TITLE: Roles of body image-related experiential avoidance and uncommitted living in the link between body image and women's quality of life

RUNNING HEAD: Body image and women's quality of life

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Abstract

The current study aimed to test whether the associations of body mass index, body image discrepancy, and social comparison based on physical appearance with women's psychological quality of life (QoL) would be explained by the mechanisms of body image-related experiential avoidance and patterns of uncommitted living.

The sample was collected from October 2014 to March 2015 and included 737 female college students (aged between 18 and 25 years) who completed validated self-report measures.

Results demonstrated that the final path model explained 43% of psychological QoL and revealed an excellent fit. Body image-related experiential avoidance had a meditational role in the association between body image discrepancy and psychological QoL. Further, the link between social comparison based on physical appearance and psychological QoL was partially mediated by body image-related experiential avoidance and uncommitted living.

These findings indicate that the key mechanisms of the relationship between body image and young women's QoL were those related to maladaptive emotion regulation. It thus seems that interventions aiming to promote mental health in this population should promote acceptance of internal experiences related to physical appearance (e.g., sensations, thoughts, or emotions) and the engagement in behaviours committed to life values.

Key-words: psychological quality of life; body image-related experiential avoidance; uncommitted living; social comparison based on physical appearance; body image.

Introduction

Body image has been considered a major concern for women in today's Western societies (Mond et al. 2013). The frequent perception of having a different body from the "ideal" thin figure, often overvalued by the society and the media, may be a source of great emotional distress (Mond et al. 2013; Sypeck et al. 2006). Also, body image difficulties do not

seem to be experienced only by overweight or obese women and are also very prevalent among women with normal or even low weight (e.g., Rozin, Bauer, and Catanese 2003). Further, unfavorable social comparisons (i.e., the tendency to see oneself as inferior or flawed in comparison with others) also extremely frequently among females, especially when these comparisons are based on physical appearance (e.g., Ferreira, Pinto-Gouveia, and Duarte 2013).

In accordance with the evolutionary perspective, due to the advantages of living in groups and the dangers of social isolation, humans have evolved to be particularly sensitive to cues of criticism and social rejection (Gilbert 2005). This may explain humans' need to strive to present characteristics that are valued by others and to conceal features that may be perceived as unattractive (Gilbert 2002). Given that body image plays a central domain for females' self and social evaluation, women tend to compare themselves physically with other women to assess potential risks of criticism and rejection (Ferreira et al. 2013). Nevertheless, research has documented that social comparisons through physical appearance among women are often associated with feelings of inferiority and inadequacy and consequently with negative affect and defensive responses (Ferreira et al. 2013; Pinto-Gouveia, Ferreira, and Duarte 2014).

In fact, due to the high prevalence among women of body image difficulties and given their negative relation to several dimensions of quality of life (QoL), which have been associated with lower psychosocial functioning, this is a relevant public health problem (Mond et al. 2013). Furthermore, body image difficulties are predictive of a variety of negative health outcomes, such as depressive and eating psychopathology (e.g., Neumark-Sztainer, Paxton, Hannan, Haines, and Story 2006).

Recent studies have then suggested that the relation of internal experiences (perceptions, sensations, and thoughts) to one's well-being may be explained by the way a person deals with those experiences, i.e., by the involved emotion regulation processes (Segal, Williams, and

Teasdale 2002). In fact, according to the Acceptance and Commitment Therapy (ACT) model, the relation of body image difficulties to one's psychological functioning may result from the harmful effect of psychological inflexibility (Ferreira, Pinto-Gouveia, and Duarte 2011; Sandoz, Wilson, Merwin, and Kellum 2013). This process is usually referred to as the inability to contact the present moment fully and to adopt or persist in behaviors that are contradictory to chosen life values (Hayes, Strosahl, and Wilson 1999).

Psychological inflexibility comprises experiential avoidance, an emotional regulation process that entails unwillingness to contact openly with internal experiences (e.g., bodily sensations, emotions, thoughts, memories), specifically those perceived as unwanted, which one tries to avoid or control so as to modify their rate, intensity or form (Hayes, Wilson, Gifford, Follette, and Strosahl 1996). An individual struggling with unwanted body image-related thoughts (e.g., "I'm too fat"; "My friends look better than me") might, for example, attempt to control the occurrence of those thoughts due to the suffering they may cause. Nevertheless, although this strategy may have temporary consequences that are perceived as positive by the individual, in the long term, these avoidance strategies are paradoxically harmful, as internal experiences are frequently amplified by control efforts (Hayes et al. 1996). Moreover, due to its avoidance and control features and contradictory consequences, this process often leads to a rigid and small range of possible actions and usually restrains one from behaving accordingly to personal values and objectives. For instance, in line with the attempts to control given thoughts, one may choose to avoid valued activities, such as gatherings with friends and other social events (e.g., going to the beach or the gym). This process is called uncommitted action, arising when one tries to control and avoid uncomfortable internal experiences, leading to tendencies to act uncommittedly or inconsistently with the valued life one desires to pursue (e.g., being a good friend; being healthy) (Hayes et al. 2006). Consequently, these behavior patterns can lead to patterns of uncommitted living, namely to

confusion in defining values and to actions incongruent with valued life directions, preventing one from living a truly meaningful life and potentially leading to lower life satisfaction and impaired psychosocial functioning (e.g., Trompetter et al. 2013).

Although research about experiential avoidance and uncommitted living has been increasing, the role of these processes in the interactions between body image and well-being has, to our knowledge, never been explored. That, therefore, was the purpose of the present study. We hypothesized that the pervasive relations of body-related variables (body mass index, body image discrepancy, and social comparison based on physical appearance) to women's quality of life (QoL) may be explained through the mechanisms of experiential avoidance related to those body-related experiences and the associated process of uncommitted living.

Material and methods

Procedures

The sample for the present study was collected from October 2014 to March 2015 and included undergraduate and graduate students (from degrees such as Psychology, Education Sciences, Economy, Biology, Civil Engineering, Mechanical Engineering, and Physics) who were recruited in several Portuguese university or college educational institutions. The research protocol was approved by the Ethics Committees of these institutions and by the professors in charge of the classes selected by the institution of take part in the recruitment for the present study. All female students enrolled in those classes were approached in the end of a given lecture and informed about the study's nature, confidentiality and voluntary character. Furthermore, participants who agreed to participate gave their written informed consent and

received extra credit. The self-administration of the battery of instruments took 10 minutes and was performed in the presence of one of the researchers.

Overall, approximately 1500 female students were approached, and 1100 agreed to participate in the study. Of the 1100 that agreed to participate and completed the research protocol, 363 respondents were excluded from the present study due to one or more of the following reasons: reporting having a chronic illness or psychiatric condition, and/or having 15% or more missing responses on a scale.

Measures

Demographic Data. Participants reported their current age, height, and current and desired weight.

Body Mass Index (BMI) was calculated from the Quetelet Index from participants' self-reported height and weight (Kg/m^2).

Figure Rating Scale (FRS; Thompson and Altabe 1991; Portuguese validation by Ferreira 2003). The FRS is a measure of body image discrepancy. It comprises nine human figures with different sizes (1: thinnest; 9: largest), from which the participant is asked to select the ones that best represents their current and desired body shape. Body image discrepancy is assessed by the difference between those selections. This scale has good psychometric features, presenting high test-retest reliability and correlations with measures of body image disturbance and eating psychopathology (Thompson and Altabe, 1991).

Social Comparison through Physical Appearance Scale (SCPAS; Ferreira et al. 2013). The SCPAS assesses the subjective perception of social standing based on physical appearance. Participants are instructed to select a number from a 10-point scale, which best translates the way they physically compare themselves to other people. In the first part, the participants are asked to compare themselves with friends, colleagues and other same-sex acquaintances, while

the second part refers to comparisons with models, actresses or other celebrities. Higher scores reveal more favorable social comparisons. Both the first and second parts of the scale have had high internal consistencies in the original study (α = 0.94 for the first and α = 0.96 for the second parts). For the purpose of the current study, only the first part was used.

Body Image – Acceptance and Action Questionnaire (*BI-AAQ; Sandoz et al. 2013; Portuguese validation by Ferreira et al. 2011*). The BI-AAQ is a 12-item self-report instrument which assesses body image-related experiential avoidance on a 7-point scale (e.g., "If I start to feel fat, I try to think about something else"; "I will have better control over my life if I can control my negative thoughts about my body"). Higher scores reflect higher levels of experiential avoidance associated with body image. This measure revealed very good internal consistencies in its original (α = 0.93) and Portuguese validation studies (α = 0.95).

Engaged Living Scale (ELS; Trompetter et al., 2013; Portuguese validation by Trindade, Ferreira, Pinto-Gouveia, and Nooren 2015). The ELS is a self-report measure of engaged living as conceptualized in Acceptance and Commitment Therapy (ACT). Its responses comprise a 5-point Likert scale, and distributed over two subscales: Valued Living - defined as clarity of personal values and behaving accordingly to them (e.g, "I believe that my values are really reflected in my behaviour"; "My emotions don't hold me back from doing what's important to me") -, and Life Fulfilment - defined as a sense of fulfilment in life as a result of acting accordingly with personal values. In this study, only the first subscale was used, which was reverse coded to assess participants' level of uncommitted living. Furthermore, the 9-item version of the ELS was used and has been shown to have adequate psychometric features (α_{VL} = 0.76; Trindade et al., 2015).

World Health Organization Brief Quality of Life Assessment Scale (WHOQOL-BREF; WHOQOL Group 1998; Portuguese validation by Canavarro et al. 2007). This measure assesses the level of perceived quality of life (QoL) in four broad domains (physical health,

psychological health, social relationships, and environment). Higher scores represent higher subjective QoL. The WHOQOL-BREF revealed adequate psychometric properties in its original (*α*s between 0.66 and 0.84) and Portuguese validation studies (*α*s between 0.67 and 0.87).

The Portuguese versions of administered instruments were previously validated in samples with similar characteristics of this study's sample and showed adequate Cronbach's alphas in the current study (Table 1).

Analytic Strategy

Descriptive analysis and *Pearson correlation analyses* were performed (Cohen, Cohen, West, and Aiken 2003).

Furthermore, to calculate the presumed relationships between the study variables, a series of *path analyses* (MacKinnon 2008) were conducted through AMOS software (Arbuckle 2006). These analyses aimed to examine whether the associations between BMI, body image discrepancy and social comparison based on physical appearance (exogenous variables), and psychological QoL (endogenous variable) were mediated by body image-related experiential avoidance and uncommitted living (endogenous mediator variables). Maximum Likelihood estimation was used to calculate the significance of the regression coefficients.

Three variables - age, educational level and residential area (urban or rural) - were controlled in a saturated model to examine their effect on the model's dependent variables. These variables were considered confounding variables if they were significantly related with the outcomes (Elwert, 2013).

The plausibility of the model was examined through a set of goodness-of-fit indices: the chi-square goodness-of-fit (which presents a good adjustment when non-significant; Hair et al., 1998), the Root Mean Squared Error of Approximation (RMSEA; which represents an

excellent fit when values are inferior to 0.03; Hooper et al., 2008), and the Comparative Fit Index (CFI) and the Tucker and Lewis Index (TLI) which reveals a good model fit when values are superior to 0.95 (Hooper et al. 2008; Hu and Bentler 1999). The significance of the paths was analyzed through the Bootstrap resampling method with 5000 samples and 95% bias-corrected confidence intervals (CI) around the effects' standardized estimates. The effect was considered significant when zero is not included within the CI.

Results

Participants

Participants comprised 737 Portuguese female college students, aged between 18 and 25 years (*Mean* = 21.78; *SD* = 2.89 years), who had completed education varying from 12 to 17 years (*Mean* = 13.27; *SD* = 1.48 years). Further, 442 participants lived in an urban area, while 295 lived in a rural region. Participants' BMIs ranged from 14.57 to 33.87 (*Mean* = 21.78; *SD* = 2.89), with a normal distribution, reflecting the BMI distribution in the Portuguese general population (Poínhos et al. 2009). Indeed, the current sample comprised 76 (10.31%) underweight (BMI < 18.5), 560 (75.98%) normal-weight (18.5 ≤ BMI < 25), 91 (12.35%) overweight, and 10 (1.36%) obese participants (BMI ≥ 25).

Preliminary data analysis

The absence of extreme outliers of the data was confirmed by the Mahalanobis distance statistic. Furthermore, all variables presented VIF values lower than 5, revealing the absence of multicollinearity. Moreover, it was also confirmed that data did not present a serious deviation from a normal distribution (SK < |3| and Ku < |8-10|; Kline, 2005).

Unadjusted Correlations

Results from unadjusted correlation analyses (Table 1) revealed that psychological QoL was associated with all the other variables. Indeed, psychological QoL presented a positive relationship with favorable social comparisons based on physical appearance and negative associations with BMI, body image discrepancy, body image-related experiential avoidance, and uncommitted living. In turn, uncommitted living was linked to higher levels of body image-related experiential avoidance and to unfavorable social comparisons through physical appearance. This last variable was also associated with BMI, body image discrepancy, and experiential avoidance was related to body image, which all revealed positive associations with each other.

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Path analyses

The path model aimed to explore whether BMI, body image discrepancy, and social comparison based on physical appearance (independent variables) was associated with psychological QoL through the mediating mechanisms of body image-related experiential avoidance and uncommitted living. First, a saturated model (i.e., with zero degrees of freedom), controlling for age, educational level and residential area was tested to examine the potential role of these variables in the path model. Results revealed that these variables were not significantly associated with the dependent variables and therefore were removed from subsequent analyses.

A new saturated model comprising 30 parameters was thus examined. The analysis of the saturated model revealed that several path coefficients were not statistically significant and therefore were progressively removed from the model: the relationship between body image

discrepancy and uncommitted living (b_{FRS} = -0.00; *S.E.* = 0.12; *Z* = -0.04; *p* = 0.971), the relationship between body image discrepancy and psychological QoL (b_{FRS} = -0.15; *S.E.* = 0.51; *Z* = -0.30; *p* = 0.765), the relationship between BMI and uncommitted living (b_{BMI} = -0.03; *S.E.* = 0.03; *Z* = -0.83; *p* = 0.408), and the relationship between BMI and psychological QoL (b_{BMI} = 0.14; *S.E.* = 0.14; *Z* = *0*.99; *p* = 0.323).

The final adjusted model (Figure 1) explained 43% of psychological QoL, 24% of body image-related experiential avoidance and 9% of uncommitted living, and presented an excellent model fit to the empirical data (Kline 2005). Indeed, the analysis revealed a non-significant chi-square of $\chi^2(4) = 1.75$, *p* = 0.438, and the following goodness-of-fit indices: CFI = 1.00; TLI = 1.00; RMSEA = 0.00, *p* = 0.986, C.I. from 0.00 to 0.04.

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Furthermore, all individual path coefficients were in the expected directions. BMI was linked to body image-related experiential avoidance with a small effect of 0.09 (b_{BI-AAQ} = -0.28; *S.E.* = 0.03; *Z* = -10.23; *p* < 0.001), and had an indirect association (β = 0.03) with psychological QoL through body image-related experiential avoidance (95% C.I. = -0.05 to -0.00; *p* < 0.001).

Additionally, body image discrepancy was directly related to body image-related experiential avoidance (β = 0.32; b_{FRS}= 4.72; *S.E.* = 0.59; *Z* = 7.95; *p* < 0.001), which in turn mediated the indirect association between body image discrepancy and psychological QoL (β = -0.10; 95% C.I. = -0.13 to -0.07; *p* < 0.001).

Social comparison based on physical appearance was also directly related to body image-related experiential avoidance (β = -0.23; b_{SCPAS} = -0.27; *S.E.* = 0.04; *Z* = -7.07; *p* < 0.001), to uncommitted living (β = -0.29; b_{SCPAS} = -0.06; *S.E.* = 0.01; *Z* = -8.31; *p* < 0.001).

Moreover, social comparison through physical appearance was associated with psychological QoL with a total magnitude of β = 0.46, corresponding to a direct β of 0.29 (b_{SCPAS} = 0.32; *S.E.* = 0.03; *Z* = 9.60; $p < 0.001$) and an indirect β of 0.17 (95% C.I. = 0.13 to 0.20; $p < 0.001$) mediated by the aforementioned emotion regulation processes.

Lastly, body image-related experiential avoidance and uncommitted living were negatively associated with psychological QoL with βs of -0.30 ($b_{BI\text{-}AAQ}$ = -0.28; *S.E.* = 0.03; *Z* = -10.23; $p < 0.001$) and -0.33 (b_{ELS} = -1.65; *S.E.* = 0.14; *Z* = -11.19; $p < 0.001$), respectively.

Discussion

Body image difficulties have been strongly associated with poorer psychosocial functioning among women (e.g., Ferreira et al. 2013; Mond et al. 2013). Due to the high prevalence of these difficulties, several authors have highlighted the need to invest further in research efforts that may represent an avenue for the development of community intervention programs for women aiming to promote healthier strategies of coping with body image (e.g., Duarte, Ferreira, Trindade, and Pinto-Gouveia 2015; Mond et al. 2013; Ferreira and Trindade 2015).

In fact, it has been suggested that the way one deals with internal experiences is more of a determinant of the impact of those experiences than the internal events themselves (Hayes et al., 1999). Within this conceptualization, maladaptive emotion regulation may play an important role in explaining the link between body image difficulties and psychological QoL among women. However, the roles of body image-related experiential avoidance and uncommitted living, key processes in ACT (Hayes et al., 1999) have not to our knowledge been explored in this association. The present study thus aimed to test, in a sample of 737 female college students, whether the aforementioned emotion regulation processes would mediate the

known relationships of social comparison based on physical appearance, body image discrepancy and BMI with psychological QoL.

Findings from correlation analyses corroborated previous literature by demonstrating the significant associations between social comparison through physical appearance, body image discrepancy, BMI and psychological QoL (e.g., Ferreira et al. 2013; Mond et al. 2013; Neumark-Sztainer et al. 2006). These findings indeed illustrated that body image is related to young women's well-being, with unfavorable social comparisons, body image discrepancy and higher BMIs being associated with poorer psychological functioning. Also, body image-related experiential avoidance and uncommitted living were linked to body image difficulties and lower levels of psychological QoL.

Furthermore, the main findings from the current study showed that the examined path model explained 43% of women's psychological QoL and presented an excellent model fit. Body image discrepancy was related to psychological QoL through the mechanisms of body image-related experiential avoidance. In fact, the results suggested that the perceived discrepancy between the current and the desired body image was not directly associated with poorer psychological well-being; rather, women's psychological QoL was lower when this perceived discrepancy was linked to attempts to control-related internal experiences.

In addition, our findings revealed that, although social comparison based on physical appearance was directly associated with psychological QoL, part of this effect was mediated by the mechanisms of body image-related experiential avoidance and uncommitted living. It indeed seems that women may engage in strategies to avoid internal experiences related to unfavorable social comparisons, which paradoxically increases the relation of those experiences to QoL. Further, unfavorable social comparisons based on physical appearance also seemed to be linked to patterns of uncommitted action. This disengagement with one's life values may be explained by avoidance efforts that lead to a shorter range of behavior repertoire

(e.g., avoiding going out with friends; avoiding events where one's body might be exposed, for example academic presentations or going to the gym) (Hayes et al. 1996). In this way, the relationship between social comparisons based on physical appearance and psychological well-being seemed to be amplified by attempts to control or avoid related experiences and to an associated disengagement with one's chosen life purpose. To sum up, these findings highlight the relevance of emotion regulation in the relationship between body image variables and women's psychological functioning. Indeed, the results revealed that more than an objective (e.g., BMI) and subjective (e.g., body image discrepancy, social comparison) evaluation of body image, the key mechanisms of the link between body image and women's QoL were those related to the unwillingness to accept unwanted body image-related perceptions, thoughts, or emotions, and to the associated adoption of uncommitted behavior patterns.

These results should be interpreted cautiously considering some limitations. First, the cross-sectional design of the study did not allow evaluation of temporal relations and thus causal conclusions. Longitudinal investigations should examine whether these variables operate as hypothesized. Moreover, because the tested model was intentionally limited, future studies should expand this investigation and test the role of other emotion regulation processes (e.g., decentering, rumination). The reliance on self-report measures was also a limitation of the present study; indeed, future research should use clinical interviews to assess more comprehensively the studied variables. Finally, given that the sample used in the current investigation was composed of Portuguese female college students aged between 18 and 25 years, we believe the tested model ought to be analyzed in other populations, with different age groups and cultures.

Nevertheless, the present results seems to present significant information for research and clinical work in the field of body image. Indeed, they suggest that interventions targeting body image-related experiential avoidance and behaviors that are inconsistent with one's

personal values may be helpful to enhance young women's psychological well-being. In accordance, these interventions should aim to develop adaptive abilities such as the acceptance of internal experiences related to body image and the promotion of values clarification and committed action.

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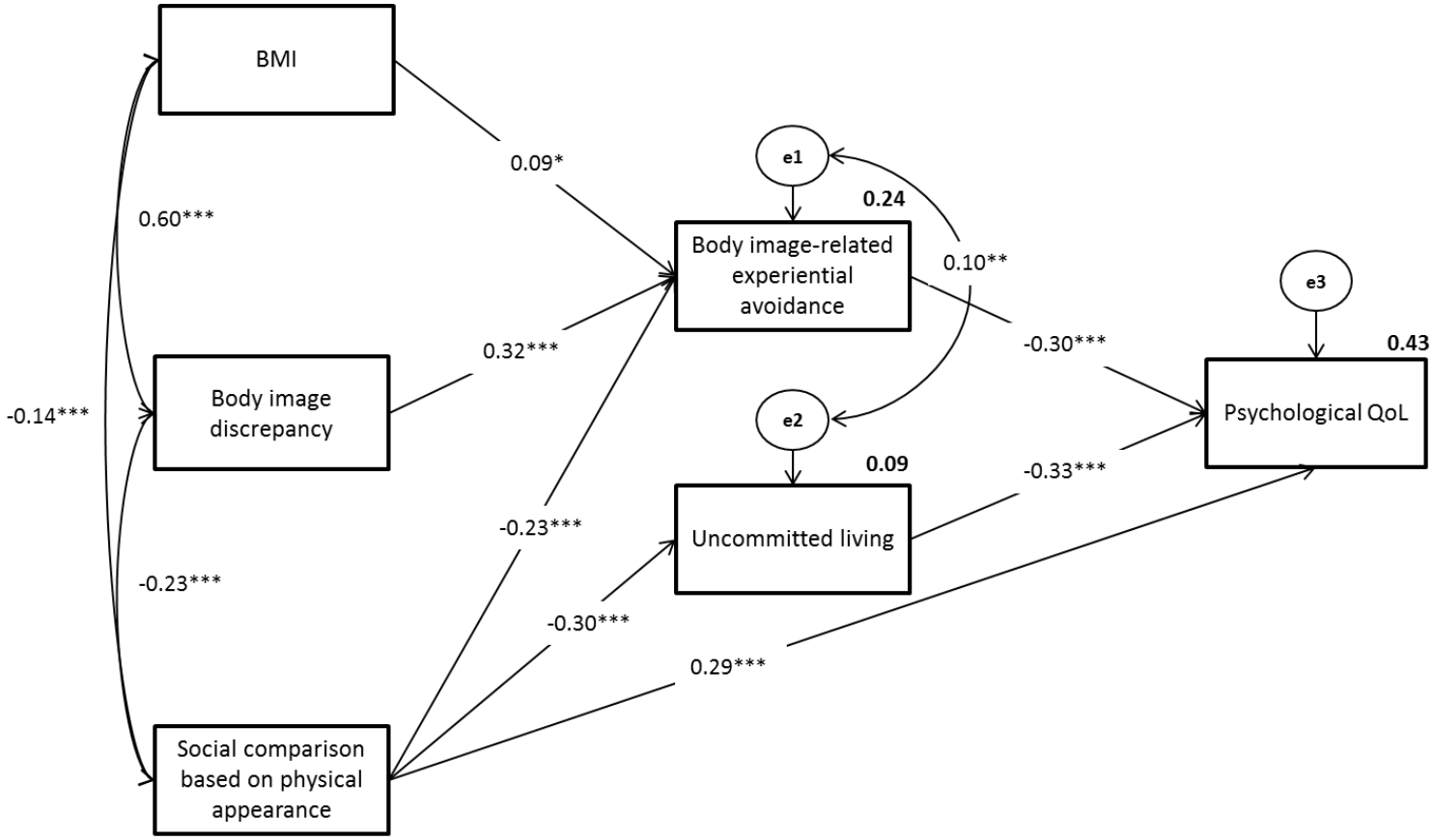
Table 1

Means (M), Standard Deviations (SD), Cronbach's alphas and Intercorrelation scores on study measures (N = 737)

	M	*SD*	α	1	2	3	4	5
1. Body Mass Index	21.78	2.89	-	1				
2. Body image discrepancy	0.65	0.98	-	0.60***	1			
3. Social comparison based on physical appearance	63.38	12.52	0.91	-0.14***	-0.23***	1		
4. Body image-related experiential avoidance	28.43	14.34	0.94	0.31***	0.43***	-0.32***	1	
5. Uncommitted living	19.13	2.68	0.74	0.01	0.05	-0.29***	0.17***	1
6. Psychological QoL	68.89	13.52	0.79	-0.11***	-0.21***	-0.48***	-0.45***	-0.46***

Note. *$p < 0.050$. **$p < 0.010$. ***$p < 0.001$.

Figure 1. *Final Path Model. N = 737*



Note. Standardized path coefficients among variables are presented. All path coefficients are significant at the .05 level.

$^{*}p < 0.05$; $^{**}p < 0.01$; $^{***}p < 0.001$