

Edited Pictures in Social Network and Borderline Personality Organization: Focusing on Shame, Guilt, Body Image and Social Comparison

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Abstract

The habit to share edited pictures through social networks have been reported in young people and associated with psychological vulnerabilities. Seventy young women rated their perceived identification and attractiveness in original and edited pictures and completed self-report questionnaires. The research addresses the awareness and the effects of the exposure to edited pictures on guilt, shame, body image satisfaction and social comparison tendencies. Furthermore, as borderline organization might affect individual self-perception and behavior in social network, the mediating role of psychopathological traits between guilt and body image satisfaction with the perceived identification and attractiveness in original personal pictures is investigated. Results showed that a high identification in the original picture debars the perceived attractiveness in the edited ones, as well as a high identification in the most edited picture is not associated with attractiveness in the original one. Further, participants reported negative associations between the level of identification and attractiveness in the original picture and dysphoria, guilt and body image satisfaction. However, no results emerged between edited pictures and shame, guilt, body image or social comparison. Finally, the mediating role of dysfunctional personality features partially explaining the effect of guilt and body image on identification and attractiveness is showed.

Keywords: edited pictures, social networks, guilt, body image, borderline personality organization

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1 Introduction

There has been an increasing exposure to personal pictures thanks to the spread of social networks (Rainie, Brenner, & Purcell, 2012). In addition, the habit of editing pictures has become increasingly common. Filters apply physiognomic changes to hide imperfections or approach a beauty ideal (Fox et al., 2016). Exposure to edited images influences this ideal and it increases the desire to fulfill unrealistic standards by users (Sullivan, 2014). Some studies have considered psychological consequences of a massive exposure to edited pictures. Viewing edited pictures has been linked to low self-esteem and body dissatisfaction (Kleemans et al., 2018), as well as doubt and frustration (Hargreaves & Tiggeman, 2004). In line with this, social networks are a potential triggering context in individuals characterized by poor self-esteem (Kelly et al. 2018), shame (Dogan et al., 2016) and depressive symptoms (Bettmann et al., 2021). Social network issues are expected more within psychopathology, especially whether they involve emotional and interpersonal problems as in borderline personality disorder (BPD). Indeed, BPD is char-

acterized by instability of mood associated with feelings of inadequacy (APA, 2013), possibly driven by shame and guilt (Kernberg, 1967; Zanarini et al., 1998), by impaired body acceptance and awareness (Bessenoff et al., 2006; Semiz et al., 2008), a low self-esteem (APA, 2013), and deficient interpersonal functioning (Linehan, 1992; Berenson et al., 2018).

Shame is considered as a failure to meet internalized standards (Lewis, 1971) and it is associated with the tendency to compare with others (Lim & Yang, 2015). Online shaming can lead to a reduction in self-esteem, feelings of inadequacy, fear (Tangney, Miller, Flicker & Barrow, 1996), withdrawal from social life and to suicide (Mayer & Vanderheiden, 2019). Guilt is associated with regret in relation to specific behaviors and to reparative conducts (Tracy and Robins, 2004). Interestingly, the association of guilt and shame is a predictor of social network sites usage (Doğan, Çelik, & Karakaş, 2016) and high levels of shame and guilt are negatively associated with self-esteem (Pila et al. 2015). Moreover, guilt and shame have been linked to body satisfaction (Conradt et al., 2007; Pila et al. 2015). Negative body image reflects an association of social networks with dysphoria

(Kelly et al., 2018) and with the common “appearance exposure” (Meier & Gray, 2014). As a final point, social comparison with peers has been shown positively associated with social network addiction and negatively to self-esteem (Kim et al., 2021). The aim of the research is to understand whether shame, guilt, dysfunctional body awareness and social comparison represent vulnerabilities affecting the processing of social network and edited pictures worsened by high scores to BPD traits.

One previous empirical study has investigated how BPD interpersonal interactions on social media may be dysfunctional (Ooi et al., 2020). Participants with BPD reported greater regret after posting more frequently compared to the control group. Previous studies showed that the presence of BPD traits could influence individuals’ interaction in social networks, leading to addictive behaviors, negligence of interests of real social relationships, and isolation (Wegmann, Stodt, & Brand, 2015). In line with this, BPD patients’ avoidance of close relationship might reflect perceived internal and external inadequacy, that might be associated with sense of guilt, as well as dysfunctional body image perception, self-identification, and attractiveness. The second aim of the research is to analyze whether BPD traits and the fear of close relation mediate the association between guilt and body image with identification and attractiveness in personal pictures, respectively. However, few studies approached the topic and no research investigated about the role of image-sharing behaviors in general population and in specific BPD traits.

Starting from these premises, the presented study investigates these psychological variables through a task with edited and original personal pictures. We predicted that the identification and self-perceived attraction in their own original or edited photographs are associated and correlated with psychological variables of shame, guilt, body awareness and social comparison. Depressive symptoms are investigated as potentially associated with feelings of worthless and negative self-perception. Moreover, BPD features are expected to be associated with the overmentioned psychological variables and they might mediate some of these correlations. Specifically, we hypothesized:

- a) negative associations between identification in the original picture (real self-image) and identification in the filtered picture (ideal self-image); negative associations between identification in the original picture and attractiveness in the original and in edited pictures; lastly, positive associations between identification and attractiveness in edited pictures.
- b) negative associations between identification and attractiveness in the original picture and feelings of shame and guilt, impaired body image and social comparison.
- c) positive association between identification and attractiveness in the filtered pictures and the aforementioned variables.
- d) BPD features and fear of relationships will mediate the association between identification and attractiveness in all pictures with levels of shame and guilt, negative body beliefs and social comparison tendencies, respectively.

2 Methods

Participants

Seventy voluntary female adolescent and young adults (M age = 22.74, SD = 2.84) are included in the study. Data were collected between December 2020 and March 2022. Participants were selected according to the following criteria: female gender; aged between 18-30 years old; absence of intellectual disability, alcohol and/or substance use, psychopharmacological treatments and psychiatric disorders. Socio-demographic variables are assessed. All participants gave their written consent to participate in the study after it had been explained to them. They agreed to complete questionnaires and to provide a personal picture. None of the participants were paid either directly or indirectly to participate in the study. This study is conducted adhering to the American Psychology Association code of conduct.

Instruments

State Shame and Guilt Scale (SSGS-8, Cavallera et al., 2017). Four items are selected for each of the two subscales: shame and guilt, rated on a 5-point Likert scale. Shame subscale showed Cronbach’s α = .82 and guilt subscale Cronbach’s α = .87.

Netherlands Comparison Orientation Measure (INCOM) is a scale of social comparison (Gibbons & Buunk, 1999) consisting of 11 items, measured with a 5-point Likert scale. There are two subscales: the first one reflects an interest in ability-related social comparisons, and the second opinion-based social comparisons. As a single scale, the INCOM has excellent internal reliability (Cronbach’s α = .90).

Body Image States Scale (BISS, Cash, et al., 2002) is a 6-item questionnaire, correlated with trait measures of body image. It is sensitive to reactions in positive (versus negative) situational contexts. The scale showed good internal consistency (Cronbach’s α = 0.83).

Borderline Personality Inventory (BPI, Leichsenring, 1999) is a 53-item questionnaire, based on Kernberg’s (1984) concept of borderline personality organization, used as a screening instrument; it is divided in four subscales (Identity Diffusion, Primitive Defense Mechanisms, Reality Testing and Fear of Close Relation). The reported Cronbach’s α for each subscale is between 0.68-0.91.

The Beck Depression Inventory-II (BDI-II, Beck et al., 1996) is a 21-item self-report inventory measuring the state depression severity. The Cronbach’s alpha for the BDI-II total score was 0.89.

Procedure

Participation occurred in two stages. In the first stage, a link with BDI and BPI questionnaires was administered. Subjects send a personal picture (colloquially called “selfie”) to the research team via their smartphone. Participants were asked to take a picture in 16:9 format, framing the face, without filter or any modification. The experimenter used a smartphone app named *Face-app* to modify participants’ pictures, creating three versions of

the selfie. In the Slightly Edited condition (Picture 1), the selfie was edited by ½ unit thin face, 1 unit narrowing of the nose, and ½ unit beauty filter. In the Fairly Modified condition (Picture 2), the selfie was edited by ½ unit thin face, 1 unit narrowing of the nose, ½ unit beauty filter, 1 unit mouth enlargement, and 1 unit smooth skin. Finally, in the Heavily Edited version (Picture 3), the selfie was edited by 1 unit slim face, 1 unit narrowing of the nose, 1 unit eye enlargement, 1 unit mouth enlargement, 1 unit beauty filter, and 1 unit smooth skin. In addition, eventual imperfections (e.g., skin impurities, acne, scars) are removed in all the edited images. See Figure 1 for an example of heavily edited picture.

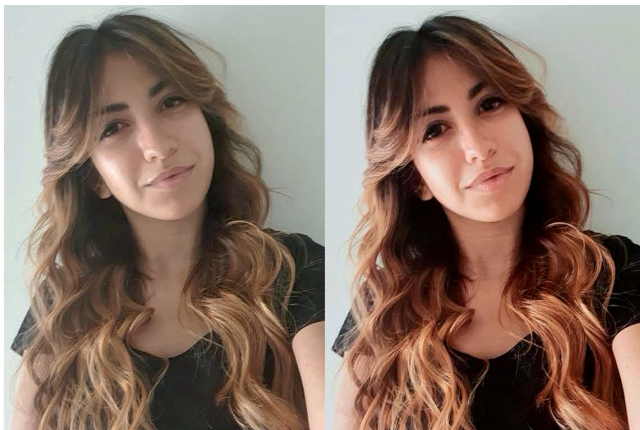


Figure 1. Examples of a participant’s original picture (left) compared with picture 3 (right).

All original and edited pictures were uploaded on a digital platform generating an experiment link. The four pictures were presented in randomized order and participants were asked to rate the degree to identification with and the attractiveness of each image on an 8-point Likert scale (from 1= “not at all” to 8 = “extremely”).

After rating all images, questionnaires assessing shame and guilt (SSGS-8), social comparison (INCOM) and body image (BISS) were given. Finally, qualitative questions about social networks habits were asked to explore this issue and to exclude participants who did not use social network. In particular, variables as the type of social networks used, the average time and moment of the day spent using social networks, which functions are they used for and if participants edited their pictures, were asked.

Statistical analysis

Non-parametric procedures are proposed to analyze data. Spearman’s correlations evaluated associations between identity and attractiveness scores, self-report questionnaires and task responses. For each correlation computed, we used a simple bootstrap to estimate confidence limits (Chernick, 1999). Due to possible confounding effects of age and education level on selected variables, correlations with shame, guilt, body image, social comparison, and BPD trait were conducted. Finally, two mediation models through SPSS PROCESS toolbox (Hayes, 2018) were im-

plemented. Specifically, the mediation Model 4 was chosen to assess direct, indirect, and total effects. Guilt and body image were entered as independent variables. Identification and attractiveness in the original picture were entered as dependent variables. BPD traits were classified as possible mediators. Bonferroni’s correction was applied to post-hoc multiple comparisons.

3 Results

Original and edited pictures: Associations between identification and attractiveness scores.

Considering original and edited pictures (Picture 1, 2, 3) and their relation to identification and attractiveness, descriptive analysis (Table 1) and Spearman correlations (Table 2) are reported. Overall, identification and attractiveness in the original pictures resulted positively associated to edited ones (Picture 1, 2, 3) although the associations were not always significant.

Table 1. Descriptive statistics related to identification and attractiveness in original pictures and edited pictures (picture 1, picture 2 and picture 3).

	N=70	
	Identification	Attractiveness
Original Picture	7.343 (1.587)	4.786 (1.718)
Edited Picture 1	7.014 (1.805)	4.714 (1.827)
Edited Picture 2	6.457 (2.205)	4.857 (1.994)
Edited Picture 3	5.000 (2.340)	4.329 (2.124)

Table 2. Spearman correlation between Identification and Attractiveness.

	N=70			
	Identi- fication Original Picture	Identi- fication Edited Picture 1	Identi- fication Edited Picture 2	Identi- fication Edited Picture 3
Attractiveness Original Picture	.395*	.335	.330	.258
Attractiveness Edited Picture 1	.422*	.533*	.425*	.332
Attractiveness Edited Picture 2	.368	.481*	.587*	.458*
Attractiveness Edited Picture 3	.271	.437*	.470*	.655*

Note: all provided statistical values refer to rho (r)

* p<.001 Significant after Bonferroni correction

Identification and attractiveness: Relationships with shame, guilt, social comparison, and body image.

The identification in original pictures was negatively associated with the level of self-reported guilt ($r = -.329, p = .006$). Identification with the original and all edited pictures was not significantly associated either with shame, social comparison, or body

image scores. A significant association between attractiveness ratings of the original picture and body image total score was found ($r = .347, p = .003$). The perceived attractiveness of edited pictures was not associated with shame, guilt, or social comparison. All correlations are reported in Table 3.

Table 3. Spearman correlation between Identification and Attractiveness in Original Picture, Picture 1, Picture 2, Picture 3 with BPI, SSGS-8, INCOM, BISS.

N=70					
	SSGS-8 Shame	SSGS-8 Guilt	Social Comparison (INCOM Total Score)	Body Image (BISS Total Score)	BPI Total Score
Identification Original Picture	-.217	-.329*	-.165	.048	-.256*
Identification Edited Picture 1	-.137	-.178	-.043	.100	-.232
Identification Edited Picture 2	-.055	-.182	-.109	.055	-.229
Identification Edited Picture 3	-.119	-.116	-.019	.185	-.319*
Attractiveness Original Picture	-.099	-.236	-.015	.347*	-.300*
Attractiveness Edited Pic 1	-.085	-.180	-.203	.045	-.229
Attractiveness Edited Pic 2	-.075	-.197	-.110	.035	-.222
Attractiveness Edited Pic 3	-.065	-.176	-.213	.034	-.217

Note: all provided statistical values refer to rho (r)

* $p < .01$, ** $p < .001$ Significant after Bonferroni correction

Identification and Attractiveness: their relation to personality traits and dysphoria.

Identification in the original picture showed significant association to BPI total score ($r = -.256, p = .004$). Furthermore, the identification in Picture 3 showed negative association with BPI total score ($r = -.319, p = .008$). BPI total score correlations with identification and attractiveness in original and edited pictures are reported in Table 3. Attractiveness in the original selfie was associated with the Fear of Closeness subscale ($r = -.359, p = .002$). Attractiveness in the original picture showed a significant negative association with BDI total score ($r = -.300, p = .02$). All other data (identification in edited pictures and attractiveness in edited pictures) did not show significant associations.

Borderline Personality Traits: relations to Shame, Guilt, Social Comparison and Body Image.

BPI total scores as well as identity diffusion, primitive defence mechanisms, and fear of close relation subscales were positively associated with shame and guilt. Identity diffusion and primitive defence mechanisms and BPI total score were positively associated with social comparison and negatively associated with body image. Also, fear of close relation subscale results related to body image (Table 4).

Table 4. Spearman correlation between BPI, SSGS-8, INCOM, BISS.

	N=70			
	SSGS-8 Shame	SSGS-8 Guilt	Social Comparison (INCOM Total Score)	Body Image (BISS Total Score)
BPI Total Score	.607**	.438**	.432**	-.385**
Identity Diffusion (BPI)	.633**	.345*	.404**	-.333*
Primitive Defence Mechanisms (BPI)	.505**	.315*	.441**	-.459**
Reality Testing (BPI)	.206	.064	.144	-.239
Fear of Closeness (BPI)	.493**	.369*	.256	-.369*

Note: all provided statistical values refer to rho (r)

* p<.01, ** p<.001 Significant after Bonferroni correction

Borderline Personality Traits as mediators.

Two mediation models are presented to explore whether a psychopathological organization mediates the relation between guilt and identification, and between dysfunctional body image and attractiveness.

a) The first mediation model tested the mediation effect of BPI total score on the relationship between guilt and identification with the original picture. Guilt significantly predicted BPI total score, unstandardized path coefficient = 7.278, p <.001. In turn, BPI total score significantly predicted identification in the origi-

nal picture, unstandardized path coefficient = -.029, p <.05. The total unstandardized effect of guilt on identification was -.453, p <.01. BPI total score significantly mediated the relationship between guilt scores and identification in the original picture scores, a x b = -.208, 95% CI: -.46 -- .02. After accounting for the indirect effect, the direct effect of guilt became non-significant, unstandardized path coefficient = -.245, p =.199. The BPI score effect size measure for this total mediation effect is .07, i.e., 7% of the association between guilt and identification in the original picture scores can be attributed to BPD traits (Figure 2a.).

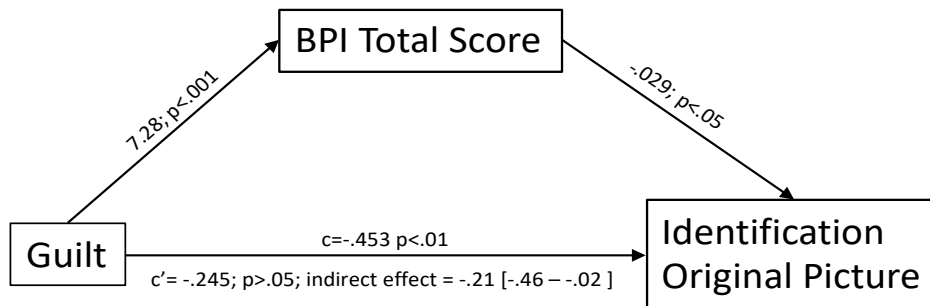


Figure 2a. The mediating role of borderline personality organization on the perceived identification in the original pictures (N =70). BPI= Borderline Personality Inventory.

b) The second mediation model investigated the mediation effect of BPI Fear of Closeness subscale on the relationship between body image scores (i.e., BISS total score) and attractiveness ratings of the original picture. Body image significantly predicted Fear of Closeness, unstandardized path coefficient = -.664, p <.01. In turn, Fear of Closeness scores significantly predicted attractiveness ratings of the original picture, unstandardized path coefficient = -.148, p <.05. The total unstandardized effect of the body image on attractiveness in the original picture

is .362, p <.01. BPI Fear of Closeness significantly mediated the relationship between body image and attractiveness in the original picture scores, a x b = .098, 95% CI: .004--.117 and the direct effect of body image remained significant, unstandardized path coefficient = .264, p <.05. The BPI subscale effect size measure for this total mediation effect is .08, i.e., 8% of the association between body image and attractiveness in the original picture scores can be attributed to BPD traits (See Figure 2b.).

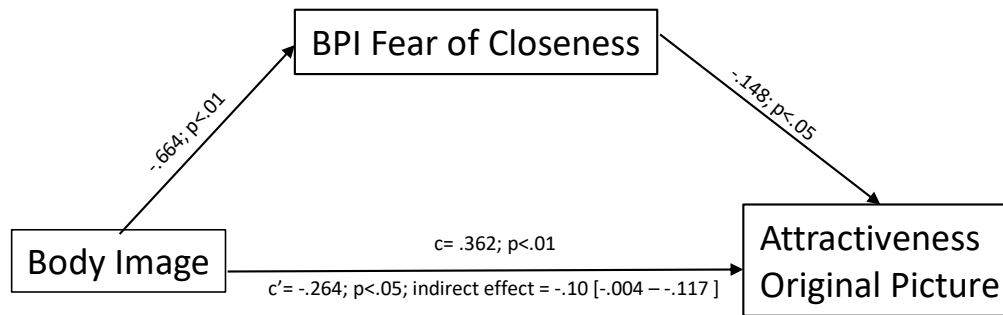


Figure 2b. The mediating role of borderline personality organization subscale “fear of closeness” on the perceived attractiveness in the original pictures ($N = 70$). BPI= Borderline Personality Inventory.

Age and education level.

No significant differences in the associations between identification nor attractiveness (in original and edited pictures) emerged with shame, guilt, body image or social comparison questionnaires considering age and education level as covariates.

4 Discussion

This study investigated whether identification and attractiveness in filtered images and original ones are: related to each other (a), and associated to shame, guilt, body image, social comparison (b and c) in a pool of young women. We expect that identification and attractiveness in the original picture will be negatively related to the aforementioned variables (b), while high identification and attractiveness in the filtered picture will be positively associated with them (c). Finally, we explored if BPD dysfunctional traits as social isolation and fear of relationships mediated the association between identification and attractiveness in original pictures with levels of shame, guilt, negative body beliefs and social comparison tendencies reported by participants (d).

Correlations between identification and attractiveness show that in all the four pictures the two variables are positively, but not always significantly, associated. A high identification in the original picture debarbs the perceived attractiveness in the edited ones, as well as a high identification in the most edited picture is not associated with attractiveness in the original one. So, there are influences in the reciprocal association between the two variables depending on how much the subject recognizes herself in original or edited pictures. This data may say that once a young woman identifies in edited pictures her ideal beauty is markedly different from her real appearance. Literature claims that there is a risk for vulnerable individuals with high social comparison tendencies to fall victims of media unrealistic standards (Kleemans et al., 2018). Moreover, the use of social networks brought generation Z to a decline in face-to-face communication (Turner, 2015). For these reasons, the large use of them among young women (Seetharaman, 2015) stresses the importance of studying the effects of exposure to this virtual environment. Interestingly

a meta-analysis demonstrates that higher impact on body image satisfaction is mostly related to the view of contents posted by common users and peers (Huang et al., 2020), accordingly these might contribute to body satisfaction and social comparison. In the presented study, social comparison was not associated either with identification or with attractiveness of pictures. This result might be explained because the experimental stimuli consisted of judging personal pictures without the interactive behaviours with others. However, data partially confirms the research predictions that identification in the original picture resulted is negatively related to guilt. As guilt score is inversely related to identification in the original picture, it might be that high identification in personal pictures leads to low level of guilt. This result might say that an awareness of personal real self-image is associated with absence of guilt feelings. Attractiveness in the original picture resulted positively related to body satisfaction. It might be that body satisfaction is a protective trait against unrealistic beauty. Both identification and attractiveness in the original picture were negatively associated with depression. People with depression may feel like they are worthless, and they may not see positive qualities in themselves. Interestingly, obtained results suggest that identifying with the real image and finding this image attractive is a protective factor against depressive symptoms (Garvin et al., 2008). Finally, identification and attractiveness in the edited pictures did not show associations with any of the selected variables.

Regarding borderline organization, Kernberg’s model of BPD is considered with BPI questionnaire (Leichsenring, 1999). The research hypothesis considers dysfunctional psychological traits (higher BPD features) to be related to a higher identification and attractiveness in edited pictures compared to the original one. Moreover, higher BPD scores should be associated with higher levels of shame, guilt, social comparison and body image. Contrary to the advanced predictions, both identification in the original picture and in the most edited one resulted negatively related to BPI scores. Although we did not find discrepancies between the presence of BPD features and identification in edited or original pictures, this is consistent with the assumption that BPD may be associated with a pervasive dysfunctional iden-

tity and poor body awareness (Govern & Marsch, 2001). On the other part, as expected, BPD features resulted related to shame, guilt, dysfunctional social comparison and body dissatisfaction. These results are in line with the expectations, as BPD manifest a lack of body awareness and satisfaction (Bessenoff et al., 2016; Semiz et al., 2008), interpersonal difficulties (Salzer, et al., 2013), and it is potentially related to social comparison and rejection sensitivity (Foxhall et al., 2019). Interestingly, according to the examined scientific background, there is no accordance on guilt. Some authors claim that these patients are not used to experience guilt (Kernberg, 1967) but recent evidence supports dysfunctional behaviour in dealing with it (Gottlich et al., 2020), in line with the obtained results of the presented study.

Considering obtained results with specific features of Borderline organization, BPI fear of closeness assesses behaviors of avoidance in close relationship and it is negatively related to attractiveness in the original picture and to body satisfaction. These results may show that high presence of BPD is reflected in impaired self-esteem (attractiveness) and in personal recognition (identification).

Examining aspects of guilt and body image, significant mediation of BPI features on identification and attractiveness emerged. The influence of guilt on identification in the original picture is reduced, as obtained data show a total mediation of BPD features. In particular, high levels of guilt are associated with high scores in BPD features that predict a poor image identification. These data support the hypothesis that BPD organization have a paramount role in the degree of self-recognition in the original picture. A second mediation model showed that the fear of close relation mediates the association between body satisfaction and perceived attractiveness. Taken together, the results are in line with literature showing that BPD symptomatology is associated with body dissatisfaction (Sansone et al., 2010), to body dissociative symptoms (Bekrater-Bodmann et al., 2016) up to the worsen cases of comorbidities with dysmorphic disorders (Semiz et al., 2008). It is interesting that the first model shows a mediation of the totality of BPD features in the deficient identification of the subject and in the linked experience of guilt. The second model points out that is specifically the fear of closeness that explain the relation between perceived attractiveness and body satisfaction. This is in line with the need of self-esteem to look for relationship and avoid social isolation.

An important aspect to consider is the role of the participants' developmental phase on the presented results. Given the associations between BPI scales and age variable, concerns on results interpretation may include the transience of maladaptive borderline traits in youth given that personality is not fully developed. According to this view, current results should be interpreted as transient and not maintained into adulthood. However, partial correlations were conducted with age as controlled variable. Results showed that BPI is associated with guilt, body image and social comparison independently from age effects. This is in line with the common agreement within clinicians that a predictive diagnosis of psychopathological functioning

and organization is also possible in youth and adolescence and not only in adult individuals (Winsper et al., 2016).

Limitations of the current study are that the sample was composed exclusively by woman, due to the differences in editing pictures between male and female subjects. Further, the different quality of pictures is due to the variety of cameras. The time interval between the first and the second phase of the experiment is not the same for all participants (ranging from 3 to 14 days). Furthermore, body image comparison has not been properly assessed: the selected instruments assessing body image and social comparison (BISS and INCOM) should had provided more specific information regarding the processes and motivators of personal image comparisons with others. Of importance, all the reported results should be interpreted correlationally only and not causally.

To conclude, it could be that BPD influences the level of identification and attractiveness in personal pictures. High levels of fear of relations might mediate body satisfaction and perceived attractiveness, possibly enhancing avoidance of others. As a whole, results demonstrate associations between identification and attractiveness in edited and original pictures. Dysfunctional traits as guilt, body image and dysphoria are significantly associated with identification and attractiveness in pictures. These results are more significant when considering condition with altered interpersonal functioning and body awareness. Finally, BPD features mediate either the relation between guilt and identification and the association between body image and attractiveness in original pictures. These aspects need further examination in relation to interpersonal interactions within social networks.

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