JOMH
Journal of Men's Health

J. Mens. Health **2022**; 18(4): 95
https://doi.org/10.31083/j.jomh1804095

Original Research

Sociodemographic and Psychological Contributors to Quality of Life in Users of Anti-aging Cosmetic Products and Procedures

M. Graça Pereira[1,*], Ana Mónica Machado[1], Marta Evangelista[1], Margarida Vilaça[1], Ana C. Almeida[1]

[1]School of Psychology, University of Minho, 4710-057 Braga, Portugal
*Correspondence: gracep@psi.uminho.pt (M. Graça Pereira)
Submitted: 5 December 2021 Revised: 17 January 2022 Accepted: 15 February 2022 Published: 7 April 2022

Abstract

Purpose: This study assessed the contribution of sociodemographic and psychological variables to quality of life (QoL) in male and female users of anti-aging cosmetic products and procedures, and the moderator role of age and sex in those relationships. **Methods**: 382 participants were evaluated on appearance schemes, aging perceptions, self-esteem, psychological morbidity, perfectionism and QoL. **Results**: Being male, married, professionally active and having a higher household income was associated with better QoL, while the usage of cosmetic products was negatively associated with QoL. Appearance schemes, psychological morbidity, perfectionism and aging perceptions (timeline chronic and emotional representations) were associated with worse QoL, and self-esteem was associated with better QoL. Sex moderated the relationship between perfectionism and psychological morbidity in both men and women but stronger in the latter, while the relationship between chronic aging perceptions and negative QoL was only significant in men. Age moderated the relationship between perfectionism and psychological morbidity, between psychological morbidity and QoL, and between aging perceptions and QoL. **Conclusions**: Findings may help guide psychological interventions targeted on the adaptation to the aging experience as means of promoting QoL. Thus, psychological intervention programs should address perfectionism, psychological morbidity and aging perceptions, being differentiated according to participants' sex and age in order to promote a better adaptation to the aging process.

Keywords: cosmetics; appearance schemes; anti-aging products; quality of life; age; sex; psychological morbidity; aging perceptions

1. Introduction

The world experiences a sustained change in the age structure of the population, driven by increasing life expectancy and decreasing levels of fertility rates [1]. Individuals are living longer lives and the number of elderly populations is increasing rapidly. In 2020, there were 727 million individuals aged 65 years or over worldwide [1].

In Portugal, the number of elderly individuals (65 and over) will increase from 2.2 to 3.0 million. In 2080, the aging ratio in Portugal will almost double, from 159 to 300 elderly individuals for every 100 young individuals, as a result of the decreasing birth rate and the increased aging of the population [2].

In such a context, aging is expected to impact quality of life (QoL). The World Health Organization [3] defines QoL as the individual's perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards, and concerns. Therefore, understanding the determinants of QoL is of primary relevance [4] as social and physical changes are highly influential in general well-being [5]. A number of changes are experienced throughout life as one ages, including skin changes such as age wrinkles and blemishes, hair loss/color change, weight gain or loss, and body shape changes [6]. The changes due to the aging process began from 25 years on, when the reduction of collagen and elastic fibers leads to loss of elasticity and resilience of the skin, contributing to the appearance of wrinkles [7], which has been associated with dissatisfaction, concerns with body image and lower QoL [8].

1.1 Cosmetic Products and Procedures Use

In a society where youth, health, cosmetics and QoL are valued, cosmetic products and beauty treatments have been in great demand, with recent studies indicating that their use results in higher investment in appearance and a significant increase in QoL [9].

According to the American Society of Plastic Surgeons [10], in 2020, 15.6 million cosmetic procedures were performed, of which 2.3 million were cosmetic surgical procedures and 13.2 million were cosmetic minimally invasive procedures. In total, 92% were female clients. However, in the past years, men are increasingly seeking cosmetic products, which have led to the creation of a separate market for male users (e.g., face creams, anti-wrinkle creams, hair coloring) [11].

The majority of the cosmetic procedures were performed by clients aged between 40–54 years old (45%), compared to clients aged 13–19 years old (2%). The most cited motivations for seeking cosmetic treatments included the desire for a beautiful skin and a more youthful and attractive appearance, revealing concerns related to social well-being, such as the wish to feel happier and to improve QoL, or to treat oneself [12].

1.2 Appearance Schemes

The way individuals perceive their body image has important consequences on their health and QoL [7], as body image is a major aspect of QoL [13]. Body image is a multidimensional construct encompassing self-perceptions and attitudes regarding one's physical appearance [14]. A central facet of body image is its cognitive component, namely appearance schemes [15]. Cash *et al*. [15] define appearance schemes as the individual's psychological and cognitive perception of their appearance, established on the basis of their social experiences. Appearance related self-schemas are central to understand body image experiences, as more investment in appearance schemes is associated with less body satisfaction and adjustment to body changes, as well as to less QoL [16,17]. Individuals whose appearance schemes reflect higher levels of investment, engage in behaviors to maintain or improve their appearance [18], report higher levels of anxiety [15,18] and are more vulnerable to situational suffering caused by their appearance [14], which has a negative impact on body image and QoL [19].

1.3 Psychological Factors (Self-Esteem, Psychological Morbidity and Perfectionism)

The losses that occur with aging, together with the changes and demands they bring, have been associated not only with worse QoL, but also with a decrease in the individual's overall self-esteem [20]. Research has suggested a relationship between appearance schemes and self-esteem [21], and between the latter and psychological well-being [22]. Increasing importance and investment in physical appearance has been associated with maladaptive behaviors such as low self-esteem [21]. These experiences guide and organize the information about the self and the individual's perception about appearance [21]. Ingrand *et al*. [23] found self-esteem to be positively associated with subjective well-being, but negatively correlated with anxiety and depression.

The literature also reports associations between dysfunctional appearance schemes and traits of perfectionism [23,24]. Perfectionism involves high standards of performance with a tendency for overly critical evaluations of one's behavior [25]. One of the domains in which individuals reveal perfectionism is physical appearance [26]. The importance given to physical appearance and dysfunctional appearance schemes have been related to higher levels of perfectionism [27,28], with a negative impact on QoL [28].

Recent research on the relationship between perfectionism and life satisfaction, as an indicator of QoL, found that maladaptive perfectionism was negatively correlated with life satisfaction [29].

1.4 Aging Perceptions

Another important factor that affects mental health is aging perceptions [23,30], which refers to each person's perceptions of the aging process within a sociocultural context [31]. Studies that compared self-perception of aging in men and women have found that men were less concerned about their aging appearances or age-related body changes. Overall, negative self-evaluations about appearance may influence aging perceptions, with a negative impact on psychological well-being. Consequently, the association between aging and QoL has received increasing attention [32–34]. According to Ingrand *et al*. [23], individuals with positive aging perceptions reported higher levels of QoL. Aging perceptions influence social behaviors, expectations, acceptance of age-related changes, and well-being [35–37].

1.5 Theoretical Model

The present study was based on the Wilson and Cleary [38] model of health-related QoL. The theoretical model integrates clinical and psychosocial approaches to health care and is composed of five dimensions, including biological and physiological variables on one side and QoL at the other side. Between the two extremes, the model includes emotional/cognitive perceptions, considered in this study as appearance schemes, self-esteem and psychological morbidity; and health perceptions, assessed through aging perceptions. Influencing all levels, this conceptual framework also includes the characteristics of the individual, a dimension assessed through traits of perfectionism, age, use of cosmetic products and procedures, as well as the characteristics of the environment, here assessed through the household income. The order in which the variables appear in the model represents causal associations, and, although not evidenced, the model assumes indirect relationships [39,40] of mediation [39,41] and moderation [41] between the variables and QoL.

Overall, the present study examined (i) the relationship between sociodemographic variables, psychological variables, use of cosmetic products and procedures, and QoL; (ii) the indirect effects of emotional/cognitive (appearance schemes, psychological morbidity and self-esteem) and health perceptions (aging perceptions) in the relationship between perfectionism and QoL; and (iii) the moderator role of sex and age in the previous relationships. Based on the literature, it is expected that (H1) being men, younger, using less cosmetics, with less schematic investment in appearance, more self-esteem, less perfectionism, lower psychological morbidity, and more positive aging perceptions will be associated with better QoL; (H2) appearance schemes, psychological morbidity, aging perceptions and self-esteem will mediate the relationship between perfectionism/income and QoL; and (H3) sex and age will moderate that same relationship, particularly in older female users of cosmetic products.

2. Materials and Methods

2.1 Participants

The sample included 382 participants (271 women and 111 men). The inclusion criteria were: (1) being a Portuguese resident, (2) 25 years of age or older (the age group was established according to the beginning period of collagen decrease) [42]; (3) using (or have used in the last 12 months) cosmetic products and procedures that were not prescribed as a disease treatment.

2.2 Instruments

2.2.1 Sociodemographic and Use of Cosmetic Products Questionnaire

This questionnaire assesses sociodemographic variables, such as sex, age, marital status, professional status, and household income. Regarding cosmetics use, participants were asked about which cosmetic products/procedures (e.g., hair dye, sunblock, anti-wrinkle face products, botox) they used and how often (never, daily, once a week, two or more times a week, once a month, every three months, every six months, annually).

2.2.2 Inventory of Appearance Schemes (ASI-R)

ASI-R [15] assesses the personal investment in appearance, including beliefs or assumptions of importance, meaning and the influence that appearance has on the individual throughout life. The instrument consists of 20 items, answered in a 5-point Likert scale that ranges between "totally disagreeing" and "strongly agreeing". ASI-R includes two factors: Self-Evaluative Salience of Appearance (12 items) that assesses personal beliefs regarding the influence of the physical appearance on one's personal and social value and sense of identity (e.g., "When I meet people for the first time, I wonder what they think about how I look"); and Motivational Salience of Appearance (8 items) that evaluates the efforts implemented by the individual to maintain or increase his/her physical attractiveness and to manage his/her appearance (e.g., "My appearance is an important part of who I am"). Higher results indicate higher schematic investment regarding appearance. The original ASI-R version [15] showed a global alpha of 0.84, and in the Portuguese version [18], the alpha was 0.89. In this study, only the total scale was used, and the Cronbach's alpha was 0.88.

2.2.3 Hospital Anxiety and Depression Scale (HADS)

This instrument measures psychological morbidity and includes 14 items divided into two subscales, Anxiety and Depression [43]. Each subscale is composed of seven multiple-choice questions on depressive (e.g., "I still take pleasure in the things I used to enjoy") and anxious (e.g., "I have a sense of fear, as if something terrible is about to happen") symptoms. Items are rated on a 4-point Likert scale, ranging from 0 ("bad") to 3 ("high"). Higher results for the total scale suggest greater psychological morbidity. The study of Roberts and collaborators [44] found an alpha of 0.89 for the full scale. The Portuguese version [45] presented a Cronbach's alpha of 0.70 for the global scale. In this study, only the total score was used and the Cronbach's alpha was 0.88.

2.2.4 Frost Multidimensional Perfectionism Scale (FMPS)

FMPS evaluates self-directed perfectionism through 35 items, evaluated on a 5-point Likert scale from 1 ("strongly disagree") to 5 ("strongly agree"). This questionnaire includes six subscales: Personal Standards, that reflects the setting of high standards (e.g., "It is important to me that I be thoroughly competent in everything I do"); Concern over Mistakes, indicating excessive concerns about mistakes and failure (e.g., "The fewer mistakes I make, the more people will like me"); Doubts about Actions, which reflect the individual doubts about one's abilities (e.g., "I usually have doubts about the simple everyday things I do"); Parental Expectations and Parental Criticism scales, that express the belief that one's parents set very high goals and parental criticism (e.g., "My parents have expected excellence from me"); and Organization, that refers to the excessive importance given to precision, order and organization (e.g., "Organization is very important to me"). Higher results for the total scale indicate higher levels of perfectionism. The original total scale [46] showed a Cronbach's alpha of 0.90, while the Portuguese version [47] presents a Cronbach alpha of 0.86. In the present study, the full scale was used, with a Cronbach's alpha of 0.91.

2.2.5 Rosenberg Self-Esteem Scale (RSES)

This scale evaluates the overall self-esteem through 10 items, five positive (e.g., "I have a positive attitude towards myself") and five negative thoughts (e.g., "In general I feel like a failure") in a 4-point Likert response format, ranging from "totally disagreeing" to "totally agreeing". Higher results indicate a higher self-esteem. The original scale [48] showed a Cronbach alpha of 0.92, and the Portuguese version [49] revealed an alpha of 0.79. In this study the Cronbach's alpha was 0.88.

2.2.6 Aging Perceptions Questionnaire (B-APQ)

This questionnaire evaluates aging perceptions according to the Leventhal's Self-Regulation Model [50] through five domains. It is composed of 17 items assessed in a Likert scale that ranges from 1 ("I strongly disagree") to 5 ("I strongly agree"). Higher scores indicate higher levels of negative aging perceptions. This 17-item version preserved the internal consistency and construct validity of the original version [30], with a Cronbach alpha higher than 0.70. Regarding subscales, the original version presents a Cronbach alpha of 0.76 for Timeline-Chronic subscale (TLC), that evaluates the perceptions of the course of the aging process as chronic (e.g., "Always classify myself as old"); 0.78 for the Positive Consequences (PCONS), a sub-

scale that evaluates the beliefs about the positive impact of aging ("As I get older I get wiser"); 0.81 for the Consequences and Negative Control of Aging subscale (NCC) (e.g., "Slowing down with age is not something that I can control"), assessing negative beliefs and control a person has over aging; 0.81 for the positive control subscale (PCONTR) that evaluates the positive control about the aging process (e.g., "Whether I continue living life to the full depends on me"); and 0.75 for the Emotional Representations subscale (ER) that evaluates the negative emotional responses to aging (e.g., "I get depressed when I think about how aging might affect the things that I can do"), including anxiety, depression and worry. In this study, Cronbach alpha for TLC was 0.75, for PCONS was 0.83, for NCC was 0.77, for PCONTR was 0.87, and for ER subscale it was 0.70 [51].

2.2.7 Health Status Questionnaire (SF-12v2)

SF-12v2 is the short form of the SF-36 scale and evaluates the individual's health perception in the past four weeks [52]. It includes 12 questions and focuses on physical and mental health dimensions. This short version uses the same eight domains of the original SF-36: Limitations in Physical Activities because of Health Problems; Limitations in Social Activities because of Physical or Emotional Problems; Limitations in Usual Role Activities because of Physical Health Problems; Bodily Pain; General Mental Health (psychological distress and well-being); Limitations in Usual Role Activities because of Emotional Problems; Vitality (energy and fatigue); and General Health Perceptions. The questionnaire includes items such as "During the past four weeks, to what extent have your physical health or emotional problems limited your social activity (such as visiting close friends or family?)", "How long during the past 4 weeks have you felt sad and depressed", and "How long during the past four weeks have you felt calm and peaceful?". Higher scores indicate better physical and mental functioning. Scores range from 0 to 100, with 0 corresponding to the worst perception of QoL and 100 corresponding to a good perception of QoL, indicating a range of low to high QOL. In this study, the total score was used to measure the overall health-related QoL. The Portuguese version [53] presented a Cronbach's alpha of 0.89 for the physical dimension and 0.76 for the mental dimension. This study used the global score as suggested in previous studies [54,55], and the Cronbach's alpha for the total scale was 0.87.

2.3 Procedure

This study used a cross-sectional design and followed the ethical principles outlined in the Declaration of Helsinki. Participants were recruited through online social networks (e.g., Facebook, Instagram) where a link to access the questionnaires was available. The first page of the evaluation protocol informed about the study goals, confidentiality of the data, voluntary participation, and included the informed consent form. Participants that did not meet all the described inclusion criteria were excluded. From those who answered, 101 were excluded (e.g., participants that were living in another country or use a cosmetic product for medical reasons).

2.4 Statistical Analysis

Data were analyzed using SPSS (Statistical Package for the Social Sciences), version 27.0 (IBM Corp., Armonk, NY, USA). In order to assess the relationship between sociodemographic variables (age, marital status, professional status and income), psychological variables (appearance schemes, psychological morbidity, perfectionism, aging perception and self-esteem) and QoL, Pearson/Spearman correlations were performed. Independent sample *t*-test was conducted to assess gender differences in QoL.

To assess the indirect effect of appearance schemes, psychological morbidity, aging perception and self-esteem in the relationship between perfectionism/income and QoL, a path analysis was performed. The following indexes were considered: the chi-square statistics (χ^2) that should be non-significant; the Goodness of Fit Index (GFI), the Tucker-Lewis Index (TLI), and the Comparative Fit Index (CFI) that should be above 0.95; and Standardized Root Mean Square Error of Approximation (RMSEA) and Standardized Root Mean Squared Residual (SRMR) that should be below 0.60 and 0.80, respectively [56]. In the final model, the paths that showed non-significant results were removed, to enable its estimation. The indirect effects were analyzed using the bootstrapping technique, considering 3000 samples and a 95% confidence interval (95% CI), that should not include zero to be significant.

To test the moderating effect of sex and age, a multigroup SEM analysis was conducted. The moderating effect of sex was tested using male (n = 111) *versus* female (n = 271) participants. The moderating effect of age was analyzed using younger ($\leq$36 years, n = 205) *versus* adult/older ($\geq$37 years old, n = 177) participants, since it is between the ages of 35–40 that the experience of skin laxity and loosening starts [57].

3. Results

3.1 Sample Characteristics

This study included 271 (70.8%) female and 111 (29%) male participants. The mean age was 37.02 (*SD* = 9.88), ranging from 25 to 73 years old. Specifically, female participants' age ranged from 25 to 70 years old (*M* = 35.92 years), while male participants' age ranged from 25 to 73 years old (*M* = 39.70 years). Regarding marital status, 172 (44.9%) of the participants were single, 321 (83.8%) were actively employed, and more than half of the sample (53.5%) earned two to three minimum wages.

Regarding cosmetic products use, results showed that most products were used on a daily basis. Figs. 1,2 presents

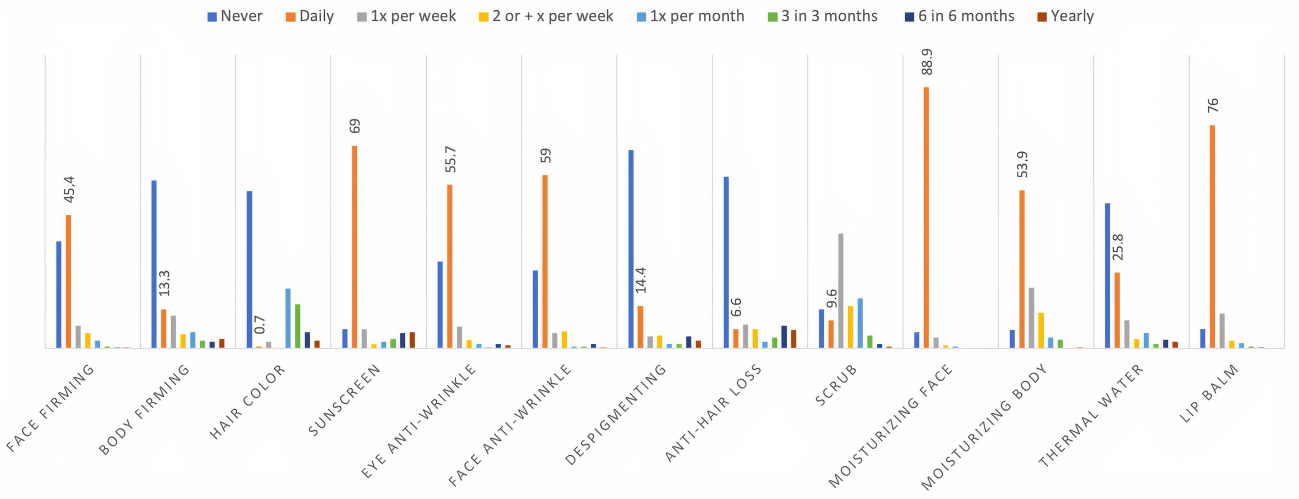

Fig. 1. Type and frequency of use (%) of cosmetic products by female participants.

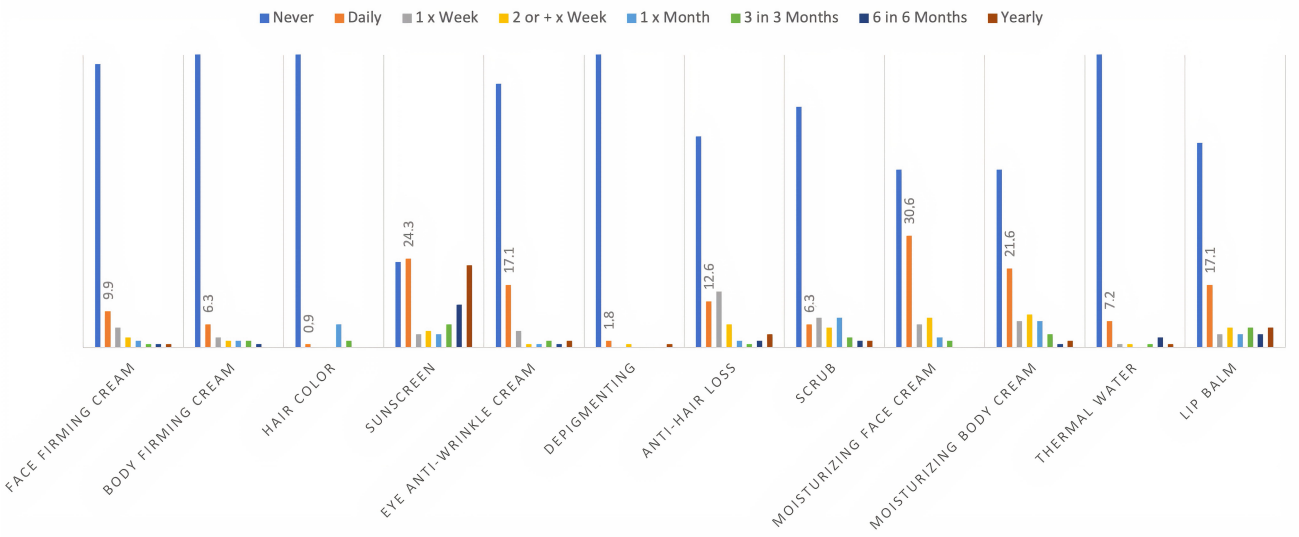

Fig. 2. Type and frequency of use (%) of cosmetic products by male participants.

the type and frequency of use of cosmetic products by female and male clients. Cosmetic procedures were performed mostly once a year. Skin cleansing was performed annually by 17.8% of the total sample (n = 68), peeling treatment by 5.7% (n = 22), hair strengthening treatment by 7.8% (n = 30), hyaluronic acid treatment by 2.3% (n = 9), cellulite treatment by 4.4% (n = 17), weight loss treatment by 5% (n = 19), and flaccidity treatment by 2.9% of the sample (n = 11). Botox treatment was performed every 3 months by 1.6% of participants (n = 6).

3.2 Relationship Between Sociodemographic Variables, Psychological Variables, Use of Cosmetic Products and QoL

Results for the association between sociodemographic variables and QoL showed positive relationships for marital status ($r = 0.128$; $p \leq 0.05$) and household income ($r = 0.254$; $p \leq 0.01$). Being professionally inactive was associated with worse QoL ($r = –0.200$; $p \leq 0.05$). There were differences in QoL according to the participant's sex (t (380) = 3.300; $p \leq 0.01$) with male participants reporting better QoL. The relationship between age and QoL was not significant. Concerning the association between the usage of cosmetic products and QoL, results indicated a negative relationship for anti-hair loss products ($r = –0.116$; $p \leq 0.05$), facial moisturizer ($r = –0.155$; $p \leq 0.05$), body moisturizer ($r = –0.106$; $p \leq 0.05$), lip moisturizer ($r = –0.111$; $p \leq 0.05$) and exfoliating products ($r = –0.105$; $p \leq 0.05$). The relationship between cosmetic procedures and QoL was not statistically significant. Table 1 presents the statistically significant relationships between sociodemographic variables, cosmetic products and QoL.

Regarding the association between psychological variables and QoL, results showed negative relationships between QoL and appearance schemes ($r = –0.133$; $p \leq 0.01$), psychological morbidity ($r = –0.758$; $p \leq 0.001$), per-

Table 1. Statistical significant relationships between sociodemographic variables, cosmetic products and QoL.

Variables	1	2	3	4	5	6	7	8	9
(1) QoL	–								
(2) Income	0.254**	–							
(3) Marital Status	0.117*	0.299**	–						
(4) Professional Status	–0.200**	–0.175**	–0.103*	–					
(5) Hair Product	–0.116*	–0.112*	–0.050	0.052	–				
(6) Face Moisturizer	–0.155**	0.016	–0.053	0.037	0.038	–			
(7) Body Moisturizer	–0.106*	0.011	0.015	–0.067	0.021	0.510**	–		
(8) Lip Moisturizer	–0.111*	–0.007	–0.018	–0.039	–0.035	0.511**	0.465**	–	
(9) Exfoliator	–0.105*	0.061	–0.024	–0.025	0.051	0.472**	0.428**	0.430**	–

$p < 0.05$; **$p < 0.01$; ***$p < 0.001$.

Table 2. Relationship between psychological variables and QoL.

Variables	1	2	3	4	5	6	7	8	9	10
1 - QoL	—									
2 - Appearance Schemes	–0.133**									
3 - Psychological Morbidity	–0.758***	0.128*								
4 - Perfectionism	–0.226***	0.253***	0.363***							
5 - Self-Esteem	0.377***	–0.075	–0.471***	–0.381***						
6 - Timeline-Chronic	–0.348***	0.194***	0.342***	0.326***	–0.382***					
7 - Positive Consequences	0.079	0.055	–0.157**	0.070	0.262***	–0.075				
8 - Positive Control	0.011	0.124*	0.061	0.137**	0.116*	–0.055	0.377***			
9 - Consequences and Negative Control	0.071	0.130*	–0.124*	–0.118*	0.187***	–0.172***	0.045	0.033		
10 - Emotional Representations	–0.337***	0.331***	0.327***	0.338***	–0.366***	0.491***	–0.161**	–0.113*	–0.198***	—
Mean	62.54	64.08	11.53	98.67	20.72	7.14	12.19	11.88	16.38	7.89
Standard Deviation (SD)	13.40	12.35	6.86	18.31	5.55	2.56	2.18	2.39	3.90	2.79

fectionism ($r = –0.226$; $p \leq 0.001$), and two subscales of aging perception: timeline-chronic ($r = –0.348$; $p \leq 0.001$) and emotional representations ($r = –0.337$; $p \leq 0.001$). Self-esteem and QoL were positively correlated ($r = 0.377$; $p \leq 0.001$). The relationship between the remaining subscales of aging perceptions and QoL was not statistically significant. Results for the associations between psychological variables and QoL are presented in Table 2.

3.3 Path Analysis Model

Based on the Wilson and Cleary's model [38], a path analysis was performed to analyze the contribution of perfectionism, household income, emotional/cognitive perceptions (appearance schemes, psychological morbidity and self-esteem) and health perceptions (aging perceptions) on QoL. The global fit of the initial model was not adequate, revealing poor fit indices: $\chi^2_{(26)} = 407.496$, $p = 0.000$; CFI = 0.610; TLI = 0.175; GFI = 0.870; RMSEA = 0.196, [0.180, 0.213], $p = 0.000$; SRMR = 0.034. However, the final model indicated a good fit to the data $\chi^2_{(10)} = 17.936$, $p = 0.056$; CFI = 0.990; TLI = 0.973; GFI = 0.989; RMSEA = 0.046, [0.000, 0.079], $p = 0.538$; SRMR = 0.034), explaining 60% of the variance of QoL. The adjusted model showed that appearance schemes, psychological morbidity, self-esteem and aging perceptions (timeline-chronic and emotional representations subscales) had a significant indirect effect in the relationships between perfectionism and QoL and household income and QoL (Fig. 3 and Table 3).

3.4 The Moderator Role of Sex and Age

The inclusion of sex as a moderator showed that the adjusted model (without any constrains) and the fully constrained model were significantly different ($\Delta \chi^2_{(18)} = 38.32$; $p = 0.004$), revealing that sex had significantly moderated the adjusted hypothesized model. In particular, the relationship between perfectionism and psychological morbidity was significant in both men ($\beta = 0.063$, $p = 0.038$) and women ($\beta = 0.164$, $p \leq 0.001$), although stronger in women. In contrast, the relationship between timeline chronic and QoL was negative and significant only in men ($\beta = –1.055$, $p = 0.002$).

Regarding the moderating role of age, results indicated that the adjusted model, without any constraint, and the fully constrained model were significantly different ($\Delta \chi^2_{(18)} = 31.54$; $p = 0.025$). Thus, age significantly moderated the adjusted hypothesized model. Specifically,

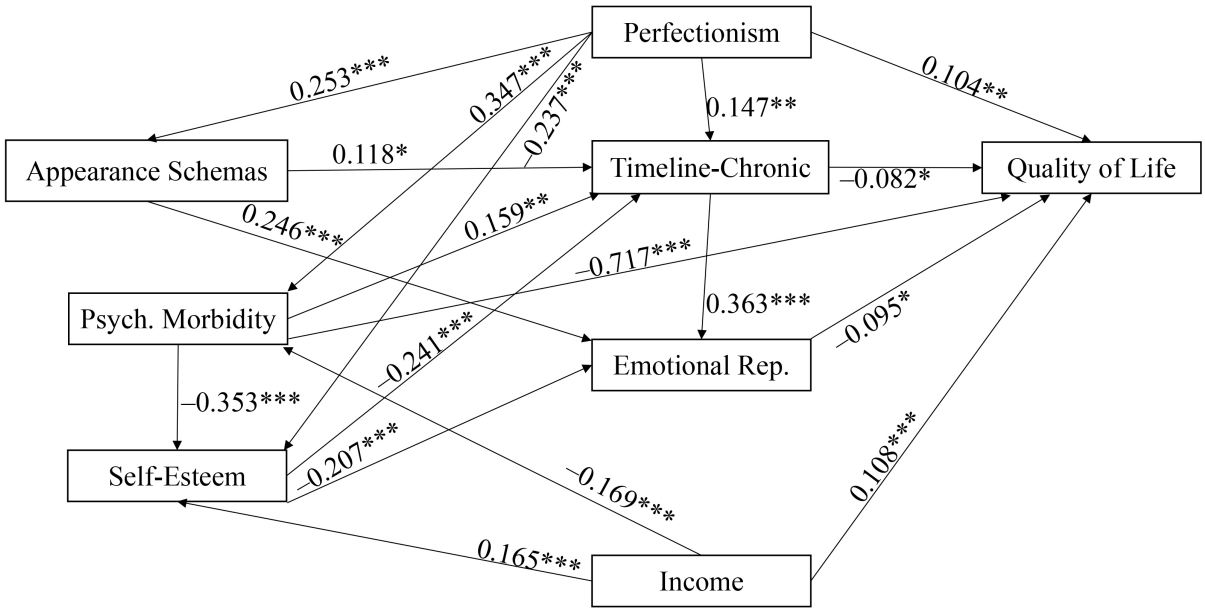

Fig. 3. Results of the final path analysis taking in account Wilson and Cleary's (1995) model. * $p \leq 0.05$; ** $p \leq 0.01$; *** $p \leq 0.001$.

the relationship between perfectionism and psychological morbidity was significant in the younger (β = 0.175, $p \leq 0.001$) and adult/older (β = 0.060, p = 0.027) groups, but stronger in the younger group. The relationship between psychological morbidity and QoL was also statistically significant in the young (β = –1.457, $p \leq 0.001$) and adult/older (β = –1.310, $p \leq 0.001$) participants, although stronger in the younger group. Likewise, the relationship between timeline-chronic and emotional representations was statistically significant in young ($\beta = 0.468$, $p \leq 0.001$) and older ($\beta = 0.256$, $p \leq 0.001$) groups, but stronger in the younger. The relationship between perfectionism and timeline-chronic was only significant in the younger group ($\beta = 0.034$, $p \leq 0.001$).

4. Discussion

This study analyzed the contribution of sociodemographic variables and psychological variables to QoL of male and female users of anti-aging cosmetic products, as well as the moderator role of sex and age on the previous contributions.

4.1 Sociodemographic Variables and QoL

Being married and having a higher household income was correlated with high levels of QoL. In fact, previous literature has shown that married people report better QoL [58]. Also, individuals with higher incomes have greater access to health services and, thus, more health knowledge and health related behaviors. Instead, low household incomes are associated with several lifetime mental disorders and decreased QoL [59].

As predicted, being professionally inactive was associated with worse QoL [60], which can be explained by the economic and social consequences of unemployment. Compared to female participants, male users of cosmetics reported better QoL. Although previous research suggests worse health-related QoL among women [61], little is known about sex differences in the QoL of cosmetics users, as the majority of studies focused on the impact of cosmetics include mostly women and address specific health conditions. Nevertheless, considering that women are under more social cultural pressure to fit beauty standards, compared to men, it makes intuitive sense that male users of cosmetic products experience better QoL.

4.2 Psychological Variables and QoL

Appearance schemes, psychological morbidity, perfectionism and aging perceptions (timeline chronic and emotional representations) were associated with worse QoL, while self-esteem was associated with better QoL. Given the importance that physical attractiveness has in contemporary Western culture, it is not surprising that many people seek to change their physical appearance to meet social attractiveness ideals [62]. According to the literature, women experience high levels of body dissatisfaction due to unrealistic beauty standards reinforcing anti-aging and ageist discourses [6]. Particularly for women, there is a pervasive pressure to "age gracefully", promoted by a consumerist culture that markets products such as hair dye and wrinkle cream for maintaining a youthful and wrinkle-free appearance [6]. Thus, it is not surprising that cosmetic users whose appearance schemas reflect higher levels of investment experience worse QoL [18].

Table 3. Indirect effects.

Predictors		Mediator(s)								Outcome	β	SR	*p*	95% CI
														LL; UL
Perfectionism	→	Appear. Schemes	→	Timeline	→					QoL	–0.002	0.002	0.039	–0.007; 0.000
	→	**Appear. Schemes**	→	**Emotional Repr.**	→					**QoL**	–0.004	0.002	0.003	**–0.011; –0.001**
	→	Appear. Schemes	→	Timeline	→	Emotional Repr.	→			QoL	–0.001	0.001	0.008	–0.002; 0.000
	→	Psych. Morbidity	→	Timeline	→					QoL	–0.003	0.002	0.041	–0.010; 0.000
	→	Psych. Morbidity	→	Timeline	→	Emotional Repr.	→			QoL	–0.001	0.001	0.003	–0.004; 0.000
	→	**Psych. Morbidity**	→							**QoL**	–0.180	0.026	0.001	**–0.232; –0.130**
	→	Psych. Morbidity	→	Self-Esteem	→	Timeline	→			QoL	–0.002	0.001	0.039	–0.005; 0.000
	→	Psych. Morbidity	→	Self-Esteem	→	Timeline	→	Emotional Repr.	→	Qol	–0.001	0.000	0.002	–0.002; 0.000
	→	Psych. Morbidity	→	Self-Esteem	→	Emotional Repr.	→			QoL	–0.002	0.001	0.003	–0.004; 0.000
	→	Self-Esteem	→	Timeline	→					QoL	–0.003	0.002	0.035	–0.010; 0.000
	→	Self-Esteem	→	Timeline	→	Emotional Repr.	→			QoL	–0.001	0.001	0.002	–0.004; 0.000
	→	**Self-Esteem**	→	**Emotional Repr.**	→					**QoL**	–0.003	0.002	0.003	**–0.008; –0.001**
	→	**Timeline**	→							**QoL**	–0.009	0.006	0.033	**–0.025; –0.001**
	→	**Timeline**	→	**Emotional Repr.**	→					**QoL**	–0.004	0.002	0.006	**–0.010; –0.001**
Income	→	**Psych. Morbidity**	→							**QoL**	2.5445	0.810	0.001	**1.026; 4.206**
	→	**Psych. Morbidity**	→	**Timeline**	→					**QoL**	0.046	0.037	0.031	**0.003; 0.162**
	→	**Psych. Morbidity**	→	**Timeline**	→	**Emotional Repr.**	→			**QoL**	0.019	0.013	0.003	**0.004; 0.069**
	→	**Psych. Morbidity**	→	**Self-Esteem**	→	**Timeline**	→			**QoL**	0.025	0.019	0.026	**0.002; 0.085**
	→	**Psych. Morbidity**	→	**Self-Esteem**	→	**Timeline**	→	**Emotional Repr.**	→	**QoL**	0.010	0.007	0.001	**0.002; 0.032**
	→	**Psych. Morbidity**	→	**Self-Esteem**	→	**Emotional Repr.**	→			**QoL**	0.025	0.015	0.002	**0.005; 0.071**
	→	**Self-Esteem**	→	**Timeline**	→					**QoL**	0.069	0.047	0.029	**0.005; 0.207**
	→	**Self-Esteem**	→	**Timeline**	→	**Emotional Repr.**	→			**QoL**	0.029	0.017	0.002	**0.008; 0.086**
	→	**Self-Esteem**	→	**Emotional Repr.**	→					**QoL**	0.068	0.037	0.002	**0.018; 0.169**

Significant paths in bold.

The literature has evidenced a relationship between appearance concerns and perfectionism [32,33], with perfectionism being associated with psychological morbidity such as depression, anxiety, and other psychological disorders which may negatively impact QoL [47]. Thus, the negative relation found between perfectionism and QoL, consistent with previous studies [28,29], was expected.

Regarding psychological morbidity, results also showed a negative relationship with QoL. Skopinski *et al*. [8] corroborated these results since patients who reported high levels of anxiety and depression, showed lower QoL.

Self-esteem and QoL are interrelated, as they address the individual's subjective perception of self and life [33]. The literature shows self-esteem being positively and strongly associated with QoL, and negatively correlated with anxiety and depression [23]. Moreover, self-esteem plays an important role in mental health and social adaptation in aging [63]. Attitudes toward one's own aging and self-esteem are crucial variables in predicting physical and mental health [64]. Actually, one of the most important factors affecting adults' QoL is their subjective perception of their own aging [63]. Aging awareness is longitudinally linked to important developmental outcomes, such as health, cognition, subjective well-being, mortality [64] and consequently QoL. Aging perception is a good indicator of a successful aging and has been suggested as a predictor of functional capacity and longevity, being related to QoL [64]. In addition, individuals with more positive aging perceptions are less vulnerable to the negative stereotypes associated with older individuals [23]. Given that QoL decreases with negative emotional responses (e.g., worry, anxiety, depression, anger) regarding the aging process, it makes sense that the perception of the aging process as chronic has been associated with lower QoL [65,66].

4.3 Use of Cosmetic Products and QoL

Analysis of the relationship between the use of cosmetic products and QoL revealed negative correlations. In fact, the individual's motivation to consume and use cosmetic products relates to their intention to conceal or reverse the signs of aging [67], since those physical changes that are felt over time may have a significant negative impact on psychological and physical well-being (e.g., depression, low self-esteem, anxiety) [9,12] and as such, on QoL. Although some literature suggests an increase in QoL in users of cosmetic products [9], other studies have shown that individuals who use more cosmetics report more appearance anxiety and dissatisfaction with their body image [67]. Moreover, the purchase of anti-aging products has significantly increased in individuals more concerned with their appearance [67]. In addition, either adolescents that use cosmetic products to look older and more attractive, or older people that apply cosmetics to disguise age flaws in order to maintain a more youthful appearance, regardless of gender, are socially influenced by hard-to-achieve standards that play an important role on mental, emotional, and physical health, influencing QoL [68]. Thus, it is not surprising that users of anti-hair loss products, and facial, body, lip moisturizers or exfoliators report worse QoL.

4.4 Indirect Effects on QoL

Appearance schemes, psychological morbidity, self-esteem and aging perceptions (e.g., timeline-chronic and emotional representations) had an indirect effect in the relationship between perfectionism/household income and QoL, as hypothesized. Particularly, appearance schemes, perception of aging as chronic and aging emotional representations had an indirect effect in the relationship between perfectionism and QoL. Thus, the importance attributed to appearance may reflect the physical changes related to the aging process which may impact QoL [64,66].

Psychological morbidity and perception of aging as chronic showed an indirect effect in the relationship between perfectionism/household income and QoL. These findings were confirmed by previous studies conducted with the general population [47] that found an association between perfectionism, appearance schemes, psychological morbidity and QoL. Regarding household income, literature showed that lower incomes were associated with a higher risk of mental health disorders, like depression and anxiety [59], and worse aging perceptions [18], which may negatively influence QoL.

Psychological morbidity, self-esteem and aging perceptions (timeline chronic and emotional representations) had an indirect effect on the relationship between perfectionism/household income and QoL. Although there are no studies focused on the previous variables conducted with cosmetic users, Ingrand *et al*. [23] found that psychological morbidity negatively influenced self-esteem, compromising aging perceptions and being associated with worse QoL. Drago [69] also found that low household income contributed to worse self-esteem, which could compromise aging perceptions.

4.5 The Moderator Role of Sex and Age

The moderation analysis of the relationships based in the hypothesized theoretical model revealed that sex played a moderator role in the relationship between perfectionism and psychological morbidity for both men and women, with a stronger effect on women. In fact, perfectionism has been linked to multiple psychological disorders such as depression and anxiety [29], and women were twice as likely than men to develop depression or anxiety disorders [70,71]. Furthermore, considering that women are the largest users of cosmetics products [10], report higher levels of investment in appearance [18] and heightened dissatisfaction with their bodies [16] associated with higher levels of perfectionism [27], it makes sense that women report stronger associations between perfectionism and psychological morbidity.

Interestingly, the relationship between aging perceptions, namely timeline chronic, and Qol was negatively significant in male participants, denoting the importance that men attribute to the aging process and its impact on their QoL. Sexton *et al*. [30] also found that the timeline chronic dimension was negatively associated with QoL, although both in male and female participants. In fact, timeline chronic refers to the chronic awareness of one's own aging, related to the concept of 'age identification', which has been associated with inactivity and poor health, with a negative impact on QoL [65]. Given that women are perceived as older at earlier ages than men, and, as such, engage more in anti-aging treatments, women were expected to report worse aging perceptions, with a stronger impact in their QoL [6,31]. However, in recent years, men's interest and investment in cosmetics products has increased [11] reflecting major aging concerns compared to the past decades. This finding is rather important, as it highlights the relevance of chronic aging perceptions and their potential influence in males physical and psychological health. Furthermore, these findings corroborate previous literature showing how awareness of chronic aging might be maladaptive [30,65].

Age also moderated the relationship between perfectionism and psychological morbidity. This effect was significant in the two age groups, although stronger in the younger group, i.e., in participants younger than 36 years old. Some studies suggest that perfectionism is higher at a younger age [72], while developmental research has found evidence for a decrease in perfectionism with age [73]. Also, perfectionism concerns have been associated with maladaptive outcomes such as depression and anxiety [72]. Results also showed a significant age moderation in the relationship between psychological morbidity and QoL, and between aging perceptions (timeline-chronic and emotional representations) and QoL, revealing stronger contributions for the younger group. Accordingly, previous literature suggests that younger individuals have poor knowledge, negative perceptions and negative self-reported behaviors regarding old age, considering the aging process as a bad condition that cannot be avoided [74]. Thus, individuals with positive aging perceptions are less vulnerable to negative emotional responses to the aging process including anxiety, depression, and worry [23].

Overall, results confirmed H1 as all variables correlated as expected with QoL, except for age; fully corroborated H2; while H3 was partially confirmed since the found moderation effects of sex and age did not always occur as predicted.

5. Conclusions

The literature on the contributors of QoL in users of cosmetic products is scarce, and little is known about the actual sociodemographic and psychological characteristics of this specific population. This study assessed emotional/cognitive perceptions, health perceptions, and QoL in users of cosmetic products based on Wilson and Cleary's model. Overall, the adapted theoretical model proved to be useful to understand the importance of the individual, environmental and psychosocial factors in QoL for users of anti-aging products.

The results suggested that psychological dimensions differently contribute to cosmetic users' QoL, highlighting the negative contribution of perfectionism towards psychological morbidity in female users; the negative influence of chronic aging perceptions on male users' QoL; and the adverse contribution of psychological morbidity and aging perceptions on QoL in younger users. Overall, those findings may help guide psychological interventions regarding the adaptation to the aging experience and the promotion of QoL. According to results, interventions should focus on reducing psychological morbidity and perfectionism in female and younger users of anti-aging cosmetic products, as well as on the perception of the aging process in male cosmetics users.

To conclude, it is worth mentioning that the findings of the present study not only corroborate the worldwide trend regarding the increasing of male users of cosmetic products in the Portuguese context, but also inform psychologists and other health professionals about their psychological characteristics which is of great importance as men become more familiar and comfortable with cosmetic products and treatments.

6. Limitations

This study provides a sociodemographic and psychological portrayal of male and female users of cosmetic products. However, several limitations of the study are noteworthy. The cross-sectional design that does not allow establishing causal relationships; the exclusive use of self-report instruments; and the inclusion of only two age groups limits the generalization of findings. Longitudinal studies, including larger samples with balanced groups between men and women, and more differentiated age groups of cosmetic users are needed to evaluate changes on QoL over time. Reliance on the Internet through social networks also limits the scope of the study since it restricts participation to those with a connection and social networks. The comparison of users versus non-users of cosmetic products would provide more complete information regarding the contributions to QoL in this specific population. Finally, future research should also control the gender identity and sexual orientation, in order to analyse their impact in the adjustment to the aging process.

Author contributions

MGP developed the study concept and was involved in the study design, data analysis, data interpretation, draft of the manuscript, and critical revision. ME and AMM were involved in the literature review, data collection, data interpretation, and draft of the manuscript. MV was involved in the data preparation, data interpretation, and critical revision. ACA was involved in the data analysis, data interpretation, draft of the manuscript and critical revision. All authors contributed, have read, and agreed to the published version of the manuscript.

Ethics approval and consent to participate

This study was approved by the Ethics Committee for Research in Social and Human Sciences of the University of Minho (Protocol n. CE.CSH 087/2018). All participants signed an informed consent form.

Acknowledgment

The authors thank all participants and the members of the Health & Family research group for their help in making this study possible.

Funding

This research received no external funding.

Conflict of interest

The authors declare no conflict of interest. MGP is serving as one of the Editorial Board members of this journal. We declare that MGP had no involvement in the peer review of this article, and has no access to information regarding its peer review. Full responsibility for the editorial process for this article was delegated to AW and AT.

References

[1] United Nations Department of Economic and Social Affairs, Population Division. World Population Aging 2020 Highlights: Living arrangements of older persons (ST/ESA/SER.A/451). 2020. Available at: https://www.un.org/development/desa/pd/sites/www.un.org.development.desa.pd/files/undesa_pd-2020_world_population_ageing_highlights.pdf (Assessed: 22 January 2021).

[2] Estatística, IN. Estimativas de População Residente em Portugal. 2019. Available at: https://www.ine.pt/xportal/xmain?xpid=INE&xpgid=ine_destaques&DESTAQUESdest_boui=354227526&DESTAQUESmodo=2 (Assessed: 31 January 2022).

[3] World Health Organization. WHOQOL: Measuring Quality of Life. Available at: https://www.who.int/tools/whoqol (Assessed: 31 January 2022).

[4] Raggi A, Corso B, Minicuci N, Quintas R, Sattin D, De Torres L, *et al*. Determinants of quality of life in aging populations: results from a cross-sectional study in Finland, Poland and Spain. PLoS ONE. 2016; 11.

[5] Cho J, Martin P, Margrett J, MacDonald M, Poon LW. The Relationship between Physical Health and Psychological well-being among Oldest-Old Adults. Journal of Aging Research. 2011; 1–8.

[6] Jankowski GS, Diedrichs PC, Williamson H, Christopher G, Harcourt D. Looking age-appropriate while growing old gracefully: A qualitative study of aging and body image among older adults. Journal of Health Psychology. 2014; 21: 550–561.

[7] Cho C, Cho E, Kim N, Shin J, Woo S, Lee E, *et al*. Age-related biophysical changes of the epidermal and dermal skin in Korean women. Skin Research and Technology. 2019; 25: 504–511.

[8] Skopinski F, Resende TDL, Schneider RH. Imagem corporal, humor e qualidade de vida. Revista Brasileira De Geriatria E Gerontologia. 2015; 18: 95–105.

[9] Beresniak A, Auray J, Duru G, Aractingi S, Krueger GG, Talarico S, *et al*. Quality of life assessment in cosmetics: specificity and interest of the international BeautyQol instrument. Journal of Cosmetic Dermatology. 2015; 14: 260–265.

[10] American Society of Plastic Surgeons, Plastic Surgery Statistics. 2021. Available at: https://www.plasticsurgery.org/documents/News/Statistics/2020/plastic-surgery-statistics-full-report-2020.pdf (Accessed: 10 January 2022).

[11] Jagdeo J, Keaney T, Narurkar V, Kolodziejczyk J, Gallagher CJ. Facial Treatment Preferences among Aesthetically Oriented Men. Dermatologic Surgery. 2016; 42: 1155–1163.

[12] Maisel A, Waldman A, Furlan K, Weil A, Sacotte K, Lazaroff JM, *et al*. Self-reported Patient Motivations for Seeking Cosmetic Procedures. JAMA Dermatology. 2018; 154: 1167–1174.

[13] Sobanko JF, Dai J, Gelfand JM, Sarwer DB, Percec I. Prospective Cohort Study Investigating Changes in Body Image, Quality of Life, and Self-Esteem Following Minimally Invasive Cosmetic Procedures. Dermatologic Surgery. 2018; 44: 1121–1128.

[14] Cash TF, Fleming EC, Alindogan J, Steadman L, Whitehead A. Beyond body image as a trait: the development and validation of the Body Image States Scale. Eating Disorders. 2002; 10: 103–113.

[15] Cash TF, Melnyk SE, Hrabosky JI. The assessment of body image investment: an extensive revision of the appearance schemas inventory. The International Journal of Eating Disorders. 2004; 35: 305–316.

[16] Mellor D, Fuller-Tyszkiewicz M, McCabe MP, Ricciardelli LA. Body Image and Self-Esteem across Age and Gender: a Short-Term Longitudinal Study. Sex Roles. 2010; 63: 672–681.

[17] Muris P, Meesters C, van de Blom W, Mayer B. Biological, psychological, and sociocultural correlates of body change strategies and eating problems in adolescent boys and girls. Eating Behaviors. 2005; 6: 11–22.

[18] Nazaré B, Moreira H, Canavarro MC. Uma perspectiva cognitivo-comportamental sobre o investimento esquemático na aparência: Estudos psicométricos do Inventário de Esquemas sobre a Aparência – Revisto (ASI-R). Laboratório de Psicologia. 2013; 8.

[19] Cash TF, Jakatdar TA, Williams EF. The Body Image Quality of Life Inventory: further validation with college men and women. Body Image. 2004; 1: 279–287.

[20] Rocha L, Terra N. Body image in older adults: A review. Scientia Medica. 2013; 23: 255–261.

[21] Javed J, Khan M. Appearance Schemas, Self-Esteem and Academic Achievement Among University Students. Journal of research & Reviews in Social Sciences Pakistan. 2018; 1: 117–126.

[22] Paradise AW, Kernis MH. Self-esteem and Psychological well-being: Implications of Fragile Self-esteem. Journal of Social and Clinical Psychology. 2002; 21: 345–361.

[23] Ingrand I, Paccalin M, Liuu E, Gil R, Ingrand P. Positive perception of aging is a key predictor of quality-of-life in aging individuals. PLoS ONE. 2018; 13: e0204044.

[24] Bartsch D. Prevalence of body dysmorphic disorder symptoms and associated clinical features among Australian university students. Clinical Psychologist. 2007; 11: 16–23.

[25] Haase AM, Prapavessis H, Glynn Owens R. Domain-specificity in perfectionism: Variations across domains of life. Personality and Individual Differences. 2013; 55: 711–715.
[26] Swami V, Mammadova A. Associations between considerations of cosmetic surgery, perfectionism dimensions, appearance schemas, relationship satisfaction, excessive reassurance, and love styles. Individual Differences Research. 2012; 10: 81–94.
[27] Teixeira MD, Pereira AT, Marques MV, Saraiva JM, Macedo AFD. Eating behaviors, body image, perfectionism, and self-esteem in a sample of Portuguese girls. Revista Brasileira De Psiquiatria. 2016; 38: 135–140.
[28] Fowler SA, Davis LL, Both LE, Best LA. Personality and perfectionism as predictors of life satisfaction: the unique contribution of having high standards for others. Facets. 2018; 3: 227–241.
[29] Rutter-Eley EL, James MK, Jenkins PE. Eating Disorders, Perfectionism, and Quality of Life. Journal of Nervous & Mental Disease. 2020; 208: 771–776.
[30] Sexton E, King-Kallimanis BL, Morgan K, Mcgee H. Development of the Brief Aging Perceptions Questionnaire (B-APQ): a confirmatory factor analysis approach to item reduction. BMC Geriatrics. 2014; 14: 44.
[31] Clarke LH, Korotchenko A. Aging and the Body: A Review. Canadian Journal on Aging. 2011; 30: 495–510.
[32] Sertel M, Arslan SA, Kurtoğlu F, Sahan TY. Physical activity, depression and quality of life in aging process. Biomedical Research. 2017; 28: 4165–4170.
[33] Tavares DMDS, Matias TGC, Ferreira PCDS, Pegorari MS, Nascimento JS, Paiva MMD. Qualidade de vida e autoestima de idosos na comunidade. CiêNcia & SaúDe Coletiva. 2016; 21: 3557–3564.
[34] Villas-Boas S, Oliveira AL, Ramos N, Montero I. Predictors of Quality of Life in Different Age Groups across Adulthood. Journal of Intergenerational Relationships. 2018; 17: 42–57.
[35] Yamada Y, Merz L, Kisvetrova H. Quality of life and comorbidity among older home care clients: role of positive attitudes toward aging. Quality of Life Research. 2015; 24: 1661–1667.
[36] Beutel ME, Glaesmer H, Wiltink J, Marian H, Brähler E. Life satisfaction, anxiety, depression and resilience across the life span of men. The Aging Male. 2010; 13: 32–39.
[37] Borhani F, Kiarsipour N, Esmaeili R, Zayeri F. The correlation of aging perceptions and life satisfaction in Iranian older adults. Annals of Tropical Medicine and Public Health. 2017; 10: 861–868.
[38] Wilson IB, Cleary PD. Linking clinical variables with health-related quality of life. A conceptual model of patient outcomes. The Journal of the American Medical Association. 1995; 273: 59–65.
[39] Baker SR, Pankhurst CL, Robinson PG. Testing relationships between clinical and non-clinical variables in xerostomia: a structural equation model of oral health-related quality of life. Quality of Life Research. 2006; 16: 297–308.
[40] Ojelabi AO, Graham Y, Haighton C, Ling J. A systematic review of the application of Wilson and Cleary health-related quality of life model in chronic diseases. Health and Quality of Life Outcomes. 2017; 15: 241.
[41] Ryu E, West SG, Sousa KH. Mediation and moderation: Testing relationships between symptom status, functional health, and quality of life in HIV patients. Multivariate Behavioral Research. 2009; 44: 213–232.
[42] Kimball, A. Mde study white paper. 2015. Available at: https://mms.businesswire.com/media/20151210005712/en/500007/1/Olay_MultiDecade_and_Ethnicity_Study_White_Paper.pdf (Accessed: 10 January 2022).
[43] Zigmond AS, Snaith RP. The hospital anxiety and depression scale. Acta Psychiatrica Scandinavica. 1983; 67: 361–370.
[44] Roberts SB, Bonnici DM, MacKinnon AJ, & Worcester MC. Psychometric evaluation of the Hospital Anxiety and Depression Scale (HADS) among female cardiac patients. British Journal of Health Psychology. 2001; 6: 373–383.
[45] Pais-Ribeiro J, Silva I, Ferreira T, Martins A, Meneses R, Baltar M. Validation study of a Portuguese version of the Hospital Anxiety and Depression Scale. Psychology, Health & Medicine. 2007; 12: 225–237.
[46] Frost RO, Marten P, Lahart C, Rosenblate R. The dimensions of perfectionism. Cognitive Therapy and Research. 1990; 14: 449–468.
[47] Amaral AP, Soares MJ, Pereira AT, Bos SC, Marques M, Valente J, *et al*. Frost Multidimensional Perfectionism Scale: The Portuguese version. Archives of Clinical Psychiatry. 2013; 40: 144–149.
[48] Rosenberg M. Society and the adolescent self-image. Princeton University Press: Princeton. 1965.
[49] Pechorro P, Marôco J, Poiares C, Vieira R. Validação da Escala de Auto- Estima de Rosenberg com Adolescentes Portugueses em Contexto Forense e Escolar. Arquivos de Medicina. 2011; 25: 174–179.
[50] Leventhal H, Leventhal EA, Contrada RJ. Self-regulation, health, and behavior: a perceptual-cognitive approach. Psychology & Health. 1998; 13: 717–733.
[51] Pereira MG, Vilaça M. Adaptação Portuguesa do Questionário de Perceção do Envelhecimento - Versão Breve (B-APQ), Family & Health Research Group. Research Center in Psychology. University of Minho: Portugal. 2018.
[52] Ware J, Kosinski M, Keller SD. A 12-Item Short-Form Health Survey: construction of scales and preliminary tests of reliability and validity. Medical Care. 1996; 34: 220–233.
[53] Ferreira PL. Criação da versão Portuguesa do MOS SF-36, Parte II - Testes de Validação. Acta Médica Portuguesa. 2000; 13: 119–127.
[54] Hagell P., Westergren A. Measurement Properties of the SF-12 Health Survey in Parkinson's Disease. Journal of Parkinson's Disease. 2011; 1: 185–196.
[55] Hagell P., Westergren A., Årestedt K. Beware of the origin of numbers: Standard scoring of the SF-12 and SF-36 summary measures distorts measurement and score interpretations. Research in Nursing & Health. 2017; 40: 378–386.
[56] Hair JF, Black W, Babin B, Anderson R. Multivariate Data Analysis: A Global Perspective. Pearson Education: New Jersey. 2010.
[57] Sibilla S, Borumand M. Current understanding of the effects of diet on skin health. In Godfrey M (ed.) Losing weight simply and safely (pp. 241–68). Officina Editorale Oltrarno: Florence. 2014.
[58] Han K, Park E, Kim J, Kim SJ, Park S. Is marital status associated with quality of life? Health and Quality of Life Outcomes. 2014; 12: 109.
[59] Belloni M, Meschi E, Pasini G. The Effect on Mental Health of Retiring during the Economic Crisis. Health Economics. 2021; 25: 126–140.
[60] Norström F, Waenerlund A, Lindholm L, Nygren R, Sahlén K, Brydsten A. Does unemployment contribute to poorer health-related quality of life among Swedish adults? BMC Public Health. 2019; 19: 457.
[61] Bonsaksen T. Exploring gender differences in quality of life. Mental Health Review Journal. 2012; 17: 39–49.
[62] Swami V, Furnham A. The psychology of physical attraction. Routledge: London. 2007.
[63] Chen J, Zheng K, Xia W, Wang Q, Liao Z, Zheng Y. Does inside Equal outside? Relations between Older Adults' Implicit and Explicit Aging Attitudes and Self-Esteem. Frontiers in Psychology. 2018; 9: 1–14.
[64] Dutt AJ, Wahl HW, Diehl M. Awareness of Aging Processes.

Oxford Research Encyclopedia of Psychology. Oxford University Press: Oxford. 2018.
[65] Barker M, O'Hanlon A, McGee HM, Hickey A, Conroy RM. Cross-sectional validation of the Aging Perceptions Questionnaire: a multidimensional instrument for assessing self-perceptions of aging. BMC Geriatrics. 2007; 7: 9.
[66] Borhani F, Kiarsipour N, Esmaeili R, Zayeri F. The correlation of aging perceptions and life satisfaction in Iranian older adults. Annals of Tropical Medicine and Public Health. 2017; 10: 861–868.
[67] Muise A, Desmarais S. Women's Perceptions and Use of "Anti-Aging" Products. Sex Roles. 2010; 63: 126–137.
[68] Velardi F, Cogliandro A, Persichetti P. The imperfect beauty. European Journal of Plastic Surgery. 2021; 44: 855–859.
[69] Drago F. Self-esteem and earnings. Journal of Economic Psychology. 2011; 32: 480–488.
[70] Eid RS, Gobinath AR, Galea LAM. Sex differences in depression: Insights from clinical and preclinical studies. Progress in Neurobiology. 2019; 176: 86–102.
[71] Maeng LY, Milad MR. Sex differences in anxiety disorders: Interactions between fear, stress, and gonadal hormones. Hormones and Behavior. 2015; 76: 106–117.
[72] Melero S, Morales A, Espada JP, Fernández-Martinez I, Orgilés M. How does perfectionism influence the development of psychological strengths and difficulties in children? International Journal of Environmental Research and Public Health. 2020; 17: 4081.
[73] Stoeber J, Stoeber FS. Domains of perfectionism: Prevalence and relationships with perfectionism, gender, age, and satisfaction with life. Personality and Individual Differences. 2009; 46: 530–535.
[74] Lucacel R. Are young individuals's views on aging accurate? The European Health Psychologist. 2015; 17: 64–66.