

# Validity, Reliability and Factorial Structure of the Self Compassion Scale in the Greek Population

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## Abstract

Self-compassion is a construct in the field of Positive psychology. It involves being kind, warm and standing with understanding towards oneself when one suffers, fails or feels inadequate, rather than criticizing and blaming oneself or ignoring the pain and negative feelings. A plethora of studies has highlighted its beneficial outcomes on people's psychological prosperity. In the present study, we examined the psychometric properties of the Greek version of Self Compassion Scale (SCS). The standardization was carried out in a sample of 642 Greek adults, ranging from 18 to 65 years old. Results showed that the SCS has satisfactory reliability and validity indexes. Moreover, the factorial structure of the scale matches the ones found in previous studies in many countries.

**Keywords:** Self compassion; Positive psychology; Greek validation; Reliability; Validity; Psychometric properties

## Introduction

Recent years have seen an interesting dialogue between Eastern philosophical thought and Western psychology [1-3], leading to new ways of understanding many aspects of well-being [4,5]. Self-compassion [6] is a construct of Positive psychology, which has been discussed in Eastern philosophy and especially in Buddhism for centuries [7].

Neff [6,8] defines self-compassion as the ability to hold one's feelings of suffering with warmth, love and concern. She also proposes three major components of self-compassion: self-kindness, common humanity and mindfulness. Self-kindness involves being kind and understanding towards ourselves, rather than being harshly self-critical. The second element is common humanity and involves recognizing that suffering is part of the shared human experience and does not happen only to us. Mindfulness, the third element, means holding one's experience in balanced perspective rather than exaggerating the situation of suffering.

Previous studies have shown that self-compassion is associated with psychological well-being and suggests that self-compassion might be an important protective factor, fostering emotional resilience ([9], for a recent review). Furthermore, research findings strongly support positive relations between self-compassion and various aspects of well-being, including life satisfaction, subjective happiness and positive affect and negative associations with negative affect, depression, stress, anxiety and self-criticism [6,8,10,11]. We are expecting that positive aspects of wellbeing will positively correlate with self-compassion. Furthermore, negative emotions, stress, anxiety and depression will correlate negatively with self-compassion. Research findings depict that people with self-compassion don't develop depressive symptoms indicated increases in positive emotions and life satisfaction, as well as significant decreases in anxiety, stress, and negative emotions [12,13].

The self-compassion construct provides an appealing alternative to the more familiar concept of self-esteem [10]. Although psychologists extolled the benefits of self-esteem for decades, recent research has exposed potential costs associated with the pursuit of high self-esteem [14], including characteristics of narcissism [15], false self-perceptions [16], prejudice and violence toward those who threaten the ego [15]. Self-compassion could offer plenty of the same benefits as self-esteem in that it provides positive self-affect and a strong sense of self-acceptance. However, all these emotional situations are not based on evaluation of the self or comparison with others [10].

Self-compassion is assessed using the Self-Compassion Scale which had been developed by Neff [6,8] in order to measure compassion towards oneself. The original Self-Compassion Scale has 26 items measuring six components of self-compassion: Self-kindness, self-judgment, common humanity, isolation, mindfulness and over identification [8]. Items are rated on a five-point response scale ranging from 1 (almost never) to 5 (almost always). Furthermore, a Dutch version of the Self Compassion Scale has been developed by Neff [9]. The Dutch SCS has two items less than the original English SCS due to translation difficulties with two items in the Dutch version. Subscale scores are computed by adding item scores. In the end, a (A) total self-compassion score is computed by reversing the negative subscale items and (then) adding all the subscale scores afterwards. Despite the use of a single-factor construct of self-compassion [6,8,10,17], some studies have failed to confirm this higher-order single-factor structure [18-20]. Recent evidence has shown that the subscales are independent and do not measure a single overarching compassion construct [21].

Self-compassion has received increased research attention lately and many validation studies have been conducted in different studies. Furthermore, recent work has confirmed the psychometric properties of the original scale [22]. In addition to the original English version [8], Self-Compassion Scale has been translated and validated in Italian [19], Spanish [18], Turkish [23] and in Thai and Taiwanese samples [17]. Mantzios et al. [24] have made the adaptation of self-compassion scale in Greek. The purpose of this paper was to evaluate the psychometric properties of the Self-Compassion Scale in Greek population. Specifically, they conducted exploratory factor analyses, as well as internal consistency and test-retest analyses. The results confirmed that the translated versions are equivalent to the original, factor analyses established similar factor solutions to the English versions and reliability coefficients were satisfactory and construct validity revealed similarities

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between English and Greek versions. The construct validity was only assessed through convergent validity and not discriminant validity, so the researchers suggest that future research should address discriminant validity to ensure construct validity altogether.

The aim of this study is to investigate the psychometric properties of the Greek version of the self compassion scale [25] in a wide sample of participants.

## Materials and Methods

### Participants and procedure

The sample consisted of 642 Greek adults (257 men, 40%, 374 women, 58.3% and 11 missing, 1.7%), aging from 18 to 65 years old. The mean age for the total sample was  $M_{age}=36.83$ ,  $SD=13.31$ , for men  $M_{age}=37.49$ ,  $SD=13.64$  and for women  $M_{age}=36.45$ ,  $SD=13.11$ . The majority of the participants were single (302 single, 47%, 272 married, 42.9%, 41 divorced, 6.5%, 19 widowers, 3%), employed (386 employed, 60.1%, 146 unemployed, 22.7%), university graduates (181 school graduates, 28.2%, 74 university students, 11.5%, 243 university graduates, 37.9%, 51 postgraduates, 7.9%).

The present data were collected during the years 2015 to 2016, from November to January, with the help of undergraduate psychology students, who volunteered to administer the battery of tests. The volunteers were told that the purpose of the study was to examine the relationship between self-compassion and components of well-being of Greeks and they were trained on the distribution, administration and collection of the questionnaires. Administration was done individually and was completed in approximately 20 min.

In order to examine the convergent and divergent validity of the test, some participants also filled in other scales.

### Measures

**Self-compassion:** Participants were given the Greek version of the 26-item Self-Compassion Scale [25] which was translated by Mantzios et al. [24]. The SCS includes the 5 item Self-Kindness subscale, the 5-item Self-Judgment subscale, the 4-item Common Humanity subscale, the 4-item Isolation subscale, the 4-item Mindfulness subscale and the 4-item Over-Identification subscale. Responses are given on a 5-point scale from "1-Almost Never" to "5-Almost Always." Mean scores on the six subscales are then averaged (after reverse-coding negative items) to create an overall self-compassion score ranging from 26 to 130. Higher scores correspond to higher levels of self-compassion. In the current research, internal consistency reliability was found to be  $\alpha=0.91$ .

**Positive and negative affect:** The Greek version of the PANAS Questionnaire [26,27] comprises 20 items with two dimensions, with 10 items for positive and 10 items for negative affect (e.g. "Active", "Disturbed"), using a modified Likert-type scale, ranging from 1 (very slightly or not at all) to 5 (extremely). For each sub-scale, total scores range from 10 to 50. Higher scores demonstrate greater positive or negative affect. Internal consistency reliability in the present study was  $\alpha=0.72$  for positive affect and  $\alpha=0.73$  for negative affect.

**Life satisfaction:** The Satisfaction With Life Scale [28] investigates the estimate of a person's quality of life according to his/her chosen criteria using five items rated on a 7-point Likert scale (1=Strongly Disagree-7=Strongly Agree). We used the Greek version of the scale [29], which indicated good internal consistency ( $\alpha=0.86$ ).

**Presence of meaning in life:** The subscale of Meaning in Life Questionnaire [30] chose to measure the presence of meaning using five

items rated on a 7-point Likert-type scale ranging from 1 (Absolutely True) to 7 (Absolutely Untrue). We used the Greek version of the instrument [31]. In our sample the subscale demonstrated good internal consistency ( $\alpha=0.83$ ).

**Self-esteem:** The Self-Esteem Scale [32] is a self-report measure of self-esteem. It includes 10 items, scored on a four-point Likert scale, ranging from 1=Strongly Disagree to 4=Strongly Agree. We used the Greek version of the instrument [33]. In our sample the subscale demonstrated good internal consistency ( $\alpha=0.83$ ).

**Depression Anxiety and Stress:** The Greek version of the Depression Anxiety and Stress Scale [34] was used to measure three related negative emotional states. Participants were asked to indicate the presence of the symptoms "over the previous week". Each item was rated from 1 (Did Not Apply to Me At All) to 4 (Applied to Me Very Much or Most of the Time). In our sample, the three subscales demonstrated good internal consistency ( $\alpha=.72, .77$  and  $.70$ , respectively).

### Statistical analysis

The data collected was analyzed using the Statistical Package for the Social Sciences v. 22. First of all, we have conducted an item analysis estimating and checking the variances, means and standard deviations of the 26 items. Then, we checked the internal consistency reliability. The above, provided useful information about the structure of the scale. Moreover, we conducted a Confirmatory Factor Analysis (using IBM SPSS Amos, version 22) in order to finalize the factorial structure of the scale. Finally, we have examined the convergent and divergent validity of the scale.

## Results

### Item analysis

In order to examine item quality and probability of dysfunctional items or polarization, we estimated the variances, means and standard deviations of the 26 SCS items. We expected variances ranging from 1 to 2.5, indicative of a normal distribution regarding the given answers (reports of self-compassion were rated on a 5-point scale). Moreover, we were expecting means ranging from 2 to 3.5 also indicative of a normal distribution regarding the answers in the validation sample. Results indicate that all items have a normal distribution regarding the sample's answers. Means were ranging from 2.3 to 3.5, standard deviations from 1.031 to 1.299 and variances from 1.099 to 1.688, as expected.

The average score obtained in SCS was 15.19,  $SD=3.89$ . Other validation studies of the same scale found total score means 18.25,  $SD=3.75$  (USA; [25]), 17.95,  $SD=3.68$  (Spain; university student sample; [18]). All item-test correlations of the three negative factors (self-judgment, isolation, over identification) were between -0.32 to -0.62 and of the three positive factors (self-kindness, common humanity, mindfulness) were ranging from 0.27 to 0.55, suggesting good psychometric properties.

### Inter-item correlations

To further examine item quality, we carried out a correlational analysis between the items that belong in the six factors identified by Neff [25]. We were expecting to find positive statistically significant correlations between the items ranging from 0.30 to 0.60. This strength of the correlation is indicative of items that measure the same variable and are complementary to one another regarding the factor variable. Negative correlations are suggestive of opposite variables, while there are not correlations that are indicative of irrelevancy to the main variable. Extremely high correlations ( $r>0.70$ ) are indicative of items that possibly measure the same thing and therefore one of them could be omitted

without losing any psychometric properties.

Self-Kindness inter-item correlations ranged from 0.29 to 0.58, Self-Judgment from 0.17 to 0.43, Common Humanity from 0.27 to 0.47, Isolation from 0.31 to 0.42, Mindfulness from 0.21 to 0.44 and over identification from 0.32 to 0.42. Every inter-item correlation was significant ( $p < 0.001$ ). Overall, most of the items showed low to medium inter-correlations inside the different factors. More specifically, correlations between items 5 and 23 ( $r = 0.29$ ), 1 and 11 ( $r = 0.28$ ), 6 and 21 ( $r = 0.29$ ), 3 and 10 ( $r = 0.28$ ), 15 and 10 ( $r = 0.27$ ), 14 and 22 ( $r = 0.28$ ), 17 and 22 ( $r = 0.26$ ) were slightly lower than the expected. However, correlations between items 1 and 21 ( $r = 0.17$ ), 11 and 21 ( $r = 0.24$ ), 9 and 17 ( $r = 0.23$ ), 9 and 22 ( $r = 0.21$ ) were much lower than the expected, even though they were statistically significant and positive. These findings will be evaluated combined with the reliability and factor analysis results, in order to decide whether one or more of the items could be omitted. The above findings, however, are indicative of adequate construct validity.

### Internal consistency

We estimated the scale reliability using the Cronbach alpha index, which was  $\alpha = 0.86$ . Other SCS validation studies found Cronbach alpha indexes:  $\alpha = 0.87$  (Spain; [18]),  $\alpha = 0.92$  (Turkey; [23]).

Further item analysis exploring the possibility to strengthen the scale reliability if any of the items was deleted gave negative results. The alpha values if item deleted ranged between 0.85 and 0.86. According to the results, the SCS can be used as a reliable tool for the assessment of self-compassion in the Greek population.

### Factor analysis

In order to examine the factorial structure of the scale we proceeded to Confirmatory Factor Analysis. Recent studies have failed to confirm Neff's [25] model of a higher-order single-factor structure of SCS that contains the 6 components of self-compassion [18,19,23,34]. On the other hand, recent evidence has shown that the different components of self-compassion are independent and do not measure a higher-order self-compassion construct [21,35]. Moreover, Macbeth and Gumley [36] found a two-factor structure of self-compassion in its relationship with psychopathology (self-compassion and self-criticism). Since most of the attempts to confirm the original model of the scale in other cultures has failed, we decided to examine each one of the proposed models in the Greek context in order to choose the best way to interpret the scale results. Thus, we examined three models: a) a higher-order single-factor structure containing the six subscales, b) a six-factor model, and c) a two-factor model.

In order to assess model fit, standardized root mean-square residual (SRMR; [37]), root mean-square error of approximation (RMSEA; [38]), comparative fit index (CFI; [39]) and Goodness of Fit Index (GFI; [40]) were analyzed. According to Hu and Bentler [41], the cut-off values should be: SRMR and RMSEA values close to .06 or lower than .08, CFI and GFI values should be higher than 0.90 and ideally higher than 0.95.

Firstly, following Neff's suggestion [25], we examined the appropriateness of a model including a higher-order self-compassion factor. However, the model displayed inadequate fit across all indices. Secondly, we tested the two-factor solution suggested by Macbeth and Gumley [35], but it didn't fit the data adequately. Finally, a third CFA was performed to examine the fitness of the six-factor model. Results showed that the six-factor model fit the data adequately, indicating that the Greek version of the SCS shows high construct validity. More

specifically, the regression weights were statistically significant, the item loadings ranged from .43 to .68 and the model fit indices were great:  $CFI = 0.90$  ( $\geq 0.90$ ),  $GFI = 0.93$  ( $> 0.90$ ),  $RMSEA = 0.05$  ( $< 0.06$ ),  $SRMR = 0.05$  ( $< 0.06$ ). The modification indices suggested three covariance errors between items that belong in the same factor (Figure 1).

### Convergent and divergent validity analysis

To further examine the validity of the scale we used other similar variables, so as to evaluate the convergent and divergent validity. We hypothesized that self-compassion component: Self-Kindness (SK), Self-Judgement (SJ), Common Humanity (CH), Isolation (I), Mindfulness (M), and Over identification (O) would correlate negatively to Stress (STR), Depression (DEP), Anxiety (ANX) and Negative Emotions (NE) and positively to Life Satisfaction (LS), Presence of Meaning in Life (ML), Positive Emotions (PE) and Self-Esteem (SE). Results are presented in Table 1.

Results indicate that SCS factors have satisfactory construct validity. More specifically, SCS factors have good convergent validity, since the three negative factors that indicate self-criticism (self-judgement, isolation and over identification) showed low to moderate positive correlation to experiencing of negative emotions ( $r = 0.29$  to 0.41), stress ( $r = 0.32$  to 0.45), depression ( $r = 0.29$  to 0.48) and anxiety ( $r = 0.23$  to 0.38); the negative factors also showed low to moderate negative correlation to experiencing of positive emotions ( $r = -0.12$  to  $-0.24$ ), life satisfaction ( $r = -0.15$  to  $-0.36$ ), presence of meaning in life ( $r = -0.19$  to  $-0.24$ ), and self-esteem ( $r = -0.38$  to  $-0.41$ ), which are indicative of good divergent validity. Self-judgement showed non-significant correlation to presence of meaning in life.

On the other hand, the three positive factors indicative of self-compassion (self-kindness, common humanity, and mindfulness) showed statistically significant, low to moderate positive correlation to experiencing of positive emotions ( $r = 0.27$  to 0.38), life satisfaction ( $r = 0.21$  to 0.30), presence of meaning in life ( $r = 0.23$  to 0.34), and self-esteem ( $r = 0.30$  to 0.51). The positive factors correlated negatively to

	NE	STR	DEP	ANX	PE	LS	ML	SE
SK	-0.21**	-0.25**	-0.26**	-0.13**	0.38**	0.30**	0.23**	0.51**
SJ	0.29**	0.32**	0.29**	0.23**	-0.12**	-0.15**	-0.07	-0.41**
CH	-0.13**	-0.14**	-0.13**	-0.08*	0.27**	0.21**	0.30**	0.30**
I	0.41**	0.38**	0.48**	0.38**	-0.24**	-0.36**	-0.24**	-0.47**
M	-0.22**	-0.26**	-0.26**	-0.19**	0.31**	0.28**	0.34**	0.34**
O	0.41**	0.45**	0.36**	0.33**	-0.16**	-0.23**	-0.19**	-0.38**
N	829	856	856	856	829	609	615	250

Table 1: Criterion and concurrent validity of the SCS.

Raw Score Range						Sten Equivalent	Description
SK	SJ	CH	I	M	O		
0 to 5	0 to 6	0 to 4	0 to 4	0 to 6	0 to 5	1	Very Low
6 to 8	7 to 8	5 to 6	5	7 to 8	6	2	Low
9 to 11	9 to 10	7 to 8	6 to 7	9 to 10	7 to 8	3	Low
12 to 13	11 to 12	9 to 10	8	11	9 to 10	4	Medium
14 to 15	13 to 14	11	9 to 10	12 to 13	11 to 12	5	Medium
16 to 17	15 to 16	12 to 13	11 to 12	14 to 15	13 to 14	6	Medium
18 to 19	17 to 18	14 to 15	13 to 14	16	15 to 16	7	Medium
20 to 21	19 to 20	16 to 17	15 to 16	17	17	8	High
22	21 to 23	18	17 to 18	18 to 19	18 to 19	9	High
23 to 25	24 to 25	19 to 20	19 to 20	20	20	10	Very High

Table 2: SCS factors norms.

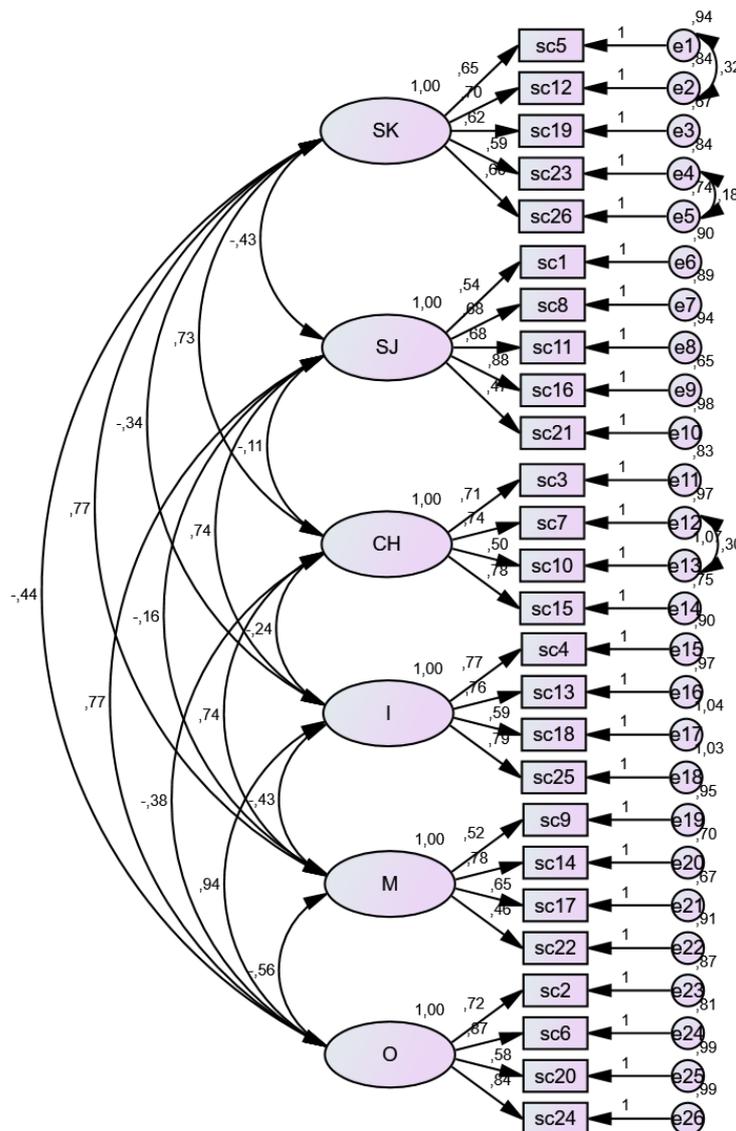


Figure 1: Standardized solution of the six-factor model of the Greek version of SCS.

experiencing of negative emotions ( $r=-0.13$  to  $-0.22$ ), stress ( $r=-0.14$  to  $-0.26$ ), depression ( $r=-0.13$  to  $-0.26$ ) and anxiety ( $r=-0.08$  to  $-0.19$ ), which indicates good divergent validity.

### Norms

In order to help mental health professionals to interpret the SCS scores, we calculated the normalized scores using the Stanscore4 program. In Table 2, professionals and researchers can match the raw score of SCS factors to a Sten Score ranging from 1 to 10, so as to compare the individual's score with the norm.

### Discussion

Self-compassion [6] is a construct of Positive psychology, which has been received an increased attention due to its strong link to mental health. The growing interest in this new positive psychology variable has created the need for valid and reliable psychometric tools for its measurement. Neff [25] defined self-compassion as compassion directed

inwards and proposed a model according to which self-compassion consists of three elements: self-kindness, common humanity and mindfulness. The psychological construct of self-compassion has received increased attention in the psychology field with a plurality of studies examining the influence of self-compassion on well-being. The present study aimed at exploring the psychometric properties of a Greek Version of the Self Compassion Scale (SCS).

The original SCS is a 26-item scale that aims to measure a global measure of self-compassion as well as 6 subscales (Self-Kindness, Self-Judgment, Common Humanity, Isolation, Mindfulness and Over identification). Responses are given on a 5-point scale from 1 (*almost never*) to 5 (*almost always*).

Results showed that the Greek Version of the SCS can be considered as a reliable and valid psychometric tool. In particular, the item analysis of the 26 items of the scale revealed satisfactory variance ranging from 2-3.5 indicative of a normal distribution and of lack of polarization

and problematic items. The average score obtained in SCS was 15.19,  $SD=3.89$ . Other validation studies of the same scale found total score means 18.25,  $SD=3.75$  (USA; [25]), 17.95,  $SD=3.68$  (Spain; university student sample; [18]). All item-test correlations of the three negative factors (Self-judgement, Isolation, Over identification) were between -0.32 to -0.62 and of the three positive factors (Self-Kindness, Common Humanity, Mindfulness) were ranging from 0.27 to 0.55, suggesting good psychometric properties. Moreover Self-Kindness inter-item correlations ranged from 0.29 to 0.58, Self-judgment from 0.17 to 0.43, Common humanity from 0.27 to 0.47, Isolation from 0.31 to 0.42, Mindfulness from 0.21 to 0.44 and Over identification from 0.32 to 0.42. Every inter-item correlation was significant ( $p<0.001$ ). Overall, most of the items showed low to medium inter-correlations inside the different factors.

As far as the internal consistency of the scale is concerned results showed that the Cronbach alpha index was  $\alpha=0.86$ . Other SCS validation studies found Cronbach alpha indexes:  $\alpha=0.87$  (Spain; [18]),  $\alpha=0.92$  (Turkey; [23]).

Finally regarding the validity and factorial structure of the scale the results showed that the six-factor model fit the data adequately, indicating that the Greek version of the SCS has high construct validity. More specifically, the regression weights were statistically significant, the item loadings ranged from 0.43 to 0.68 and the model fit indices were great:  $CFI=0.90$  ( $\geq 0.90$ ),  $GFI=0.93$  ( $>0.90$ ),  $RMSEA=0.05$  ( $<0.06$ ),  $SRMR=0.05$  ( $<0.06$ ).

The findings suggest satisfactory psychometric qualities in a population with specific cultural differences comparing to previous standardization efforts. This provides empirical support for a global commonly accepted factorial structure of the Self Compassion construct/notion.

The scientific value of our study lies in the fact that it promotes the utilization of the SCS as a prominent psychometric tool for the measurement of Self Compassion. Also it is important to note that the future completion of numerous studies worldwide using the same instrument can provide the opportunity for comparative analyses, critical review and meta-analyses enhancing our understanding of the Self Compassion notion and its value in positive psychology research.

Regarding the limitations of our study, we should mention that reliability indexes were calculated using the Cronbach Alpha Index. Further research should estimate test retest reliability of the scale as well as criterion validity. The study provides useful information regarding the use of the Self Compassion Scale in future studies in Greek speaking populations and it could expand positive psychology research.

## Conclusion

We strongly believe that future research regarding the validation of the Self Compassion Scale in the Greek population could focus in more specific positive psychology measures while also exploring the cultural differences between different populations regarding self-compassion. In all, the Self Compassion Scale-Greek Version can be used as a reliable and valid psychometric tool for the measurement of Self-Compassion in the Greek population.

## Ethical Approval

All procedures performed in studies involving human participants

were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

This article does not contain any studies with animals performed by any of the authors.

## Informed Consent

Informed consent was obtained from all individual participants included in the study.

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