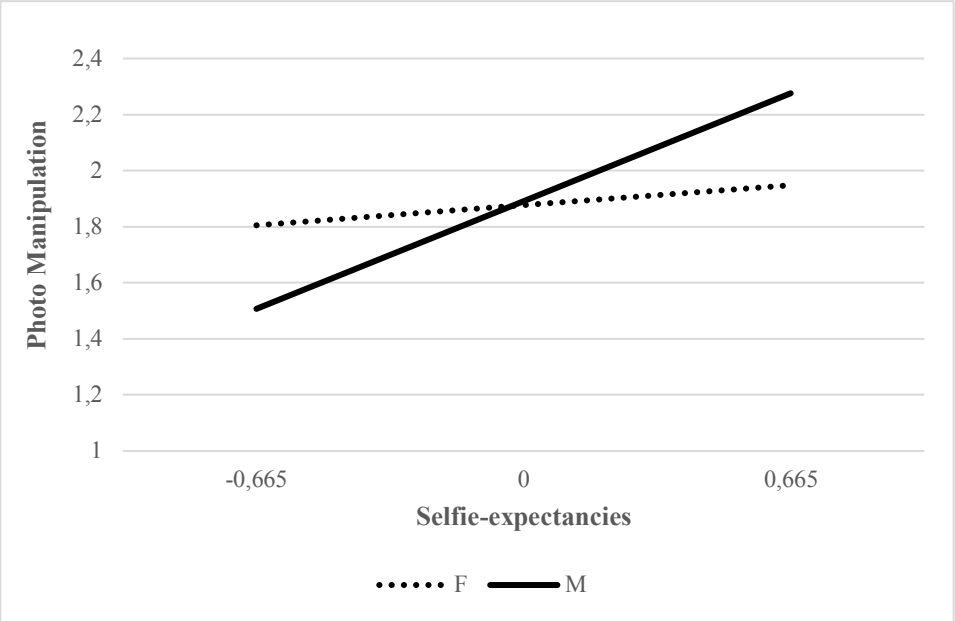

Figure 3.3. – Simple slopes of selfie-expectancies scores and photo manipulation.

Note: Straight lines indicate significant effects of the predictor on photo manipulation scores.

Chapter 4

⁂

Study 3.

The effect of body shame and appearance control beliefs on problematic social networking sites use. The mediating role of body image control in photos

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4.1. Introduction

Introducing this third study, some key references from the aforementioned scientific background will be repeated in order to focalize and highlight the pivotal issues concerning this research.

In recent years, sharing visual content (especially self-focused) on social networking sites has become a ubiquitous practice. As King (2016) highlighted, the digital age offers individuals the opportunity to present themselves to the other in order to receive more attention and, according to Fox and Vendemia (2016), the *objectification theory* (Fredrickson & Roberts, 1997) might offer a useful framework to explore online self-presentation and social media use. A strictly related and close predecessor of objectification theory is the psychological construct of *objectified body consciousness* (OBC), proposed by McKinley and Hyde (1996). In these frameworks' perspectives, repeated objectification experiences might lead individuals (traditionally females) to self-

objectify and assume and internalize more easily an outside observer's gaze on own physical selves (Feltman & Szymanski, 2018; Fredrickson & Roberts, 1997; Moradi & Huang, 2008). Consequently, this specific view of self might lead a females' self-consciousness in which they construct own identities strongly rooted in and defined by their physical appearance (Fredrickson & Roberts, 1997; McKinley, 1999; McKinley & Hyde, 1996; Sinclair, 2005; Sinclair & Myers, 2004). Nevertheless, an increasing number of researchers showed how self-objectification and its consequences are more and more experienced by males, especially in adolescence (Daniel, & Bridges, 2010; Dakanalis et al., 2012, 2015; Holland & Tiggemann, 2016; Karsay et al., 2018; Manago et al., 2015; Moradi, 2010; Moradi & Huang, 2008; Vandenbosch & Eggermont, 2013).

In recent years, the increasing popularity of social networking sites use, especially among adolescents and young people (D'Arienzo, Boursier, & Griffiths, 2019; Gioia & Boursier, 2019b; Mascheroni & Ólafsson, 2018), have lead researchers to pay attention to SNSs use, as dramatically accessible medium for socializing with self-objectification and objectified body consciousness experiences (Bell, Cassarly, & Dunbar, 2018; Caso, Fabbricatore, Muti, & Starace, 2019; Cohen, Newton-John, & Slater, 2018; de Vries & Peter, 2013; Fardouly, Diedrichs, Vartanian, & Halliwell, 2015; Manago et al., 2015). Indeed, according to Fardouly et al. (2015), on SNSs profiles individuals seem to literally look at themselves assuming an observer's perspective, confirming a strong inter-relationship between social networking and self-objectification.

In terms of objectified body consciousness (McKinley & Hyde, 1996), the association between all components of OBC and online activities have been explored. Graff and Czarnomska (2019) showed the strong positive association between the women's amount of time spent on SNSs (specifically Facebook, Instagram, and Pinterest) and great objectified body consciousness. Moreover, Bianchi et al. (2017) found that OBC predicted

teenagers' sexting for sexual purposes. However, most studies explored the association between social media-related activities and body surveillance, highlighting the strong predictive role of SNS involvement on body surveillance (Choukas-Bradley, Nesi, Widman, & Higgins, 2018; Doornwaard et al., 2014; Fardouly, Willburger, & Vartanian, 2018; Feltman & Szymanski, 2018; Tiggeman & Slater, 2013; Vandenbosch, & Eggermont, 2013).

Within the objectified body consciousness research field, only a few studies evaluated the relationships between social media use and the other OBC components which are still understudied. Indeed, despite the pivotal role of the gaze of the other in SNSs use and shame-related experiences (King, 2016; Pietropolli Charmet, 2018) just a few researchers explored the effect of SNSs use on body surveillance, which in turn predicted greater body shame experiences (Manago et al., 2015; Slater & Tiggemann, 2015; Tiggemann & Slater, 2015). Only recently, Wang et al. (2019a) showed the predictive role of older adolescents' body talk on SNSs on body shame through the mediating effect of body surveillance. Rarely, within the objectified body consciousness research field, the OBC components have been explored as predictive factors of SNSs use. As Moradi and Huang (2008) recommended, further research about the objectified body consciousness impact on subsequent outcomes is needed. Nevertheless, only Veldhuis et al. (2018) have recently tested the predictive role of body surveillance on selfie-related activities on SNSs, agreeing with the Strelan and Hargreaves' (2005) circle of self-objectification and the possible bidirectional nature of SNS-self-objectification relation. No other studies tested the predictive role of OBC components on use and/or misuse of SNSs. From a different perspective, Casale and Fioravanti (2017) reasonably supposed that the use of online communicative contexts like SNSs (Casale, Fioravanti & Caplan, 2015) by individuals who experience shame might allow them to hide own negatively perceived characteristics

as well as reducing their negative shame-related feelings. Interestingly, their findings confirmed the predictive role of behavioral and bodily shame experiences on problematic SNSs use through the mediating role of perceived benefits of computer-mediated communication. Previously, another Italian study highlighted the predictive role of feelings of shame upon internet addiction (Craparo et al., 2014).

With regards to appearance control beliefs, no studies specifically focused on the relationship between social networking and the OBC appearance control beliefs. This OBC component appears understudied or even unexplored due to its debated and uncertain belonging to objectified body consciousness framework (Lindberg et al., 2006; Moradi & Varnes, 2017). Some researchers found a strong and positive relationship between appearance control beliefs and indicators of personal agency, sense of competence, locus of control, and perceived generalized controllability over life events (Laliberte, Newton, McCabe, & Mills, 2007; McKinley, 1998, 1999; McKinley & Hyde, 1996; Moradi, 2010; Sinclair, 2010; Sinclair & Myers, 2004). Moreover, in other studies, appearance control beliefs have shown significant positive association with dimensions of psychological wellbeing, body esteem, and body satisfaction (Crawford et al., 2009; John & Ebbeck, 2008; McKinley, 1999; McKinley & Hyde, 1996; Noser, & Zeigler-Hill, 2014; Sinclair, & Myers, 2004). In particular, believing in control over own appearance has been found related to decreasing body monitoring and feelings of shame about own bodily appearance (Noser, & Zeigler-Hill, 2014; Sinclair & Myers, 2004; Taylor, 1989) and increasing healthy behaviors (Sinclair, 2010). Instead, within the addictive behaviors research field and from a different perspective, believing in control over information (and likely also over own appearance) might improve individuals' confidence about their ability to manage it, increasing their trust in the SNSs and reducing the perception of online risks online (Joinson et al., 2010; Krasnova et al., 2010; Niemz et al., 2005; Taddei & Contena, 2013).

Moreover, positive metacognitions (Spada et al., 2015) have been conceptualized as specific beliefs related to a behavior as a means of controlling and regulating cognition and emotion, and they have been found to play a pivotal role in promoting individuals' engagement in Internet-related addictive behaviors (Casale et al., 2016, 2018; Spada & Marino, 2017; Spada et al., 2007, 2015). Nevertheless, no studies explored the relationship between OBC appearance control beliefs and social networking sites use. Moreover, overall, the possible effects of objectified body consciousness on problematic social networking sites use are still unexplored.

As aforementioned, social networking sites are 24/7 available virtual communities where individuals can actively create their private or public profile, sharing different kinds of content, especially visual stimuli (e.g., Balakrishnan, & Griffiths, 2017; Boursier & Manna, 2018a; boyd & Ellison 2007; Butkowski et al., 2019; Cohen et al., 2018; Holland & Tiggemann, 2016; Kuss & Griffiths, 2011b, 2017; Perloff, 2014; Tiggemann & Slater, 2017; Veldhuis et al., 2018). However, risky opportunities provided by adolescents' SNSs use represent a contemporary matter of scientific debate (Livingstone, 2008; Munno et al., 2017). Indeed, despite nowadays SNSs might be considered "way of being" (Kuss & Griffiths, 2017), able to support adolescents' need to belong, self-presentation, and identity construction and exploration processes via a digital screen (Bij de Vaate et al., 2018; Boursier & Manna, 2019; Dhir et al., 2016; Diefenbach & Christoforakos, 2017; Manago et al., 2015; Pelosi et al., 2014; Riva, 2010; Stănculescu, 2011; Zhao et al., 2008), the SNSs-related risks fuel the scholar interest about overpathologised, problematic, and potentially addictive use of SNSs (e.g., Andreassen et al., 2016; Bányai et al., 2017; Billieux et al., 2015; Franchina & Lo Coco, 2018; Kırcaburun, & Griffiths, 2018; Kuss & Griffiths, 2011a, 2017). Among the several different problematic SNSs use conceptual and operational definitions, in a social-cognitive perspective, researchers defined Internet and

social networking sites as communicative contexts available online (Casale, Fioravanti & Caplan, 2015), conceptualizing problematic Internet and web-related activities in terms of preference for online social interactions (due to perceived deficient social skills), cognitive and behavioral manifestations of deficient self-regulation (mood regulation, cognitive preoccupation, and compulsive use), and subsequent negative outcomes resulting from SNSs misuse (e.g., Baker, & White, 2010; Caplan, 2003, 2010; Casale & Fioravanti, 2017; LaRose, Kim, & Peng, 2010; Lee, Ho, & Lwin, 2017; Pontes, Caplan, & Griffiths, 2016). Within this perspective, social networking might allow adolescent and young users to (i) elude difficulties provided by face-to-face interactions, (ii) operate a greater control over personal information disclosure, and (iii) be strategic in managing their self-presentation (Casale & Fioravanti, 2017), especially via visual content, such as pictures, videos, and stories shared on SNSs.

As Feltman and Szymanski (2018) highlighted, in recent years social networking sites seemed to be increasingly based upon the sharing of visual content that male and female adolescents might use as a source of comparison and information to improve their own physical appearance (Franchina & Lo Coco, 2018; Rousseau, Eggermont, & Rodgers, 2017) and social confidence (Pelosi et al., 2014; Rodgers et al., 2013). However, these body image-focused activities might lead to appearance-related concerns and potentially problematic body image checking and monitoring in online environments (Fox & Vendemia, 2016; Perloff, 2014). As researchers have previously highlighted, the individuals' body image investment and control in photos refer to great attention concerning picture quality, concerns about self-image shared on social media (McLean et al., 2015), and strategies in body monitoring and self-pictures taking and choosing prior to sharing online (Boursier & Manna, 2019). The asynchronicity of SNSs use might promote an overinvestment in individuals' (especially adolescents') body image (Fox & Vendemia,

2016), allowing them to digitally construct and share online the best version of themselves (Boursier & Manna, 2018b; Casale & Fioravanti, 2017; Cohen et al., 2018; Fox & Rooney, 2015; Lonergan et al., 2019; Manago et al., 2015; McLean, Paxton, & Wertheim, 2016). Consequently, the great value given to self-images and body appearance might trigger behaviors such as monitoring and control over body image, potentially related to self-objectification experiences (Butkowski et al., 2019; de Vries & Peter, 2013; Fox & Vendemia, 2016; Vandenbosch & Eggermont, 2012). Indeed, some appearance-related behaviors in which individuals can be engaged prior to share photos online might be influenced by self-objectification experiences, leading to negative psychological outcomes. According to Walther (1996) and Lamp et al. (2019), individuals who presented higher levels of self-objectification were more likely to be engaged in strategic self-presentation behaviors to obtain other people' approval.

In summary, scholar findings have confirmed that body image and SNSs research fields are closely connected and rapidly evolving together, especially among adolescents. Furthermore, empirical research highlighted the strong association of appearance-related issues with social networking and objectified body consciousness experiences. Within the OBC framework, only a few studies have explored the association between body shame and social networking, whereas no studies focused on appearance control beliefs, the most understudied component of the self-objectification research field. Additionally, the possible relationship between OBC components and problematic social networking sites use is still unexplored, despite scholar findings have shown that pre-existing psychosocial problems, associated to maladaptive cognitions about self, might lead to individuals' problematic cognitions, behaviors, and negative outcomes related to Internet-based activities (Caplan, 2002). Consequently, the present study tested two independent mediation model.

In the first model, the direct and indirect effects of body shame on adolescents' problematic SNSs use through the mediating effect of body image control in photos have been evaluated. Moreover, the validity of this mediation model across male and female groups have been tested. It was expected that body shame would be positively linked to problematic social networking and that this relationship would be significantly mediated by body image control in photos. Specifically, assuming the pivotal role of the gaze of the other in online environments and according to previous studies, higher body shame has been expected positively associated with greater body image in photos monitoring, which in turn would be related to greater problematic SNSs use, in terms of preference for online social interactions, use of SNSs as mood regulators, cognitive manifestation of deficient self-regulation in SNSs use, and consequent negative outcomes. Considering possible gender-related differences, according to previous findings within self-objectification and objectified body consciousness frameworks, it was expected that body shame would, directly and indirectly, affect problematic SNSs usage via body image control in photos more in female adolescents than males.

Similarly, in the second model, the direct and indirect effects of appearance control beliefs on adolescents' problematic SNSs use via body image control in photos have been evaluated. Even in this model, the validity of the mediation model across male and female groups has been tested. It was expected that appearance control beliefs would influence problematic SNSs use and that body image control in photo would mediate this relationship. However, due to the controversial and uncertain scholar findings concerning the OBC appearance control beliefs component, a direction for these effects was not indicated. Indeed, according to the chain relationships in which the perceived control influences the general trust, which in turn reduces the perception of SNSs-related risks, believing in control over own appearance might lead to a problematic SNSs use and a

potentially problematic body image control in photos, which in turn might encourage the effect of appearance control beliefs on problematic social networking. On the contrary, whether appearance control beliefs are actually indicators of personal agency and locus of control, they might negatively affect on problematic SNSs use and potentially problematic body image control in photos, which in turn might mediate the relationship between appearance control beliefs and problematic social networking. To date, gender-related differences regarding the relationships among these variables are unexplored, thus a direction for these effects is not specified.

4.2. Methods

4.2.1. Participants and procedure

A total of 693 adolescents (aged between 13 and 19 years, mean age = 16 years, SD = 1.58), 310 males (45%) and 383 females (55%), participated to the study. Data collection occurred in 5 high schools in Naples, Southern Italy. The school principal of each school and parents were informed of the nature and aims of the research and the measures to be used. General information about study goals was also announced in class. Participation was voluntary, without course credits or remunerative rewards. Researchers assured confidentiality and all participants were informed that they could omit any information they did not wish to share and could withdraw from the study at any time. Participants completed the questionnaires in a classroom setting through their smartphones, under researchers' and teachers' supervision. The study was approved by the University Research Ethics Committees and was conducted in accordance with the ethical guidelines for psychological research approved by the Italian Psychological Association (AIP).

4.2.2. Measures

Socio-demographic information and the amount of time spent on SNSs. In this section were asked gender, age, the most used social networking sites and/or Apps, and hours per day spent on social networking sites. Specifically, participants were asked to answer two items: (i) "*Which of these social networking sites and Apps do you use most?*", choosing one or multiple options among WhatsApp, Facebook, Facebook Messenger, Instagram, Snapchat, YouTube, Telegram, Tinder, Tumbler, and Skype, and (ii) "*How many hours do you spend on social networking sites every day?*", from 1 (*Less than 1 hour*) to 8 (*More than 6 hours*).

Body Shame (BS). The Body Shame subscale of the Italian version of the OBCS (Dakanalis et al., 2015; original English version by McKinley & Hyde, 1996) consists of 8-item rated on a 7-point Likert scale, ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). The subscale was used to evaluate individuals' feelings of shame about their bodies and their appearance (e.g., "*I feel ashamed of myself when I haven't made the effort to look my best*", "*When I'm not the size I think I should be, I feel ashamed*"). In this study, Cronbach's α coefficient was .79, lower than values reported in Dakanalis et al. (2015) and McKinley and Hyde (1996), but comparable with values reported in other studies (Moradi et al., 2017).

Appearance Control Beliefs (ACB). The beliefs underlying the appearance control were assessed using the Italian version of the Control Beliefs subscale of the Objectified Body Consciousness Scale (OBCS) (Dakanalis et al., 2015; original English version by McKinley & Hyde, 1996). The 8-item ACB subscale was scored on a 7-point Likert scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*), assessing the beliefs by which, given enough effort, individuals can control own physical appearance, body shape, and size (e.g., "*I think a person can look pretty much how they want to if they are willing to*

work at it", "*I can weigh what I'm supposed to when I try hard enough*"). In this study, Cronbach's α coefficient was .77, lower than values reported in Dakanalis et al. (2015) and McKinley and Hyde (1996), but comparable with other studies (McKinley & Hyde, 1996; Moradi et al., 2017).

Body Image Control in Photos-Revised (BICP-R). The revised version of Body Image Control in Photos questionnaire (Boursier & Manna, 2019; for the original Italian version, Pelosi et al., 2014) has been used to evaluate adolescents' photo management and control online and offline. BICP-R consists of 16 items rated on a 5-point-Likert scale, from 1 (*Never*) to 5 (*Always*), corresponding to five different factors: selfie-related factors (e.g., "*I prefer my image as it appears in self-portraits because I know how to make it look better*"), privacy filter behaviors (e.g. "*I use privacy filters in order to show photos in which I appear more attractive only to certain people*"), positive body image factors (e.g., *"I post those photos which I hope will receive praise for my appearance"*), sexual attraction factors (e.g., "*I have posted provocative photos on Facebook, in order to attract attention to myself*"), negative body image factors (e.g., "*I feel awkward if I notice that someone has posted photos that show my body's defects*")[2]. In the present study, the Cronbach's α values for the scale was very good (.82), in line with the previous study that used the BICP-R (Boursier & Manna, 2019). Cronbach's α values for each BICP-R subscale ranged from .63 to .80 The authors established a cut-off score for identifying individuals who problematically control their body image in photos, identifying four categories: occasional (scores of 0-24), habitual (scores of 25-50), at risk (scores of 51-55), and problematic (scores higher than 55).

Generalized Problematic Internet Use Scale 2 (GPIUS2). In the present study, the 15-item Italian version of GPIUS2 (Fioravanti et al., 2013; for the original English version

[2] The BICP-R factors labels have been changed compared to the previous version of the scale (Boursier & Manna, 2019) to improve their intelligibility.

Caplan, 2010) has been used to assess the generalized problematic Internet use evaluating 5 constructs: preference for online social interactions (e.g., "*I prefer communicating with people online rather than face-to-face*"), mood regulation (e.g., "*I have used the Internet to make myself feel better when I was down*"), cognitive preoccupation (e.g., "*I think obsessively about going online when I am offline*"), compulsive Internet use (e.g., "*I have difficulty controlling the amount of time I spend online*"), and negative outcomes (e.g., "*My Internet use has created problems for me in my life")*. Each construct consists of 3 items rated on a 7-point Likert scale, from 1 (*Strongly disagree*) to 7 (*Strongly agree*). As is a previous study by Casale and Fioravanti (2016), since the items are referred to the use of Internet without differentiating among different possible activities carried out online, for the purposes of the present study the word "Internet" has been replaced by "social networking sites" (e.g., "*I have used the SNS to make myself feel better when I was down*"). In the current study, the Cronbach's α was .88, and Cronbach's α values for each subscale ranged from .69 to .82.

4.2.3. Statistical analysis

Descriptive statistics have been carried out to assess the means, standard deviation of the variables, and confidence interval of means (CI: 95%). Independent t-tests were used to evaluate gender differences, and the magnitude of the differences has been tested with effect sizes (Cohen's *d*). All descriptive statistics were performed with the SPSS 23 statistical software package (SPSS Inc., Chicago, IL). Path analyses within structural equation modeling (SEM) were used to test the proposed mediation model. Due to deviation from the normal distribution, in all SEM analysis, maximum likelihood estimation robust to non-normality (MLR) was used (Muthén & Muthén, 2012). In order

to test equivalence of the structural parameters across male and female groups, a multi-group analysis has been preferred to the two single-group models.

To evaluate the overall goodness-of model fit, several indexes have been used: the comparative fit index (CFI) and the Tucker-Lewis Fit Index (TLI) are indices related to the total variance accounted by the model and values higher than 0.90 are desired; root mean square error approximation (RMSEA) is related to the variance of residuals and values below 0.08 are recommended (Browne & Cudeck, 1993); the standardized root mean square residuals (SRMR) for which values below 0.08 are considered a good fit (Kline, 2015). The Satorra–Bentler χ^2 difference test ($\Delta SB\chi 2$) has been used to test the relative fit of nested models (Satorra, 2000). When the more constrained model was rejected, a gradually less restrictive model of partial invariance was tested. All SEM analyses have been performed using MPlus 8 (Muthén & Muthén, Los Angeles, CA).

4.3. Results

4.3.1. Descriptive statistics

Among the participants, the most popular and used social networking sites were respectively WhatsApp (99%), Instagram (92%), YouTube (80%), and Facebook (70%). Gender differences have been tested (Table 4.1.) and statistically significant differences between males' and females scores have been found. Girls reported higher mean scores in hours per day spent on SNSs, OBC body shame, OBC appearance control beliefs, BICP selfie-related factors, BICP privacy filter behaviors, BICP positive body image factors, BICP negative body image factors, PSNSU mood regulation, PSNSU cognitive preoccupation, and PSNSU compulsive SNS use. The effect sizes were small for OBC body shame, BICP privacy filter behaviors, BICP positive body image factors, BICP negative body image factors, PSNSU mood regulation, and PSNSU cognitive

preoccupation. Medium effect sizes have been found in PSNSU compulsive social network sites use. Finally, relevant effect sizes have been found in OBC appearance control beliefs and BICP selfie-related factors. On the contrary, boys showed higher mean scores in sexual attraction factors and negative outcomes with relevant effect sizes. Concerning BICP descriptive cut-off categories, the present findings showed that 10.3% of the sample occasionally controlled their own body image in photos, 66.7% habitually controlled it, 11.7% controlled it in a risky way, and 11.3% controlled it in a problematic way. Girls reported a higher percentage in both risky (13.1% vs. boys' 10%; $p<.001$) and problematic control (14.6% vs. boys' 7.1%; $p<.001$) over their body images in pictures.

Bivariate correlations between all variables are shown in Table 4.2. Significant positive correlations have been found between body shame, body image control in photos, and problematic social networking sites use. Additionally, significant positive correlations have been found between variables of each assessment measure in both male and female groups, except between OBC body shame and OBC appearance control beliefs. This latter was always negatively or no correlated with body image control in photos and problematic SNSs use in both male and female samples.

4.3.2. Mediation analysis

4.3.2.1. Model 1 – Body shame on problematic social network sites use via body image control in photos

The proposed mediation models were tested by the means of SEM methods. Firstly, unconstrained models in which all paths were allowed to freely vary have been tested across male and female groups. The baseline model produced an inadequate fit to the data, MLRχ^2 (48) = 269.696, $p<.001$; CFI= .89; TLI=.75; RMSEA=.116, 90% C.I. [.103-.130]; SRMR=.083. When the fit of the unconstrained model was compared to the fit of a fully

constrained model in which all paths and correlations were held equivalent across the two groups, the Satorra–Bentler chi-square difference test indicated that imposing the equality constraints resulted in a better model, $\Delta SB\chi^2$ (34) = 13.916, p=.999; $MLR\chi^2$ (82) = 283.612, p<.001; CFI= .91; TLI=.89; RMSEA= .079, 90% C.I. [.068-.090]; SRMR=.074. Modification indices suggested that we could improve the model by releasing the constrained paths between BICP latent variable and PSNSU mood regulation, PSNSU cognitive preoccupation, and PSNSU compulsive social network sites use, between OBC body shame and PSNSU cognitive preoccupation, and unconstraining the correlations between PSNSU mood regulation and PSNSU cognitive preoccupation, between PSNSU mood regulation and PSNSU compulsive social network sites use. These modifications resulted in a significant improvement of the model fit, $\Delta SB\chi^2$ (28) = 40.366, p=.061; $MLR\chi^2$ (76) = 229.330, p<.001; CFI= .94; TLI=.91; RMSEA= .071, 90% C.I. [.060-.083]; SRMR=.071. Significant paths and standardized coefficients for the final model are presented in Figure 4.1.

In the male sample, body shame had a significant direct effect on body image control in photos, PSNSU mood regulation, PSNSU cognitive preoccupation, and PSNSU negative outcomes. Body image control in photos was significantly and strongly associated with problematic SNS use, with direct effects on preference for online social interactions, mood regulation, cognitive preoccupation, compulsive SNS use, and negative outcomes. Although, in the female sample, body shame had a significant direct effect on body image control in photos, PSNSU mood regulation, and PSNSU negative outcomes. Differently from boys, girls' body shame had not a significant direct effect on cognitive preoccupation. Moreover, in the female sample, there was a more significant and stronger association between body image control in photos and problematic SNSs use than in male sample,

with direct effects on preference for online social interactions, mood regulation, cognitive preoccupation, compulsive SNS use, and negative outcomes.

In relation to the indirect effect between body shame and problematic SNS use, all paths were statistically significant in both genders, but more significant and stronger in girls' mood regulation, cognitive preoccupation, and compulsive SNS use: (i) body shame → body image control in photos → preference for online social interactions (β_{male}=.116; p<.001; β_{female}=.124; p<.001), (ii) body shame → body image control in photos → mood regulation (β_{male}=.093; p<.01; β_{female}=.208; p<.001), (iii) body shame → body image control in photos → cognitive preoccupation (β_{male}=.115; p<.01; β_{female}=.290; p<.01), (iv) body shame → body image control in photos → compulsive SNS use (β_{male}=.110; p<.01; β_{female}=.259; p<.01), and (v) body shame → body image control in photos → negative outcomes (β_{male}=.114; p<.001; β_{female}=.138; p<.001).

4.3.2.2. Model 2 – Appearance control beliefs on problematic social network sites use via body image control in photos

The mediated effect of appearance control beliefs on problematic SNSs use via body image control in photos has been tested by the means of SEM methods. Firstly, unconstrained models in which all paths were allowed to freely vary have been tested across male and female groups. The baseline model produced an inadequate fit to the data, MLRχ^2 (48) = 264.139, p<.001; CFI= .90; TLI=.76; RMSEA=.114, 90% C.I. [.101-.128]; SRMR=.087. The fully constrained model showed a little improvement of the model fit MLRχ^2 (82) = 324.349, p<.001; CFI= .88; TLI=.84; RMSEA=.092, 90% C.I. [.082-.103]; SRMR=.091. However, comparing the fit of the unconstrained model to the fit of a fully constrained model, the Satorra–Bentler chi-square difference test indicated that groups

were already different: $\Delta SB\chi^2$ (34) = 60.21, p=.004. Thus, invariance has not been established.

Consequently, the proposed mediation model has been tested independently on both male and female samples. The mediation model on male group showed a quite inadequate fit to the data, $MLR\chi^2$ (29) = 107.742, p<.001; CFI= .92; TLI=.85; RMSEA=.094, 90% C.I. [.075-.113]; SRMR=.072. On the contrary, the overall mediation model on female sample had an optimal fit to the data: $MLR\chi^2$= 66.144, p<.001; CFI=.97; TLI=.94; RMSEA=.058, 90% CI [.039-.076]; SRMR=.040. According to the results (Figure 4.2.), appearance control beliefs have a significant direct negative effect on body image control in photos, preference for online social interactions, cognitive preoccupation, compulsive SNS use, and negative outcomes. Body image control in photos was significantly and strongly associated with problematic SNS use, with direct effects on preference for online social interactions, mood regulation, cognitive preoccupation, compulsive SNS use, and negative outcomes.

In relation to the indirect effect between appearance control beliefs and problematic SNS use, all paths were statistically significant: (i) appearance control beliefs → body image control in photos → preference for online social interactions (β=-.041; p<.05), (ii) appearance control beliefs → body image control in photos → mood regulation (β=-.081; p<.01), (iii) appearance control beliefs → body image control in photos → cognitive preoccupation (β=-.099; p<.01), (iv) appearance control beliefs → body image control in photos → compulsive SNS use (β=-.086; p<.01), and (v) appearance control beliefs → body image control in photos → negative outcomes (β=-.037; p<.05). The full model explained 9% of the total variance of preference for online social interactions, 21% for mood regulation, 32% for cognitive preoccupation, 25% for compulsive SNS use, and 10% for negative outcomes.

4.4. Brief discussion

The present study contributes to the ongoing debate concerning predictive factors in problematic social networking site (SNS) use. The study surveyed a specific sample of adolescents from Southern Italy and tested two independent mediation model to explore the directly and indirectly predictive role of OBC body shame and appearance control beliefs on problematic SNS use through the mediating effect of body image control in photos.

In the present study, adolescents showed a preference for WhatsApp (an App that promotes the exchange of messages, pictures, and videos) as well as for visual and photographic social networking sites (Instagram, YouTube, and Facebook). However, according to previous findings (Andreassen et al., 2017; Griffiths et al., 2014), the present study also showed that girls spent more hour per day than boys on SNSs. Moreover, the present findings confirmed gender-related differences in body image issues. In line with the findings of previous studies (Dakanalis et al., 2015, 2017; Manago et al., 2015; McKinley, 1998; Moradi & Huang, 2008), female adolescents who participated in the present study showed higher rates of body shame than males, fitting the objectified body consciousness theory about how dominant cultural standards concerning the female body encourage girls and women to experience their bodies as objects and to feel ashamed when they do not satisfy cultural body standards (McKinley, 1998). However, the scores difference between males' and females' body shame showed only a modest effect size, highlighting potential changes in gender roles because social interactions are increasingly moving into online environments (Manago et al., 2015) and likely leading to growing self-objectification experiences among boys (Vandenbosch & Eggermont, 2013). Instead, while previous findings did not report statistically significant gender differences

concerning appearance control beliefs (e.g., Dakanalis et al., 2015; John & Ebbeck, 2008; McKinley, 1998), the girls in the present study showed higher rates of appearance control beliefs than boys with a relevant effect size. This result appears to suit the objectified body consciousness' assumption that females, more than males, internalize the belief that they are responsible for their physical appearance and that, given enough effort, they can control their bodies satisfying cultural standards.

Differently from the previous study (Study 2), in which boys showed the greater problematic control over their appearance in photos, but in line with Boursier and Manna's (2019) findings, the present study confirmed the main condition of risk among girls in photo management and body image control online and offline. Compared to male adolescents, females had both greater risky and problematic body image control in pictures. Specifically, girls seemed more than boys invest in self-portraits as a way to show their identity and manage positive and negative images in order to promote their best self-presentation. On the contrary, according to previous studies (Boursier & Manna, 2019 and Study 2) boys showed greater body image control to improve their sexual attractiveness, confirming pivotal role of sexual aspects of body image and sexual exploration in male adolescents' online experiences (Boursier & Manna, 2018b). Concerning problematic social networking sites use, girls were significantly more likely than boys to use SNSs to improve and regulate their mood states. They also showed more obsessive thought patterns and poorer self-regulation of SNSs use than boys. These results seemed to be in line with several previous studies that highlighted a strong association between girls' engagement in social networking and depressive mood, low self-esteem, and other psychological distress, leading to a greater problematic SNSs use (McCrae, Gettings, & Purssell, 2017; Nowland, Necka, & Cacioppo, 2018; Raudsepp & Kais, 2019). On the contrary, negative outcomes due to problematic social networking appeared to affect more males than

females, likely due to males' higher attention for sexual aspects of online appearance-related activities and their greater engagement in online sexual behaviors (Bianchi, Morelli, Baiocco, & Chirumbolo, 2018; Boursier & Manna, 2018b; Jonsson, Priebe, Bladh, & Svedin, 2014) and/or due to a higher online disinhibition (Casale, Fiovaranti, & Caplan, 2015) despite other studies found that females were more engaged in online self-disclosure (Schouten, Valkenburg, & Peter, 2007). Finally, the present study did not find any statistically significant difference between males' and females' preference for online social interactions.

According to Casale and Fioravanti's (2017) findings, the present study found a strong and positive correlation between problematic social networking and shame (especially among male participants), confirming the association between SNS use and body shame-related feelings (Manago et al., 2015; Slater & Tiggemann, 2015; Tiggemann & Slater, 2015). Interestingly, especially among females, appearance control beliefs negatively correlated with body image control in photos and problematic SNSs use. Moreover, in line with Boursier and Manna (2019) who found a positive correlation between body image control in photos and teens' problematic internet use, the present study showed a strong and positive co-occurrence of all problematic SNS use dimensions and control on self-photos online and offline, especially among girls.

4.4.1. Model 1 – Body shame on problematic social network sites use via body image control in photos

The first tested mediation model suggested that body shame was both directly and indirectly positively associated with adolescents' problematic SNSs use (mostly image-based SNSs) through the mediating effect of body image control in photos. As Dakanalis et al. (2015) explained, individuals who perceive own body image as inadequate compared

to culturally idealized appearance might experience body shame. Such individuals, more than others, are engaged in photo-related activities and monitoring, in order to show an ideal appearance when sharing self-images on SNS (McLean et al. 2015). Likely, self-objectification experiences which are closely related to body shame might be prompted and enhanced by the typical one-to-many interactions that SNSs convey and by the exposure of individuals' personal pictures to the viewing by own peer group (Manago et al., 2015; Vandenbosch & Eggermont, 2012). Perhaps, this kind of communication leads SNSs users to become more vigilant about own appearance in photos, picture quality, the self-image shared online, and strategies to taking, choosing, and editing their photos before posting online (Boursier & Manna, 2019; Manago et al., 2015; McLean et al., 2015).

According to Rudd and Lennon (2000), physical appearance-related shame might promote higher engagement in several behaviors concerning body improvement (such as body image control in photos may be) to improve individuals' acceptance and accomplishment of social goals (Fox & Vendemia, 2016), often normalizing risky behaviors. Similarly, in the present study higher body shame was directly related to greater body image control in photos in both male and female samples. Thus, how individuals related to their photos before sharing on SNSs seems to be strongly linked to body image-related concerns and problematic SNSs use (Cohen et al., 2018). Likely, this is because social reward and approval are essential motivators of adolescents' behavior (Bell et al., 2018; Foulkes, & Blakemore, 2016). Accordingly, in line also with Rodgers and colleagues (2013) who highlighted that higher level of body image concerns was strictly related to great vulnerability to problematic Internet use, in the present study, the mediation model partially showed a direct effect of body shame on problematic social networking. Specifically, feelings of body shame only directly predicted problematic SNSs use in terms of mood regulator and negative outcomes resulting from their misuse, in both male and

female group. Instead, among boys, body shame showed a direct effect also on cognitive preoccupation. It is likely that adolescents who feel ashamed of their bodies avoid appearance-focused SNSs to hide themselves, using them only for regulate their mood and mitigate their anxiety about self-presentation in interpersonal situations with consequently negative outcomes (Caplan, 2007). Furthermore, boys ashamed about their bodies seemed more engaged in obsessive thinking patterns related to SNSs use. However, body shame strongly predicted photo investment and control, leading to problematic social networking in both male and female groups, but with higher effects among girls. Interestingly, the present study seems to confirm Casale and Fioravanti's (2017) findings in which individuals who feel ashamed about their body might display problematic social networking responding to their need to control self-presentation and facilitate social approval.

Traditionally, the objectification theory framework and research field (Frederickson & Roberts, 1997) have largely proposed and explored the predictive role of SNSs use on self-objectification experiences (Bell et al., 2018; Butkowski et al., 2019; Cohen, Newton-John, & Slater, 2017; De Vries & Peter, 2013, Fardouly et al., 2015; Fardouly et al., 2018; Feltman & Szymanski, 2018; Holland & Tiggemann, 2016; Manago et al., 2015; McLean et al., 2015; Tiggemann & Barbato, 2018; Vandenbosch & Eggermont, 2012). Nonetheless, Moradi and Huang (2008) expressed the need for further research about the objectified body consciousness possible effects on subsequent outcomes. In this regard, Veldhuis and colleagues (2018) recently investigated the potential impact of self-objectification on SNS use, highlighting the pivotal contribution of their findings in the complement of previous studies in this field. According to Veldhuis et al.'s (2018) results, and the previous Strelan and Hargreaves' (2005) circle of self-objectification, the present study strengthens the plausibility of the bidirectional nature of SNSs use-self-

objectification pathway. Indeed, OBC body shame and SNS use appear to mutually affect and reinforce each other. Consequently, self-objectification seems not only represent a SNSs use outcome, but it could also promote individuals (especially adolescents) engagement in SNSs use (Veldhuis et al., 2018), but not without negative effects. As researchers previously explained, SNSs usage likely leads to more self-objectification experiences because it offers people who already self-objectify to present, manage, and promote their own images online, supporting self-objectification processes (Bell et al., 2018; Fardouly et al., 2015, 2017; Veldhuis et al., 2018), and this could potentially lead to problematic social networking. In this regard, further empirical studies are needed to clarify and establish causal relationships between self-objectification and SNSs use.

Finally, the higher relevance of relationships between body shame and problematic social networking in female sample might confirm the objectified body consciousness framework's assumption that girls and women, more than males, compare their bodies with cultural body standards, internalizing and perceiving them as a personal choice (Grabe, Hyde, & Lindberg, 2007; McKinley & Hyde, 1996). However, beauty cultural standards are clearly impossible to realize fully, promoting, therefore, higher feelings of shame. On the other hand, these girls' results seem to confirm the classic psychoanalytic literature concerning shame as a predominantly females' affection (Margherita, Troisi, Nunziante Cesàro, 2014). Specifically, female shame seems to refer to a narcissistic basic fault caused by the lack of the (needed) other's gaze on the girls' bodies perceived (Grunberger, 1979; Matarazzo, Cesàro, & Albergamo, 1996; Nunziante Cesàro, 2014).

4.4.2. Model 2 – Appearance control beliefs on problematic social network sites use via body image control in photos

In the second model, the direct and indirect effects of appearance control beliefs on adolescents' problematic SNSs use via body image control in photos have been evaluated, testing the validity of the model across male and female groups through the multigroup analysis. Nevertheless, invariance has not been established. Thus, the mediation model has been tested on independent male and female samples, resulting in significant only among girls. Different interpretations of the current findings are possible. Firstly, the present study might confirm the objectified body consciousness framework's assumption that females, more than males, considered themselves responsible for the way they look and that, given enough effort, they can control their appearance complying with cultural standards (McKinley & Hyde, 1996). Internalizing the outside observer's perspective concerning own body and cultural appearance standards, females might perceive them as a choice as well as originate from the self, which in turn encourage the beliefs in appearance controllability (McKinley & Hyde, 1996). In this regard, also the large effect size of the difference between males' and females' mean scores in appearance control beliefs might confirm this interpretation. On the other hand, boys might perceive less responsibility about their bodily appearance, leading to other body image control-related strategies, such as potentially problematic appearance monitoring and photo-editing for specific purposes (Study 2). Likely, different appearance-focused issues might influence males' problematic SNSs use, for example, body shame (Model 1 of the present study). Moreover, the lack of invariance in testing mediation model might suggest that boys and girls involved in the present study differently perceived the content of the appearance control beliefs items. Finally, these controversial findings might confirm Moradi and Varnes' (2017) results about the uncertain belonging of appearance control beliefs to objectified body

consciousness framework and their multidimensional nature that need further investigation, refinement, and conceptualization.

However, within the female sample, the mediation model confirmed the expected effect of appearance control beliefs on problematic social networking, with the mediating effect of body image control in photos. Indeed, believing in body appearance controllability directly and indirectly (via body image control in photos) negatively predicted problematic SNSs use, likely assuming a protective function. More specifically, interestingly appearance control beliefs showed a direct negative effect on control over own body image in photos. In this regard, this result seems to confirm previous studies' findings in which believing in control over one's own physical appearance leads to a decrease of body monitoring and feelings of shame toward one's own body (Noser, & Zeigler-Hill, 2014; Sinclair & Myers, 2004; Taylor, 1989). Similarly, in the present study, girls who believed they could control their appearance might become less vigilant about their body image in photos, picture quality, their self-image promoted on SNSs, and strategies for taking, choosing, and editing their shared photos online (Boursier & Manna, 2019; Manago et al., 2015; McLean et al., 2015). Thus, it seems confirmed the OBC assumption that females who believe they can control own appearance feel more positive regarding their bodies (John & Ebbeck, 2008; McKinley & Hyde, 1996), showing a greater sense of competence (Sinclair & Myers, 2004).

Moreover, in the present study appearance control beliefs directly negatively influenced problematic SNSs use. In particular, they negatively predicted girls' preference for online social interactions, cognitive preoccupation, compulsive SNSs use, and negative outcomes. Likely, female adolescents who believe they can control own appearance and thus feel more positive regarding their bodies (John & Ebbeck, 2008; McKinley & Hyde, 1996) do not prefer online environments for relational exchanges and self-presentation, reducing the

problematic use of SNSs in terms of cognitive preoccupation, compulsive use, and consequent negative outcomes. Moreover, considering previous findings in which believing in control over own life and appearance has been found as a means of relieving stress and anxiety situations (McKinley, 1999; McKinley & Hyde, 1996; Sinclair & Myers, 2004), this might explain why girls in the present study did not seem to use SNSs to manage and regulate their mood. Furthermore, appearance control beliefs confirmed their negative (likely protective) effect on girls problematic social networking site use also via the reduced engagement in body image control in photos. According to previous findings, negative consequences due to problematic Internet-related activities are related to the perceived utility of online environments for providing greater control compared to face-to-face situations (Casale, Fioravanti, & Caplan, 2016; Fioravanti et al., 2012). Likely, the present study shows that girls who believe they can control own appearance do not perceive or do not need this SNSs utility. In this regard, these findings do not seem to confirm the chain relationships in which the perceived control over personal information might improve individuals' confidence about their ability to manage it in online contexts and reduce the perception of SNSs-related risks (Joinson et al., 2010; Krasnova et al., 2010; Niemz et al., 2005; Taddei & Contena, 2013). Moreover, appearance control beliefs seem to be different from positive metacognitions that enhance the engagement in problematic behaviors (Casale et al., 2016; Spada et al., 2007, 2015). Indeed, according to previous studies (Laliberte, Newton, McCabe, & Mills, 2007; McKinley, 1998, 1999; McKinley & Hyde, 1996; Moradi, 2010; Sinclair, 2010; Sinclair & Myers, 2004), the present findings seem to confirm that appearance control beliefs might involve sense of agency, sense of competence, perceived generalized controllability over life events, and locus of control, which in turn might promote healthy behaviors, body satisfaction, and psychological well-being (Crawford et al., 2009; John & Ebbeck, 2008; McKinley, 1999; McKinley & Hyde,

1996; Noser, & Zeigler-Hill, 2014; Sinclair, 2010; Sinclair, & Myers, 2004). Indeed, although clearly many aspects of appearance cannot be controlled, believing that girls can have some control over their bodily appearance might provide them with a sense of competence (McKinley & Hyde, 1996; Sinclair & Myers, 2004). Nevertheless, as Crawford et al. (2009) highlighted, females' beliefs that appearance control is in their own hands might enhance the acceptance of both negative and positive judgments over their body images as authorized and justified, often improving self-blame for perceived failure of control and leading to other negative outcomes (such as dietary restrictions, excessive exercise, marginalization, etc.) (Schall, Wallace, & Chhuon, 2016). Therefore, how girls relate to their own appearance and body image in photos before sharing them on SNSs appears to be strongly linked to problematic social networking (Cohen et al., 2018), especially during adolescence, when social reward and peer approval are pivotal motivators of teenagers' behavior (Bell et al., 2018; Foulkes & Blakemore, 2016). Besides, "given the primacy of body appearance in women's identity, it is not surprising that how women feel about their bodies affects their psychological well-being" (Sinclair, 2005; p. 52).

4.5. Limitations

The present study showed some limitations. As previous research, the cross-sectional design of this study did not allow to clearly establish causal directions among the explored variables. Carried-out analyses and findings confirmed the expected causal relationships among objectified body consciousness components, body image control in photos, and problematic social networking. However, future longitudinal studies are needed to clarify key predictive processes involved and avoid the assumption of the current

psycho(patho)logical models as specific patterns of SNSs use among adolescents. Finally, the study used a self-report survey with its well-known method biases.

	Total sample	Males	Females		
	Mean (SD) [95% CI]	Mean (SD) [95% CI]	Mean (SD) [95% CI]	t	*d*
Hours per day spent on SNSs	3.40 (1.209) [3.32-3.49]	3.08 (1.230) [2.95-3.22]	3.66 (1.127) [3.55-3.78]	6.456***	.49
OBCS body shame	3.253 (.844) [3.191-3.315]	3.164 (.764) [3.08-3.244]	3.326 (.898) [3.230-3.416]	2.522*	.19
OBCS body control beliefs	4.91 (.785) [4.852-4.968]	4.676 (.869) [4.575-4.769]	5.099 (.651) [5.031-5.164]	7.313***	.56
BICP selfie-related factors	2.712 (1.093) [2.630-2.793]	2.329 (1.043) [2.215-2.450]	3.021 (1.035) [2.919-3.122]	8.729***	.66
BICP privacy filter behaviors	1.70 (1.078) [1.615-1.777]	1.597 (1.062) [1.482-1.71]	1.779 (1.085) [1.658-1.886]	2.224*	.17
BICP positive body image factors	2.775 (.845) [2.713-2.836]	2.676 (.883) [2.582-2.773]	2.854 (.806) [2.774-2.930]	2.780**	.21
BICP sexual attraction factors	1.68 (1.143) [1.604-1.761]	2.027 (1.380) [1.871-2.184]	1.398 (.805) [1.316-1.482]	7.488***	.57
BICP negative body image factors	3.175 (1.191) [3.075-3.263]	3.011 (1.272) [2.868-3.155]	3.308 (1.105) [3.200-3.427]	3.291**	.25
PSNSU preference for online social interactions	2.467 (1.504) [2.343-2.583]	2.460 (1.498) [2.290-2.632]	2.472 (1.510) [2.32-2.621]	.100$^{n.s.}$	.01
PSNSU mood regulation	3.299 (1.767) [3.176-3.425]	3.04 (1.775) [2.844-3.256]	3.509 (1.734) [3.33-3.686]	3.506***	.27
PSNSU cognitive preoccupation	3.242 (1.849) [3.097-3.387]	2.967 (1.766) [2.785-3.179]	3.465 (1.887) [3.286-3.655]	3.555***	.27
PSNSU compulsive social network sites use	3.306 (1.943) [3.162-3.453]	2.869 (1.785) [2.672-3.069]	3.661 (1.996) 3.470-3.86]	5.443***	.41
PSNSU negative outcomes	1.965 (1.312) [1.877-2.061]	2.224 (1.315) [2.078-2.37]	1.756 (1.273) [1.630-1.889]	4.735***	.36

Table 4.1. – Means, standard deviations (SD), confidence intervals (CI) estimated with 1000 bootstrap samples, t-Test, and effects sizes (Cohen's d) for both genders.

Note. OBCS: Objectified Body Consciousness Scale; BICP: Body Image Control in Photos; PSNSU: Problematic Social Network Sites Use.
*p<.05; **p<.01; ***p<.001; $^{n.s.}$ non-significant.

	1	2	3	4	5	6	7	8	9	10	11	12
1 OBCS body shame	-	**-.297****	**.198****	**.177****	**.345****	**.148****	**.313****	**.140****	**.279****	**.143****	**.155****	**.158****
2 OBCS body control beliefs	**-.384****	-	**-.113***	**-.165****	**-.137****	-.053	**-.144****	**-.213****	**-.173****	**-.225****	**-.227****	**-.239****
3 BICP selfie-related factors	**.218****	**-.148****	-	**.259****	**.461****	**.292****	**.565****	**.123***	**.310****	**.456****	**.394****	**.122***
4 BICP privacy filter behaviors	**.224****	-.077	**.355****	-	**.277****	**.274****	**.249****	**.158****	**.248****	**.134****	**.170****	**.197****
5 BICP positive body image factors	**.321****	**-.420****	**.350****	**.282****	-	**.241****	**.554****	**.174****	**.343****	**.319****	**.301****	**.174****
6 BICP sexual attraction factors	**.327****	**-.407****	**.301****	**.228****	**.426****	-	**.261****	**.176****	**.189****	**.252****	**.231****	**.267****
7 BICP negative body image factors	**.396****	**-.344****	**.527****	**.235****	**.463****	**.417****	-	**.206****	**.312****	**.413****	**.342****	**.146****
8 PSNSU preference for online social interactions	**.258****	**-.150****	**.238****	**.311****	**.146***	**.234****	**.223****	-	**.414****	**.344****	**.337****	**.408****
9 PSNSU mood regulation	**.207****	**.116***	**.297****	**.315****	.080	.031	**.221****	**.515****	-	**.401****	**.455****	**.329****
10 PSNSU cognitive preoccupation	**.281****	-.021	**.343****	**.346****	**.188****	.055	**.224****	**.425****	**.591****	-	**.784****	**.337****
11 PSNSU compulsive social network sites use	**.178****	.038	**.289****	**.360****	.095	.024	**.206****	**.488****	**.640****	**.710****	-	**.452****
12 PSNSU negative outcomes	**.321****	**-.460****	**.198****	**.194****	**.273****	**.337****	**.270****	**.391****	**.202****	**.186****	**.324****	-

Table 4.2. – Bivariate correlations between all variables. Males' data below the diagonal, females' data above the diagonal.

*. p=.05; **. p=.01

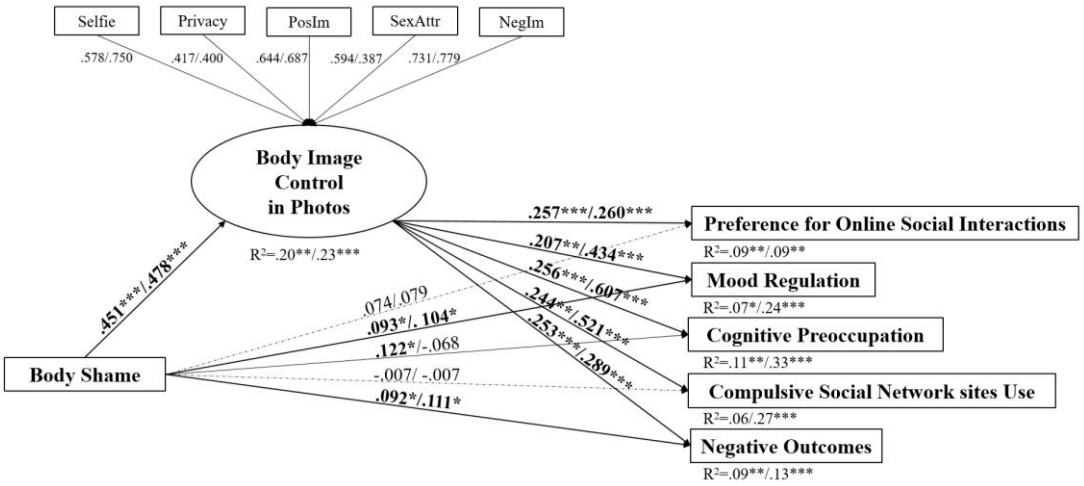

Figure 4.1. – Mediation model with standardized path coefficients for male and female subsamples and the explained variance of the endogen variables (R^2). Regression path coefficients for the male group are indicated before /, for the female group after /. The mediator variable is latent variable. All significant coefficients are indicated in bold. Simple arrows: significant path coefficients, dotted arrows: nonsignificant path coefficients.

Note: Selfie: Selfie-related factors Subscale; Privacy: Privacy filter behaviors Subscale; PosIm: Positive body image factors Subscale; SexAttr: Sexual attraction factors Subscale; NegIm: Negative body image factors Subscale. All path coefficients are ***p<.001.
*p<.05; **p<.01; ***p<.001.

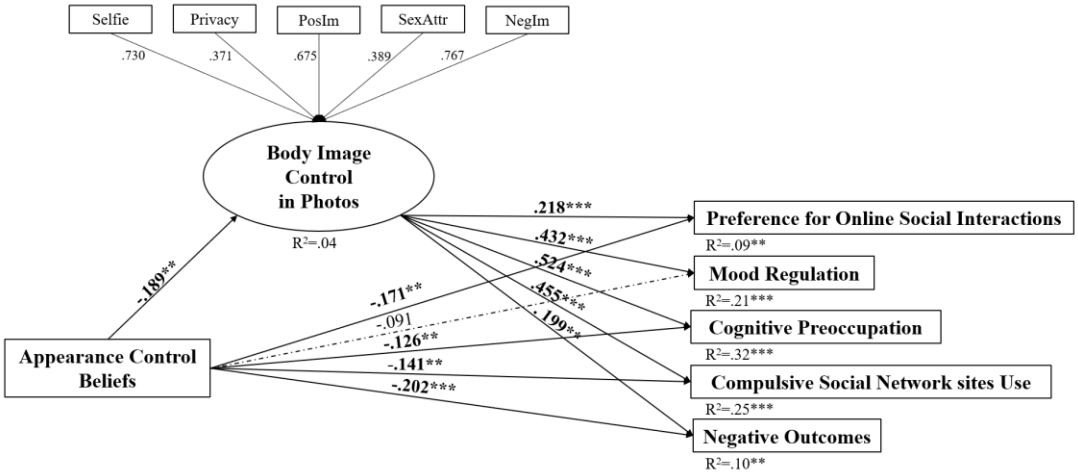

Figure 4.2. – Mediation model with standardized path coefficients for female subsample and the explained variance of the endogen variables (R^2). The mediator variable is latent variable. All significant coefficients are indicated in bold. Simple arrows: significant path coefficients, dotted arrows: nonsignificant path coefficients.

Note: Selfie: Selfie-related factors Subscale; Privacy: Privacy filter behaviors Subscale; PosIm: Positive body image factors Subscale; SexAttr: Sexual attraction factors Subscale; NegIm: Negative body image factors Subscale. All path coefficients are ***p<.001.
*p<.05; **p<.01; ***p<.001.

Chapter 5

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General discussion

In recent years, the use of social media has dramatically increased and social networking has become a ubiquitous activity, especially among adolescents and young people (D'Arienzo, Boursier, & Griffiths, 2019; Gioia & Boursier, 2019b; Mascheroni & Ólafsson, 2018). The widespread photographic self-presentation that digital age promotes in parallel raises the issue of boys' and girls' bodies in online environments. Indeed, according to Rudd and Lennon (2000), adolescents deal with the same typical identity issues that they have always faced, but with an increasing centrality on the body as never before. The growth of social media platforms and the sharing of personal visual content make the teenagers' body image an extremely contemporary issue. Indeed, boys' and girls' tremendous changes in body shape require them to face with a "new" body mentalization and many identity construction processes (e.g., Boursier & Manna, 2019; Cahn, 2005; Franchina & Lo Coco, 2018; Katz & Rice, 2002; Pelosi et al., 2014; Stern, 2004; Turkle, 1995; Valkenburg & Peter, 2008) and adolescents might relate to their smartphone self-camera as well as prior the mother's eyes and then a mirror (Diefenbach & Christoforakos, 2017).

Pivotal in these processes is the gaze of the other (Feltman & Szymanski, King, 2016; Pietropolli Charmet, 2018), omnipresent, yet physically absent and uncertain, always and

never there (King, 2016). Likely, the others will read the messages, posts, and hashtags, they will look at shared selfies, photos, videos, and stories on social networking sites, where consequently adolescents need to show their best self-presentation and ideal self (Boursier & Manna, 2018b; Casale & Fioravanti, 2017; Cohen et al., 2018; Bij de Vaate et al., 2018; Fox & Rooney, 2015; Fox & Vendemia, 2016; King, 2016; Lonergan et al., 2019; McLean et al., 2015; Zhao et al., 2008). The disembodied, asynchronous, and often anonymous nature of social networking sites seems to offer boys and girls a main control over own image, and this opportunity might improve their social confidence (Pelosi et al., 2014; Rodgers et al., 2013) or, on the contrary, it might promote appearance-related concerns and potentially problematic strategies to monitor, over-control, and manipulate own body image and self-presentation (Boursier & Manna, 2018b; Casale & Fioravanti, 2017; Cohen et al., 2018; Bij de Vaate et al., 2018; Fox & Rooney, 2015; Fox & Vendemia, 2016; Lonergan et al., 2019; McLean et al., 2015; Perloff, 2014; Zhao et al., 2008).

Focusing on the adolescents' experiences, the main goal of the present research was to connect and evaluate unexplored relationships among different online body image-related issues, enhancing the dialogue among different theoretical and operational perspectives, yet highly linked each other. The heart of this research and its studies is the boys' and girls' bodies: the real body that is changing, the lived body, the desired body, the disappointing body, the observed, monitored, and manipulated body. Likely, social networking sites and online environments are more easily accessible places where these bodies could be experienced. In this regard, the present research confirmed the crucial role of (online and offline) body image in teenagers' experiences, determining their potentially problematic behaviors related to social media use.

The first two studies of the present research contributed to the understudied research field concerning predictive factors in photo investment and manipulation. Specifically, Study 1 aimed at providing a useful instrument to evaluate photo manipulation strategies among Italian adolescents. Therefore, the Photo Manipulation scale of McLean et al. (2015) has been revised and validated. Considering the wide diffusion of interactive filters (such as a crown of flowers and puppy ears) among teens (Rajanala et al., 2018), the original English version of the scale was modified by adding an item about it. The analyses provided a final three-factor model composed of *photo filter use*, *body image manipulation*, and *facial image manipulation*. These components seem to well describe the range of possible photo modifications. According to Rajanala et al. (2018), there are very different strategies to manipulate own body image in pictures: on the one hand, black and white filter or interactive filters (*photo filter use*) represent clear efforts to embellish the overall look of pictures. On the contrary, other editing strategies (*body image manipulation* and *facial image manipulation*) might underly and promote a pressure to comply the others' perceived or declared expectations and digitally modified cultural standards. These body image manipulations might have harmful effects on boys' and girls' development, psychological well-being, and behaviors.

Traditionally, selfie practices (including selfie-taking, -sharing, and -editing) have been largely considered as mainly girls' activities (e.g., Albury, 2015; Boursier & Manna, 2018b; Chae, 2017; Dhir et al., 2016; McLean et al., 2015, 2019; Mingoia et al., 2019; Qiu et al., 2015; Sorokowska et al., 2016; Sorokowski et al., 2015), but recently McLean et al. (2019) expressed the need to involve boys, and not only girls, in research concerning selfie behavior. Accordingly, in Study 2 male and female adolescents were involved. Interestingly, boys showed higher engagement in body image manipulation, with greater problematic body image control in photos. In particular, due to the lack of literature

concerning possible predictors of photo-editing, Study 2 evaluated the unexplored relationships between expectancies underlying selfie practice and photo manipulation, testing the mediating role of body image control in photos and the moderating effect of gender on this mediation model. Concerning the influence of gender on selfie-expectancies and photo manipulation pathway, being male (and not being female) moderated this relationship. In this second study, boys' selfie-expectancies (mainly related to possible negative relational consequences, generalized risks underlying selfie practice, and to the sexual component of the selfies) directly predicted their photo-editing strategies, especially to manipulate their own body image. These surprising and novel findings seem to indicate that while boys are increasingly becoming involved in and concerned about online body image-related activities (Vandenbosch & Eggermont, 2013), girls might be engaged in photo-editing regardless selfie-expectancies and body monitoring in online and offline contexts. Or, alarmingly, female adolescents might be such involved in selfie practices to consider them as habitual behaviors, normalizing and underestimating possible related risks (Griffiths, 2018; Rudd & Lennon, 2000). Finally, these previously unreported results seem to highlight the fast and constant evolution of the social media landscape, where many platforms and their usage are replaced by new ones increasingly focused on visual stimuli, especially among adolescents (Caso, Fabbricatore, Muti, & Starace, 2019; Feltman & Szymanski, 2018; Griffiths & Kuss, 2017; van den Eijnden et al., 2016).

Once again, the gaze of the other turns to be essential. The adolescents who expect that their body images might be seen by peer others on SNSs, at the same time, might be more and likely problematically engaged in control over their appearance before taking and sharing a picture, leading to photo manipulation strategies. Moreover, the gaze of the other might turn on the shame of insecure adolescents, leading to the need to disappear or hide

themselves behind a screen or social media profile (Pietropolli Charmet, 2018), or manipulate their self-images.

Study 3 is rooted in the objectified body consciousness framework (McKinley & Hyde, 1996). The effectiveness of this perspective in body image-related research fields has been largely confirmed. However, research concerning the relationships between this feminist framework and the use of SNSs is still lacking, whereas the relationships with problematic social networking were fully unexplored. Thus, two independent mediation models have been tested.

Consistent with the circle of self-objectification (Strelan & Hargreaves, 2005; Veldhuis et al., 2018) and previous studies from other theoretical perspectives (Casale & Fioravanti, 2017; Craparo et al., 2014; Rodgers et al., 2013), Model 1 aimed at exploring the predictive role of OBC body shame on problematic SNSs use, testing the mediating effect of body image control in photos. The findings showed that likely boys and girls who feel ashamed of their bodies avoid appearance-focused SNSs to hide themselves, using them only for manage and regulate their mood or mitigate their anxiety about self-presentation in interpersonal situations with consequently negative outcomes (Caplan, 2007). Furthermore, boys ashamed about their bodies seemed more engaged in obsessive thinking patterns related to SNSs use. However, body shame strongly predicted photo investment and control, which in turn seem to promote problematic social networking in both male and female samples, but with higher effects among girls. According to Casale and Fioravanti (2017), young people who feel ashamed about their appearance might be problematic SNSs users in order to satisfy their need to control self-presentation and facilitate social approval. Moreover, as Veldhuis et al. (2018) stated, individuals who already self-objectify might be more exposed to self-objectification experiences on social

networking sites because these online environments lead to create, manage, and promote their own images online, reinforcing self-objectification processes (Bell et al., 2018; Fardouly et al., 2015, 2017; Veldhuis et al., 2018). Consequently, these processes might increase problematic SNSs-related behaviors. Furthermore, the higher relevance of relationships between body shame and problematic social networking in female adolescents might confirm the objectified body consciousness framework's assumption that girls, more than boys, compare their bodies with cultural body standards, with consequent greater internalization and perception of these standards as a personal choice (Grabe, Hyde, & Lindberg, 2007; McKinley & Hyde, 1996). The impossible total compliance with beauty cultural standards might enhance girls' feelings of shame. Finally, in line with the classic psychoanalytic literature concerning the shame, these findings seem to confirm the pivotal role of the other's gaze (and its internalization) on female bodies (Grunberger, 1979; Margherita, Troisi, Nunziante Cesàro, 2014; Winnicott, 1971).

The present findings concerning the first model provided some novel and previously unreported issues. They demonstrated the strong association between body shame and body image control in online and offline environments. More specifically, adolescents (especially girls) who feel ashamed of their bodies (due to the discrepancy between their real body image and culturally promoted standards) appear to actively employ strategies in order to control their appearance in photos. Moreover, these results showed the unexplored effect of body shame and body image control in photos on problematic social networking, contributing to both the self-objectification research field and the ongoing debate on possible predictors of problematic SNS use.

Model 2 evaluated the predictive role of OBC appearance control beliefs on problematic SNSs use, testing the mediating effect of body image control in photos. The focus on this

OBC component is strongly significant because it is an understudied and even unexplored aspect of objectified body consciousness framework. The second model's results showed that, only among girls, believing in control over own appearance directly and indirectly (via body image control in photos) negatively predicted problematic SNSs use, likely assuming a protective function. More specifically, according to previous studies (Noser, & Zeigler-Hill, 2014; Sinclair & Myers, 2004; Taylor, 1989), girls who believed in their appearance controllability become less vigilant about their body image in photos, picture quality, their self-image promoted on SNSs, and strategies for taking, choosing, and editing their shared photos online (Boursier & Manna, 2019; Manago et al., 2015; McLean et al., 2015), likely feeling more positive and competent concerning their bodies (John & Ebbeck, 2008; McKinley & Hyde, 1996; Sinclair & Myers, 2004). Moreover, appearance control beliefs directly negatively influenced problematic SNSs use in terms of preference for online social interactions, cognitive preoccupation, compulsive SNSs use, and negative outcomes. In this regard, if negative consequences due to problematic online activities are related to the greater control that online environments provide compared to face-to-face situations (Casale, Fioravanti, & Caplan, 2016; Fioravanti et al., 2012), likely, girls who believe in their appearance control might not prefer SNSs for relational exchanges and self-presentation, reducing their deficiently self-regulated social networking and possible consequent negative outcomes. As previous studies highlighted (Laliberte, Newton, McCabe, & Mills, 2007; McKinley, 1998, 1999; McKinley & Hyde, 1996; Moradi, 2010; Sinclair, 2010; Sinclair & Myers, 2004), these findings seem to recognize sense of agency, sense of competence, perceived generalized controllability over life events, and locus of control into appearance control beliefs. Nevertheless, females' beliefs that appearance control is in their own hands might enhance other unexplored negative outcomes (Crawford et al., 2009; Schall, Wallace, & Chhuon, 2016).

The mediation model significance only among girls has led the way for further reflections about appearance control beliefs and objectified body consciousness framework. Indeed, the present findings might confirm the OCB theory that in Western societies females, more than males, are driven to consider themselves as responsible for their appearance, attempting to satisfy cultural standards (McKinley & Hyde, 1996). The consequent internalization of an outside observer's gaze might lead girls and women to perceive proposed cultural standards as generated from the self, which in turn enhance beliefs in body appearance controllability (McKinley & Hyde, 1996). Conversely, boys might perceive less responsibility concerning the bodily appearance, leading to other body image control-related strategies, such as potentially problematic appearance monitoring and photo-editing (Study 2). Furthermore, their problematic social networking might depend from other appearance-related issues, such as body shame (Model 1 of Study 3). But, the lack of mediation model invariance across genders might indicate that male and female participants differently perceived the content of the appearance control beliefs items, confirming previous literature doubts concerning the belonging of appearance control beliefs to objectified body consciousness framework (Moradi & Varnes, 2017).

These findings of the second model provided some novel and previously unreported issues. They demonstrated the understudied association between appearance control beliefs and body image monitoring in the online context. More specifically, girls who feel they can control their body image seem to be less engaged in strategies of body image control in photos. Furthermore, the present study showed the unexplored effect of appearance control beliefs and body image control in photos upon problematic SNS use. Therefore, firstly, these findings contribute to the ongoing debate regarding predictive and protective factors related to problematic social networking and confirm the pivotal role of body image-related issues in relation to SNSs use and misuse. Secondly, these findings

contribute to the self-objectification research field and the debated (and controversial) role of appearance control beliefs within the objectified body consciousness framework.

Overall, research on body image issues typically indicates that females feel less positively towards their bodies than do males (McKinley, 1998). The findings corresponding to these three studies, on the one hand, seem to confirm the more complex females' relationship with own bodies (McKinley & Hyde, 1996). Nevertheless, on the other hand, males seem to be increasingly concerned and involved in body-related activities (Vandenbosch & Eggermont, 2013), especially on social media.

5.1. Limitation and future research

Some limitations of the present research need to be addressed. Firstly, the cross-sectional rather than longitudinal designs and the specific Italian cultural context of participants involved in the study limited the ability to formally test causality of the data. Indeed, it is plausible to suppose that the relationship between social media and body image might be mutually reinforcing. As aforementioned, the adolescence in a stage of life in which individuals are required to face tremendous body changes and identity construction processes. Therefore, the teenagers' potential problematic relationship with own body image might obviously be associated with several developmental and environmental factors. However, male and female adolescents are particularly concerned about their appearance and thus more engaged in body image-focused social media activities. At the same time, social media use and corresponding activities might exacerbate teenagers' body image concerns due to the constant peer-to-peer comparison that SNSs promote (Chen et al., 2019; Perloff, 2014). Similarly, it is likely that problematic social networking and self-objectification experiences might mutually affect and reinforce each other, according to Strelan and Hargreaves' (2005) circle of self-objectification concerning the bidirectional

nature of SNSs use-self-objectification relationship. However, the carried-out analyses allow determining whether data support expected causal relationships, confirming the causal associations among selfie-expectancies, body image control in photos, and photo-editing and among OBC understudied components, body image control in photos and problematic SNSs use. Secondly, the study used a self-report survey and its potential method biases are well-known. Moreover, the present studies only explored a small number of variables in relation to the complex phenomenon of selfie-behavior. Other aspects should be explored alongside the variables investigated here. Specifically, regarding Study 2, photo manipulation and editing could be explored in association with self-objectification experiences, other body image-related issues (such as body dissatisfaction or social appearance anxiety), and other online creative or problematic activities. Concerning Study 3, despite participants reported a great preference for images-based social networking sites, this study did not focus exclusively on photographic social networking sites, such as Instagram or Snapchat. Future research should employ assessment tools specifically developed to evaluate the problematic use of social media, such as the Bergen Social Media Addiction scale (Andreassen et al., 2016; Monacis et al., 2017). Moreover, the preset study did not explore the purposes for SNSs use. Thus, future research should explore the relationships between OBC body shame and appearance control beliefs and specific body image-based SNSs, likely in association with other appearance-related issues (for example, body dissatisfaction and photo-editing). Moreover, future research might also consider other variables such as body image-related issues, personality traits and peer-to-peer friendships.

Specifically referred to OBC appearance control beliefs component, certainly, the previous controversial mix of positive, negative, or non-significant relationships between appearance control beliefs and other indicators of OBC (McKinley 1998, 1999; McKinley

& Hyde, 1996; Moradi & Varnes, 2017; Parsons & Betz, 2001) has led to a gradual disregard of appearance control belief implications also concerning body image and social media use issues. Nonetheless, as Moradi and Varnes (2017) suggested, rather than abandoning appearance control beliefs, further research is needed to refine this multidimensional construct and operationalize it by investigating understudied dimensions such as sense of agency, locus of control, and personal competence (Crawford et al., 2009; John & Ebbeck, 2008; McKinley 1998, 1999; McKinley & Hyde, 1996; Moradi & Varnes, 2017; Noser, & Zeigler-Hill, 2014; Parsons & Betz, 2001; Sinclair, & Myers, 2004).

However, interestingly the present findings have many practical implications. Firstly, they highlight the pivotal role of the control over own body image in adolescents' experiences. Indeed, on the one hand, it is an essential aspect of their online activity. However, at the same time, the body control starts a lot before posting the own photos and selfies online. Not only how adolescents relate to their body image in photos before sharing them on SNSs appears to be strongly linked to problematic social SNSs use (Cohen et al., 2018), but also how boys and girls relate to own appearance in smartphone self-camera, in the mirror, and the others gaze.

These findings might be helpful to direct future research and intervention programs. As previous studies highlighted (i.e., Fardouly et al., 2018; McLean et al., 2016; Sinslair, 2010), media literacy interventions are needed to educate adolescents about their real body image, their feelings and self-efficacy about physical appearance, culturally and peer-to-peer promoted body standards, and their sharing of photos on social networking sites. The gaze of psychologists and clinicians might be still directed not only towards images of the selves digitally generated through the social media use (King, 2016) but also towards real boys and girls, which in turn might see and recognize themselves in the experts' eyes.

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