



Self-Compassion as a Buffer against Eating Pathology in a Greek Community Sample

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Abstract

The present study investigated the role of self-compassion (SC) in disordered eating and examined gender and age differences among the groups. Potential risk factors were also involved in the study, including gender, BMI, education status and exercise frequency. A total of a hundred participants (N = 100), equally distributed to two groups of males and females, were randomly selected across a Greek community sample. Participants completed questionnaires comprising the EAT-26, the Self-Compassion Scale (SCS) and PANAS Scale. Correlational analysis showed that SC is negatively associated with eating disorder symptomatology. SC and better eating attitudes relationship were stronger among older adults. Specifically, participants aged 24-29 and 30-35 presented higher SC scores and better eating attitudes, while there was no significant negative correlation for those aged 18-23. An independent samples t-test examining gender differences confirmed that females are more likely to be engaged in disordered eating behaviours than men. There were no statistically significant differences between the genders regarding their ability for SC. Multiple regression analysis indicated that biological and psychosocial factors such as gender, age, education, and BMI and exercise frequency did not predict disordered eating attitudes, while SC did. Regarding SC, multiple regression analysis found that education status, age, positive affect and EAT-26 scores all predicted SC scores. These findings suggest that SC may moderate disordered eating, thus being invaluable in designing and implementing prevention and intervention programs promoting better eating attitudes and well-being.

Keywords: Self-Compassion; Eating Disorder; Positive Emotion; Negative Emotion

Abbreviations: SCS: Self-Compassion Scale; ED: Eating Disorders; AN: Anorexia Nervosa; BN: Bulimia Nervosa; BED: Binge-Eating Disorder; DE: Disordered Eating; NHLBI: National Heart, Lung and Blood Institute; PANAS: Positive and Negative Affect Scale; SPSS: Statistical Package for Social Sciences.

Introduction

Eating disorders (ED), including anorexia nervosa (AN), bulimia nervosa (BN) and binge-eating disorder (BED), are currently conceptualized as discrete pathological entities.

Nevertheless, there is increasing support that disordered eating falls on a continuum, with asymptomatic eating behaviour at one end and clinical symptoms of eating disorder at the other. Therefore, mild, subclinical behaviours of abnormal eating would fall in the middle, leading to negative physical, psychological and social outcomes [1].

Diagnosed eating disorders in young adults account for 1.3% to 5% of the general population, although there is a high chance that the prevalence is even higher [2]. It is estimated that subclinical disordered eating affects up to 20% of young women who resort to abnormal eating behaviours in order

to manage their weight through vomiting or taking diet pills and laxatives [3]. Many of these cases with significant ED-related pathology remain undetected and untreated. Several studies have found eating pathology among non-clinical female college samples [4].

Disordered eating typically varies from eating non-nutritive substances (pica) to severe food restriction (with AN symptomatology) or avoidant/restrictive food intake disorder to binge eating (as in BED or BN) [5]. In Western cultures, dieting and exercise are the primary strategies for altering one's body [6], with severe restrictive eating being a potential risk factor for disordered eating and EDs.

Disordered Eating Models

Emotion regulation deficits have been consistently implicated in disordered eating attitude studies tracing eating pathology based on behaviours such as dieting, restricting, binging, and binge/purging [7]. Only recently have researchers begun to investigate this link in non-clinical or subclinical populations. Patients with disordered eating behaviour may lack a functional set of emotion regulation skills that impede coping with normal levels of emotions [8]. Studies on cognitive and behavioural processes, such as emotion/behaviour regulation, have implicated these mechanisms in the development of psychopathology [9]. Another model for disordered eating is the biopsychosocial model of DE. It suggests that biological factors (such as body mass index or BMI), psychological or individual factors (SC) and sociocultural factors (cultural background and social roles) interact and influence the tendency towards disordered or abnormal eating behaviours [10].

Potential Risk Factors for Disordered Eating

Risk factor research consistently shows that body image and disordered eating are perhaps the best predictors of the development of EDs. Body image disturbance and disordered eating are potential risk factors for EDs as they manifest as mild EDs symptomatology with a drive for thinness, fear of fat, and inappropriate compensatory behaviours [5]. Thus, evaluating disordered eating attitudes and behaviours in non-clinical samples is necessary to identify protective factors and changes in prevalence. Evaluation is also necessary to design, plan and implement effective prevention and treatment programs [3,5,11]. Such programs have been largely neglected by the Greek Ministry of Health [12].

Protective Factors against Disordered Eating

Protective factors are not always the reverse of risk factors; they also include variables that do not lie on the same continuum as a risk factor [13]. Therefore, protective factors

are not always viewed in light of the absence of risk factors. Protective factors can reportedly reduce the likelihood of ED-related outcomes in various ways; hindering disordered eating directly, functioning as a prevention strategy against the initial occurrence of a risk factor or by interacting with a risk factor to interrupt its deleterious effects thus breaking the mediational chain [5]. Prevention of EDs should therefore be targeted at accurately identifying and actively building protective factors within individuals, families, schools, communities, and cultures.

The Concept of SC

A growing body of literature in clinical and non-clinical samples suggests that being self-compassionate may moderate the relationship between body image and eating attitudes [14-16] conceptualized the construct of SC as comprising three distinct yet interrelated components. The first is self-kindness, being empathic and showing kindness and understanding towards oneself rather than being self-judgmental and over-critical. The second one refers to the mindfulness dimension, meaning the ability to control and suppress aversive thoughts and keep feelings in balanced awareness rather than over-identifying with them. The third one, common humanity, is reflected in viewing life's disappointments and setbacks as a natural part of life, experienced by all individuals rather than experiencing them in isolation [16].

SC and Discordered Eating

SC may be a helpful way to enhance self-regulation in ways that promote health and adaptive reactions to health problems [17]. This lends support to recent studies arguing that SC may play a protective role in body image and disordered eating [18-21]. Compassion towards oneself highly correlates with emotional regulation toward adverse events [22]. It has also been found to enhance human resilience when faced with negative emotions as well as distress from real-life situations [23]. SC role as a buffer can manifest as SC ate cognitive strategies in the form of positive cognitive restructuring [24], which has been associated with higher subjective well-being [16].

SC represents a sound emotion regulation strategy in which one is well aware of life's failures and painful feelings but accepts and faces them with kindness, understanding and a sense of shared humanity [25]. Higher SC is related to a greater body acceptance and appreciation and lower levels of body preoccupation, food and body-related concerns, and body dissatisfaction in non-clinical college student and community samples and clinical samples [20,26]. In a women's community sample, SC appeared to buffer the relationships between perceived media pressures for

thinness and ED-related outcomes [13].

Studies have extensively focused on the adaptive value of self-compassion's self-regulatory nature across various psychological outcomes [27,28]. SC has been found to positively correlate with improved affect regulation, adaptive coping strategies and various measures of well-being. Sirois F [29] model derives preliminary support from a study that found low negative affect and health self-efficacy to partially mediate the link between SC and health-promoting behaviours such as healthy eating, regular physical activity, and stress management. It has also been suggested as a protective factor against abnormal eating behaviour and eating pathology [30]. Neff K [16] noted that women achieve lower scores in the SCS than men. As a result, they are more likely to engage in self-judgment and feel isolated when confronted with painful situations, over-critical and less mindful of their negative emotions. Body shame has been reported to mediate the relationship between SC and disordered eating behaviours among college women [31].

SC also appears to promote less maladaptive body and eating-related behaviour. In student samples, it has been associated with more intuitive eating, fewer body image concerns, and less eating-related guilt-controlling self-esteem [15,32]. Both trait and state-induced SC have been linked to less binge eating [33-35] found that promoting self-compassionate behaviours early in treatment in a clinical ED sample exhibited a better treatment response over 12 weeks. These studies support the idea that SC may be a remarkably effective protective factor against EDs or even facilitate remission from disordered eating symptomatology.

SC across the Lifespan

Previous studies have reported a positive correlation between SC and age [24]. SC played a more critical role in leading a psychologically prosperous life for middle-aged adults than younger adults. The distinctive developmental characteristics and trajectories may partly justify this by various age groups suggested by lifespan development [22].

Disordered Eating Attitudes in Males

Reviewing the literature, one can notice an evident gap regarding EDs and disordered eating in males. Most studies focus on female populations, as body dissatisfaction and disordered eating are mostly considered gendered behaviours [5]. It is true that women and girls are far more vulnerable with respect to thinness standards and are more likely to engage in behaviours aimed at achieving them rather than men. However, research shows that men are equally prone to developing EDs and disordered eating attitudes. In modern society, and especially in our culture,

excessive muscularity identifies with more masculinity. This way, men are demanded to sustain their masculinity by hiding their vulnerabilities, as the concept of body shame is highly associated with having 'feminine' qualities [5]. Therefore, when estimating the prevalence of disordered eating attitudes and EDs, one has to consider the possibility of underreporting ED symptomatology in men, which might prove a major inhibitor to diagnosis, treatment and accurate research for prevention programs in the domain [36].

The Role of Exercise in Disordered Eating

Exercise has been largely associated with better outcomes and health benefits. Thus, regular physical activity makes it a worldwide public health priority [37,38]. Promoting physical activity may contribute to a healthier attitude towards food and eating, perhaps fostering food as a central fuel idea [39]. However, in the field of eating pathology, the role of exercise has been controversially discussed [40]. The latter is justified by research as an exercise for individuals with eating pathology can become a compulsive behaviour in the form of compensatory adaptations [37].

Nonetheless, recent studies acknowledge exercise as behaviour and coping strategy that might be present among individuals with disordered eating. In a study involving females with subclinical disordered eating, exercise was significantly associated with negative affect for those reporting high EAT-26 scores [41]. On the contrary, exercise was associated with a positive affect for women with low eating pathology, suggesting that exercise might be differentially associated with mental health based on the presence or absence of eating pathology. Rigorous/intense exercise has been most associated with high ED symptomatology in clinical and non-clinical adult samples, leading in some extreme cases to increased suicidality [37].

The Role of Cultural Context and Ethnicity

Cultural context can play a dramatic role in creating an environment where disordered eating behaviour can thrive [42]. Disordered eating is shockingly prevalent among women in the Western world, where the thin ideal is highly associated with desirability, power and happiness [43]. As a significant precursor to EDs, subclinical disordered eating in adolescents, where the risk for EDs is substantially high, is roughly estimated at 16.7-18.3% in Greece [44]. While there have been some notable attempts to record the incidence and prevalence of disordered eating (DE) in Greece, those are mainly based on unpublished reports conducted within clinical settings [45]. Thus, invaluable, community-based epidemiological data on disordered eating remain absent from the literature [12].

Disordered Eating Statistics in Greece

While there have been some noteworthy attempts to examine psychosocial characteristics in relation to disordered eating attitudes in the Greek population and identify risk and protective factors against EDs, most of them either focus on adolescents [46,47] and even those targeted at young adults strictly involve females [11,43,48], thereby excluding males from the design.

Aims

This study aimed at investigating the role of SC as a potentially protective factor against EDs as well as detect risk factors associated with the development of disordered eating among young and older adults

Accordingly, six hypotheses (H1-H6) were specified:

H1: SC would be negatively associated with eating disorder symptomatology and BMI.

H2: Higher BMI in males and females would be associated with highly disordered eating symptomatology.

H3: The relationships between SC and better eating attitudes would be stronger among older adults.

H4: Females would achieve lower SC scores in the SCS compared to men and, as a result, would be more likely to engage in disordered eating behaviours and develop EDs

H5: SC scores would predict better eating attitudes, and the opposite, i.e. high EAT-26 scores would predict lower SC reported.

H6: Negative affect would be positively associated and predict eating pathology; on the contrary, positive affect would be positively associated with SC and better eating attitudes.

Materials and Methods

Participants

The sample consisted of 100 participants ($N = 100$), equally divided into males and females (50% each), randomly selected for the study and recruited from a large Greek community sample. After the informed consent was obtained, participants completed a battery of questionnaires. The age of participants ranged from 18-35 years old ($M = 28.8$, $SD = 4.9$) and self-reported exercise frequency varied between levels 0 (never), 1 (rarely), 2 (frequently) and 3 (intensely). Participants' BMI ranged from 17.5 to 54.6 ($M = 25.1$, $SD = 5.3$). Participation was voluntary, and the study met the university's ethical approval process criteria. The recruitment method was snowball.

Procedure

The current study compromises the ethics of Psychology ethically. All participants were randomly recruited from

a Greek community sample. They were briefly informed about the general study's purpose and reassured about the confidentiality and anonymity of the data. They were then asked to fill in a battery of questionnaires giving their informed consent. The first assessed their eating attitudes, the second measured their ability for SC, and the last estimated the positive and negative affect experienced.

Measures

- **Demographic Data:** A specially designed part of the questionnaire collected information about demographics such as participant's age, weight, height, educational status and exercise habits.
- **Anthropometric Information Data:** Height and weight were self-reported to calculate the participants' Body Mass Index (BMI). BMI is a commonly used measure of an individual's weight, and it is calculated as the individual's body weight (in kilos) divided by the square of their height (in meters). BMI for every participant was estimated using the online BMI calculator provided by the National Heart, Lung and Blood Institute (NHLBI). According to research, self-report constitutes a reliable method of estimating BMI [49,50]. The BMI has been found to correlate with body fat strongly and therefore provides a simple and appropriate measure of fatness [51]. All participants were assigned to distinct BMI categories according to the classification system adopted by the World Health Organization for adults over 19 years old. The classification system for BMI for adults over 18 years of age states that a BMI below 18.5 is considered underweight, a BMI between 18.5 and 24.9 is considered healthy, a BMI between 25 and 29.9 is considered overweight, and a BMI of 30 or above is considered obese.

Self-Report Questionnaires

EAT-26: EAT-26 [52] is a widely used self-report questionnaire that assesses behaviours related to disturbed eating and attitudes relating to body weight. This scale was adapted and weighted in Greek by Moustaki M, et al. [53]. Douka A, et al. [54]. It comprises 26 questions that refer to thoughts, feelings, and behaviours organized and divided into three subscales. The factor Diet (13 questions) refers to the avoidance of fattening foods and preoccupation with losing weight (e.g., "I am aware of the calorie content of foods I eat"; "I engage in dieting behaviour"). The factor Bulimia and Food Preoccupation (6 questions) include questions that describe persistent thoughts regarding food (e.g., "I feel that food controls my life"). The part of this subscale that describes bulimia includes questions such as "I have the impulse to vomit after meals." The third factor, Oral Control (7 questions), covers (a) successfully controlling food intake

and (b) the perceived pressure from others to eat more (e.g., “I avoid eating when I am hungry”; “I feel that others pressure me to eat”).

The participants were asked to describe the degree to which they agree with these statements on a 6-point Likert scale, including *Always, Usually, Often, Sometimes, Rarely, and Never*. A high score on EAT-26 is associated with abnormal eating behaviour. The developers suggested a total score of over 20 [55] as the threshold indicating the symptomatology of a clinically identifiable disorder. For the present study, the Greek version of the EAT-26 was used to measure levels of behaviour related to eating disorders. In this study, the internal consistency of the overall questionnaire was Cronbach's $\alpha = 0.82$.

Self-Compassion Scale (SCS)

The SCS is a self-report measure for SC. This scale was adapted and weighted in the Greek version [56,57]. The SC scale comprises 26 items with six subscales to measure three general facets of SC: self-kindness versus self-judgment, common humanity versus isolation, and mindfulness versus over-identification (e.g., “When I'm going through a very hard time, I give myself the caring and tenderness I need”, “I try to see my failings as part of the human condition”). Participants respond to items on a Likert-type scale ranging from 1 = almost never to 5 = almost always. Higher scores on the self-kindness, common humanity and mindfulness subscales are associated with higher levels of SC. The self-judgment, isolation, and over-identification subscales are reverse-scored, and higher levels are associated with lower levels of SC. Neff K [56] reported satisfactory convergent and discriminant validity for the SCS. Test-retest reliability for the SCS has been reported as $\alpha = .93$ over 3 weeks. Internal consistency for the SCS has ranged from .92 to 0.94 [56,58]. In this study, the internal consistency of the overall questionnaire was Cronbach's $\alpha = 0.89$.

Positive and Negative Affect Scale (PANAS)

The PANAS [59] was used to measure the positive and negative affect experienced by participants at that particular moment taking part in the study or over the past week. This scale was adapted and weighted in Greek by Moustaki M, et al. [53]. This 20-item scale consists of words that describe different feelings and emotions varying from 10 positive items-words (e.g. enthusiastic, interested and excited) to 10 negative (e.g. nervous, upset and irritable) affective responses. Participants rate the extent of the specific responses experienced on a 5-point Likert scale. The scores

range from 1 (very slightly) to 5 (very much). The sums of positive and negative items are calculated separately and can both range from 10 to 50. A high score on the total of the specified positive items indicates a high experience of positive affect, while a high score on the total of the specified negative items generally indicates a high experience of negative affect. The internal consistency of the overall questionnaire in this study was Cronbach's $\alpha = .85$ (positive affect) and $\alpha = .94$ (negative affect).

Statistical Analysis

Statistical Package for Social Sciences (SPSS) Base and SPSS Advanced Models (Edition 25, 2018; IBM Corp., Armonk, NY, USA) were used for analysis. Researchers performed regression, correlation, and t-tests.

Results

According to the results of the analysis, there was no statistically significant difference in age between males and females ($t(98) = .919, p = .454$). However, there was a statistically significant difference in BMI ($t(98) = -2.455, p = .016$), with male participants being of a higher BMI ($M = 26.4, SD = 4.4$) than females ($M = 23.9, SD = 5.9$).

The mean of the Eat-26 tests for the total sample (as shown in table-2) is ($M = 10.58, SD = 9.996$), ranging from 2 to 67. The latter implies that there is a wide diversity in the scores of the participants. Indeed, some extreme values/outliers influence the mean, while 95% of the sample scored below 20 (median = 8). These results could generally be considered good and non-concerning, as a score of 20 or higher should raise concerns.

Likewise, the results of the SCS show a medium to a good level of SC. An average score of 81.4 was computed ($SD = 18$), ranging from 30 to 114 (with a median of 82), showing a better data distribution without extreme values or outliers. The frequency of exercise is depicted in Table 1 and Graph 1. There is a good trend towards exercise since more than half of the sample (51%) replied that they exercise frequently or intensely. The group with the highest frequency (32%) is the one who replied that they exercise frequently. A good 24% of the sample replied that they never exercise.

Between-Group Differences in Study Variables

Means and standard deviations (SD) for all variables within each group are presented in Table 1.

	Age	BMI	PA	NA	EAT-26	SCS
Mean	28.75	25.14	27.02	24.15	10.58	81.44
Median	29	24.5	27.5	23	8	82
Mode	34	19.8	27	21	4	76
SD.	4.91	5.32	4.1	5.26	9.99	18.07
Skewness	-0.48	2.47	-0.39	1.27	3.71	-0.5
Kurtosis	-0.75	10.4	-0.3	1.87	17.96	0.23

Notes: PA=Positive Affect (PANAS), NA=Negative Affect (PANAS), SCS=Self-Compassion (SCS)

Table 1: Descriptives for all variables.

In order to test the first hypothesis, correlational analyses were used to examine the relationship between SC, DE and BMI. A Pearson's r data analysis (Table 2) revealed a statistically significant yet weak correlation between SC scores and participants' BMI ($r = +.20, p < .05$). A moderate negative correlation was noted between SC and DE ($r =$

$-.33, p < .01$) suggesting that as SC increases, probability of disordered eating decreases in a person. SC was also positively correlated with age at a 23% level ($r = .23, p < .05$), thus suggesting that older adults are more likely than younger ones to exhibit higher SC levels and are more empathic, caring and understanding towards themselves.

	Age	BMI	Exercise	Education	PA	NA	DE	SCS
Age		.21*	-0.18	-.2*	0.18	-0.08	0.09	.23*
BMI			-.32**	0	0.07	0.06	-0.11	.20*
Exercise				-0.01	-0.07	-0.17	-0.01	0.07
Education					-0.05	0.05	0.13	-.21*
PA						-.28**	-.21*	.51**
NA							.21*	-.49**
DE								-.33**
SCS								

* $p < .05$ ** $p < .01$ Notes: PA=Positive Affect (PANAS), NA=Negative Affect (PANAS), DE=Disordered Eating, SCS=Self-Compassion (SCS)

Table 2: Correlation Matrix.

Results indicated that the strongest association was observed between positive affect and SC scores ($r = +.51, p < 0.01$). That means that positive affect is highly associated with a self-compassionate stance at a 51% level. Positive affect (PA) was significantly negatively correlated with disordered eating (DE) ($r = -.21, p < .05$), demonstrating that elevated mood and positive emotions can prove protective against disordered eating attitudes. As expected, negative affect (NA) was significantly negatively correlated with SC ($r = -.49, p < .01$) at a 49% level and positively correlated with disordered eating (DE) ($r = +.21, p < .05$).

A moderate negative correlation was observed between BMI and exercise frequency ($r = -.32, p < .01$), thereby indicating that as BMI percentage (which has been used to measure average body fat per height) rises, the less likely it is for an individual to be following an exercise routine. BMI positively correlated with age ($r = +.21, p < .05$), demonstrating

perhaps that as people progress with age, they become less concerned with their body image and adherence to exercise decreases ($r = -.18, p < .05$).

Education was negatively associated with SC ($r = -.21, p < .05$), showing that there is a likelihood that highly educated people may be harsh on themselves, exhibiting low levels of compassion towards themselves. Across the other variables not included above, the association was weaker and not reportable.

Research Hypotheses

H1: The first research hypothesis (SC would be negatively associated with eating disorder symptomatology and BMI) was tested via a Pearson's r test. The test revealed a statistically significant negative correlation between SCS Score and eating disorder symptomatology as expressed by

the EAT-26 Score ($r = -.368, p < 0.01$). However, no significant correlation was observed between SCS and BMI ($r = +.186, p > 0.05$). It can be concluded that the ability to be self-compassionate is negatively connected to eating disorders in the sense that the more self-compassionate an individual is, the less likely he is to present disordered eating attitudes. However, the BMI of the individual is independent of the ability to be compassionate.

H2: Secondly, it was hypothesized that higher BMI in males and females would be associated with high disordered eating symptomatology. In order to test the hypothesis, a Pearson's r test was conducted separately for males and females. In both cases, no significant association was found ($r = -.02$ for males and $r = -.13$ for females, respectively, with $p > .05$). These results led to the rejection of the research hypothesis. They show that a higher BMI for the specific sample data cannot be securely associated with highly disordered eating symptomatology for men or women.

H3: The third research hypothesis assumed that relationships between SC and better eating attitudes (lower total EAT-26 scores) would be stronger among older adults. It is expected that the older the individual, the stronger the association between good eating habits and SC. The analysis confirmed this hypothesis. The Pearson's r test conducted per age group revealed that there is no statistically significant correlation between EAT-26 Score and SCS for the group 18-23 ($r = -.02, p > .05$). There was a moderate and significant negative correlation observed for the group aged 24-29 ($r = -.42, p < .05$). There was an even more statistically significant correlation for the group aged 30-35 ($r = -.41, p = .003$).

These results indicate that in the course of life, the existing associations between SC (as expressed by self-kindness, mindfulness and the ability to view difficulties as a part of life) and better eating habits grow with time, making older people experience this connection more than younger ones.

H4: The fourth research hypothesis intends to examine possible gender differences putting forward that females would achieve lower SC scores in the SCS compared to males and, as a result, would be more likely to engage in disordered eating behaviours and develop EDs. The analysis confirmed part of the hypothesis, as it revealed that females indeed are more likely to be engaged in disordered eating behaviours than men ($t(98) = 2.85, p < .05$). However, there was no reportedly statistically significant difference between the genders with regard to their ability for SC ($t(98) = -1.43, p > .05$).

H5: The last research hypothesis suspects that a high total EAT-26 score and, thus, increased ED symptomatology would be positively correlated with frequent exercise. To

test this hypothesis, a non-parametric Spearman's rho correlation test was performed between the EAT-26 and exercise frequency. The choice of a non-parametric test was because the frequency is an ordinal variable, thus, cannot be treated as purely numeric. The results revealed no statistically significant correlation between EAT-26 and exercise ($r_s = -.14, p > .05$). The participants do not appear to try to compensate for the eating disorders or bad habits with extra exercise. The two do not appear to be connected.

H6: Multiple regression analysis was used to test if participants' gender, age, education, BMI, exercise frequency, negative affect and SC score significantly predicted disordered eating attitudes as measured by the EAT-26 test. The value $R^2 = .229$ revealed that the predictor variable explained 23% of the variance of the outcome predictor variable with $F(7, 92) = 3.90, p = .01$. However, results indicated that only one of the predictors (SC) was found significant explaining 22.9% of the variance making the model not a good fit of the data. As a result, participant's predicted EAT-26 scores according to their SC scores are equal to $9.002 - 0.242(SC)$ as $\beta = -.242, p < 0.01$.

ii. Another multiple regression analysis was used to test whether participant's gender, age, education, BMI, exercise frequency, positive affect and EAT-26 scores would significantly predict SC scores as measured by the SCS scale. Similarly, the value $R^2 = .444$ revealed that the predictor variable explained 44.4% of the variance of the outcome predictor variable with $F(7, 92) = 10.481, p < .001$. Results indicated that four out of seven predictors were found significant, explaining a good 44.4% of the variance, making the model a reliable fit for the data. Consequently, participant's predicted SC scores according to their education status ($\beta = -6.47, p < .05$), age ($\beta = .67, p < .05$), positive affect ($\beta = 1.95, p < .001$) and EAT-26 scores ($\beta = -.57, p < 0.01$) are equal to $9.481 - 6.478(\text{education status}) + 0.670(\text{AGE}) + 1.955(\text{POSITIVE AFFECT}) - 0.570(\text{EAT-26})$.

Discussion and Conclusion

The present study investigated the relationship between SC scores and EAT-26 scores to measure eating habits and eating disorders and their association with demographic and psychosocial characteristics such as gender, BMI, education and exercise frequency. The first research hypothesis that SC would be negatively associated with eating disorder symptomatology and BMI was partly accepted as findings demonstrated that the ability of one to be self-compassionate is negatively correlated with disordered eating, a finding consistent with the existing literature [10]. However, the BMI of the individual was found to be independent of the ability to be self-compassionate and was not directly linked to eating pathology. This finding contradicts the existing literature

[10]. The second research hypothesis that higher BMI in males and females would be associated with high disordered eating symptomatology was not confirmed, since a high BMI cannot be securely associated with high disordered eating symptomatology, neither for males nor females in the sample. Previous studies based on the biopsychosocial model implicated biological factors such as BMI, psychological or individual factors such as negative affect, and sociocultural factors in abnormal eating behaviours [10,60,61].

The third research hypothesis confirmed that relationships between SC and better eating attitudes (lower total EAT-26 scores) would be stronger among older adults. It was found that existing associations between SC and better eating habits grow over time. The results of the present study are in line with previous research regarding the role age plays in individuals' eating habits. Regarding the group of older adults (30-35 yrs), a significantly strong correlation was observed between good eating habits and SC, while this association was not found significant for the younger ones. Previous studies have reported a positive correlation between SC and age [24]. Compared with younger adults, SC had a more significant impact on leading a psychologically prosperous life for middle-aged adults. This could possibly be explained by the distinctive developmental characteristics and trajectories of different ages [22].

The fourth hypothesis that females would achieve lower SC scores in the SCS compared to males and, as a result, would be more likely to engage in disordered eating behaviours and develop EDs was partly confirmed since, in the analysis, it was found that females are more likely to be engaged in disordered eating behaviours than males, but have no significant difference from males with regard to SC. Indeed, women and girls are more likely than men and boys to be concerned about being thin and are more likely to engage in behaviours aimed at achieving thinness and therefore are more prone to develop EDs such as AN and BN [62,63]. Sociocultural factors, such as gender and ethnicity, seem to dramatically affect societal body image standards and form eating attitudes [5].

The fifth research hypothesis that a high total EAT-26 score and thus increased ED symptomatology would be positively correlated with frequent exercise was rejected, as the frequency of exercise and EAT-26 scores had no statistically significant correlation. Therefore the data and the analysis did not support this hypothesis, which was rejected. Previous studies have found some significant connection between eating habits denoting the existence of subclinical eating disorders and frequency of exercise. ED symptomatology has been consistently positively correlated with frequent exercise in the literature as to compensate for bad eating habits [4,64].

The link between SC and better eating habits, presented in the study as low EAT-26 scores, aligns with prior research in the field. Quite a few studies in clinical and non-clinical samples report that the ability of a person to be self-compassionate may moderate the relationship between body image and eating attitudes [14,15]. Additionally, one's ability to be self-compassionate may contribute to self-regulation and health promotion [17]. It can prove quite protective in terms of distorted body image and disordered eating [20]. As a result, intervention and prevention programs aiming at enhancing SC (CFT; Compassion-Focused Therapy) may prove a very useful and effective weapon against eating pathology [65,66]. Kelly A, et al. [19] found that promoting self-compassionate behaviours early in treatment in a clinical ED sample exhibited a better treatment response over 12 weeks.

The present study had certain strengths compared to previous related research. Firstly, the study involved and examined equally sized samples of males and females ($N_m = 50 / N_f = 50$). We were able to make some close comparisons regarding gender and age differences which might have been extremely useful for identifying different coping strategies across gender. The study's hypothesis was met. Thus, it was once again proven that females are more likely to be engaged in disordered eating behaviours than males. This comparative study comes to close this gap and provide results for both genders contributing to more advanced future prevention and intervention programmes for both genders against disordered eating as previous research has mainly focused on female subjects or mainly adolescents [11,43,48].

While the strengths of this study are substantial in the field, providing data that is quite scarce regarding EDs in the Greek population, our study, unavoidably, was presented with certain limitations. Firstly, a larger sample would have made the results much more credible and may have led to additional and more specific findings. Secondly, as in most previous studies, only the total scale score of EAT-26 and SCS was reported leaving specific subscales of disordered eating and SC dimensions undiscussed, where gender differences might thrive. Therefore, conclusions and interpretations of the results are limited for our sample. Furthermore, the design is wholly based on self-reported measures and questionnaires. Although the sample involved in the study is more diverse than the typical college sample used in prior literature, we still need to examine the role SC holds across all social identities. Additionally, the study involved predominantly healthy and well-adjusted Caucasian individuals of Greek nationality and ethnicity, limiting our findings' interpretation. It might be possible that we cannot generalize our findings to a clinical population of ED patients neither outside of the cultural context involved.

Including a clinical group of patients with eating disorders in our study would be interesting. Replication of the study in a clinical versus non-clinical group could confirm the 'Spectrum Association Hypothesis' conceptualizing eating disorders as not a discrete clinical condition qualitatively different from healthy functioning but rather viewed as dimensions lying on a continuum varying from mild to severe levels (from normal eating and body satisfaction to abnormal eating and body dissatisfaction). SC may inform intervention development, and significant research suggests that both factors are beneficially associated with physical [31] and psychological health [28], and a growing literature suggests they are both supportive of health behavior change and weight management [67,68].

Overall, this work represents a robust basis for further research since it is based on scientific methods of data collection and analysis, and the conclusions it provides can be combined with similar research. Eating disorders' domain and topics are inexhaustible in nature, accompanied by a voluminous literature, forewarning that even mild, subclinical behaviors of abnormal eating could represent potential risk factors with adverse physical and psychological effects and social outcomes [1]. Therefore, research related to eating disorders and their connections to other factors and personal characteristics can aid the understanding of the problem.

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