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VALIDITY, RELIABILITY AND FACTORIAL STRUCTURE OF THE SELF COMPASSION SCALE IN THE GREEK POPULATION

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ABSTRACT

Self-compassion is a newly developed 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 and Psychometric Properties.

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INTRODUCTION

Recent years have seen an interesting dialogue between Eastern philosophical thought and Western psychology (Molino, 1998¹, Rubin, 1996², Watson, Batchelor, and Claxton, 1999)³, leading to new ways of understanding many aspects of well-being (Kabat-Zinn and Chapman-Waldrop, 1988⁴, Kabat-Zinn, Massion, Kristeller, and Peterson, 1992)⁵. Self-compassion (Neff, 2003b)⁶ is a newly developed construct of Positive psychology, which has been discussed in Eastern philosophy and especially in Buddhism for centuries (Allen and Leary, 2010)⁷. Neff (2003a, 2003b)^{8,6} 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 doesn't 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 (see Neff, 2009⁹, 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 (Neff, 2003a, Neff, 2003b^{8,6}, Neff, Kirkpatrick and Rude, 2007¹⁰, Neely, Schallert, Mohammed, Roberts and Chen 2009)¹¹.

The self-compassion construct provides an appealing alternative to the more familiar concept of self-esteem (Neff *et al.*, 2007)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 (Crocker and Park, 2004)¹², including characteristics of narcissism (Bushman and Baumeister, 1998)¹³, false self-perceptions (Sedikides, 1993)¹⁴, prejudice and violence toward those who threaten the ego (Baumeister, Smart, and Boden, 1996)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 (Neff *et al.*, 2007)¹⁰.

Self-compassion is assessed using the Self-Compassion Scale which had been developed by Kristin Neff (2003) 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 (Neff, 2003a)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 and Vonk (2009)¹¹. While highly similar to the original, the Dutch SCS uses a seven-point response scale and includes only 24 items.1 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. Many validation studies have been conducted in different countries. Furthermore, recent work has confirmed the psychometric properties of the original scale (Neff, 2016)¹⁶. In addition to the original English version (Neff, 2003a)⁸, Self-Compassion Scale has been translated and validated in Italian (Petrocchi, Ottaviani, and Couyoumdjian, 2014)¹⁷, Spanish (Garcia-Campayo, Navarro-Gil, Andres, Montero-Marin, Lopez-Artal, and Demarzo, 2014)¹⁸, Turkish (Deniz, Kesici, and Sümer, 2008)¹⁹ and in Thai and Taiwanese samples (Neff, Pisitsungkagarn, and Hsieh, 2008)²⁰. Mantzios and Colleagues (2013)²¹ have made the adaptation of Self-Compassion Scale in Greek. The result of this study confirms that the Greek version of the Self-Compassion Scale is a valid and reliable measure. The researchers suggest that further research should be done in order to ensure construct validity (Mantzios *et al.*, 2013)²¹. All these adaptations have provided evidence of the construct validity of this scale in many cultural groups.

The aim of this study is to investigate further the psychometric properties of the Greek version of the Self-Compassion Scale (Neff, 2003) in a wide sample of participants.

MATERIAL 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 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 minutes.

In order to examine the criterion validity of the test, some participants also filled in other scales, which were used as criteria.

Measures

Self-Compassion

Participants were given the Greek version of the 26-item Self-Compassion Scale (Neff, 2003) which was translated by Mantzios and colleagues (2013)²¹. 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 $\alpha = .91$.

Positive and Negative Affect

The Greek version of the PANAS Questionnaire (Daskalou and Sigkollitou, 2012²², Watson, Clark and Tellegen, 1988)²³ 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 $\alpha = .72$ for positive affect and $\alpha = .73$ for negative affect.

Life Satisfaction

The Satisfaction With Life Scale (Diener, Emmons, Larsen, and Griffin, 1985)²⁴ 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 (Stalikas and Lakioti, 2012)²⁵, which indicated good internal consistency ($\alpha = .86$).

Presence of Meaning in Life

The subscale of Meaning in Life Questionnaire (Steger, Frazier, Oishi and Kaler, 2006)²⁶ 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 (Pezirkianidis, Galanakis, Karakasidou, and Stalikas, 2016)²⁷. In our sample the subscale demonstrated good internal consistency ($\alpha = 0.83$).

Self esteem

The Self-Esteem Scale (Rosenberg, 1965)²⁸ 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 (Galanou, Galanakis, Alexopoulos and Darviri, 2014)²⁹. In our sample the subscale demonstrated good internal consistency ($\alpha = 0.83$).

Statistical Analysis

The data collected was analyzed using the Statistical Package for the Social Sciences vol. 22. At first, we have conducted an item analysis in order to estimate and check the variances, means and standard deviations of the four items. Then, we checked the item-test and inter-item correlations, and 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; Neff, 2003), 17.95, $SD=3.68$ (Spain; university student sample; Garcia-Campayo *et al.*, 2014)¹⁸. All item-test correlations of the three negative factors (Self-Judgement, Isolation, over identification) were between -.32 to -.62 and of the three positive factors (Self-Kindness, Common Humanity, Mindfulness) were ranging from .27 to .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 (2003). We were expecting to find positive statistically significant correlations between the items ranging from .30 to .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 ($r > .70$) 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 .29 to .58, Self-Judgment from .17 to .43, Common Humanity from .27 to .47, Isolation from .31 to .42,

Mindfulness from .21 to .44 and Over identification from .32 to .42. Every inter-item correlation was significant ($p < .001$). Overall, most of the items showed low to medium inter-correlations inside the different factors. More specifically, correlations between items 5 and 23 ($r=.29$), 1 and 11 ($r=.28$), 6 and 21 ($r=.29$), 3 and 10 ($r=.28$), 15 and 10 ($r=.27$), 14 and 22 ($r=.28$), 17 and 22 ($r=.26$) were slightly lower than the expected. However, correlations between items 1 and 21 ($r=.17$), 11 and 21 ($r=.24$), 9 and 17 ($r=.23$), 9 and 22 ($r=.21$) 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.

Reliability

We estimated the scale reliability using the Cronbach alpha index, which was $\alpha = .86$. Other SCS validation studies found Cronbach alpha indexes: $\alpha = .87$ (Spain; Garcia-Campayo *et al.*, 2014)¹⁸, $\alpha = .92$ (Turkey; Deniz, Kesici and Sumer, 2008)¹⁹.

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 .85 and .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 (2003) model of a higher-order single-factor structure of SCS that contains the 6 components of self-compassion (Costa *et al.*, 2015³⁰, Deniz, Kesici and Sumer, 2008¹⁹, Garcia-Campayo *et al.*, 2014¹⁸, Petrocchi *et al.*, 2013)¹⁷. 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 (Costa *et al.*, 2015³⁰, Williams, Dalglseih, Karl and Kuyken, 2014)³¹. Moreover, Macbeth and Gumley (2012)³² found a two-factor structure of self-compassion in its

relationship with psychopathology (self-compassion and self-criticism). 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; Hu and Bentler, 1995)³³, root mean-square error of approximation (RMSEA; Browne and Cudeck, 1993)³⁴, comparative fit index (CFI; Bentler, 1990)³⁵ and Goodness of Fit Index (GFI; Tanaka and Huba, 1985)³⁶ were analyzed. According to Hu and Bentler (1999)³⁷, 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 .90 and ideally higher than .95.

Firstly, following Neff's suggestion (2003), 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 (2012)³², 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: $CFI = .90$ ($\geq .90$), $GFI = .93$ ($> .90$), $RMSEA = .05$ ($< .06$), $SRMR = .05$ ($< .06$). The modification indices suggested three covariance errors between items that belong in the same factor (see Figure No.1).

Convergent and Divergent Validity Analysis

To further examine the validity of the scale we used as criteria other variables, so as to evaluate the convergent and divergent validity. We hypothesized that self-compassion components: 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 No.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 ($r = .29$ to $.41$), stress ($r = .32$ to $.45$), depression ($r = .29$ to $.48$) and anxiety ($r = .23$ to $.38$); the negative factors also showed low to moderate negative correlation to experiencing of positive emotions ($r = -.12$ to $-.24$), life satisfaction ($r = -.15$ to $-.36$), presence of meaning in life ($r = -.19$ to $-.24$), and self-esteem ($r = -.38$ to $-.41$), 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 ($r = .27$ to $.38$), life satisfaction ($r = .21$ to $.30$), presence of meaning in life ($r = .23$ to $.34$), and self-esteem ($r = .30$ to $.51$). The positive factors correlated negatively to experiencing of negative emotions ($r = -.13$ to $-.22$), stress ($r = -.14$ to $-.26$), depression ($r = -.13$ to $-.26$) and anxiety ($r = -.08$ to $-.19$), 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 No.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 (Neff, 2003b)⁶ is a newly developed construct of Positive psychology, which has been discussed in Eastern philosophy and especially in Buddhism for centuries (Allen and Leary, 2010)⁷. The growing interest in this new positive psychology variable has created the need for

valid and reliable psychometric tools for its measurement. Kristin D. Neff 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; Neff, 2003), 17.95, $SD=3.68$ (Spain; university student sample; Garcia-Campayo *et al.*, 2014)¹⁸. All item-test correlations of the three negative factors (Self-Judgement, Isolation, Over identification) were between -.32 to -.62 and of the three positive factors (Self-Kindness, Common Humanity, Mindfulness) were ranging from .27 to .55, suggesting good psychometric properties. Moreover Self-Kindness inter-item correlations ranged from .29 to .58, Self-Judgment from .17 to .43, Common Humanity from .27 to .47, Isolation from .31 to .42, Mindfulness from .21 to .44 and Over identification from .32 to .42. Every inter-item correlation was significant ($p<.001$). Overall, most of the items showed low to medium inter-correlations inside the different factors.

As far as the reliability of the scale is concerned results showed that the Cronbach alpha index was $\alpha=.86$. Other SCS validation studies found Cronbach alpha indexes: $\alpha=.87$ (Spain; Garcia-Campayo *et al.*, 2014)¹⁸, $\alpha=.92$ (Turkey; Deniz, Kesici and Sumer, 2008)¹⁹. The possible deletion of items could not add to the reliability of the scale.

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 .43 to .68 and the model fit indices were great: $CFI=.90$ ($\geq .90$), $GFI=.93$ ($>.90$), $RMSEA=.05$ ($<.06$), $SRMR=.05$ ($<.06$).

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 metaanalyses 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. Moreover, all criteria validity measures were concurrent while we could also estimate validity measures over a period of time. 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.

Table No.1: Criterion and Concurrent Validity of the SCS

S.No		NE	STR	DEP	ANX	PE	LS	ML	SE
1	SK	-.21**	-.25**	-.26**	-.13**	.38**	.30**	.23**	.51**
2	SJ	.29**	.32**	.29**	.23**	-.12**	-.15**	-.07	-.41**
3	CH	-.13**	-.14**	-.13**	-.08*	.27**	.21**	.30**	.30**
4	I	.41**	.38**	.48**	.38**	-.24**	-.36**	-.24**	-.47**
5	M	-.22**	-.26**	-.26**	-.19**	.31**	.28**	.34**	.34**
6	O	.41**	.45**	.36**	.33**	-.16**	-.23**	-.19**	-.38**
7	N	829	856	856	856	829	609	615	250

*p< .05, **p<.001

Table No.2: SCS Factors Norms

Raw Score Range							Sten Equivalent	Description
S.No	SK	SJ	CH	I	M	O		
1	0 to 5	0 to 6	0 to 4	0 to 4	0 to 6	0 to 5	1	Very Low
2	6 to 8	7 to 8	5 to 6	5	7 to 8	6	2	Low
3	9 to 11	9 to 10	7 to 8	6 to 7	9 to 10	7 to 8	3	Low
4	12 to 13	11 to 12	9 to 10	8	11	9 to 10	4	Medium
5	14 to 15	13 to 14	11	9 to 10	12 to 13	11 to 12	5	Medium
6	16 to 17	15 to 16	12 to 13	11 to 12	14 to 15	13 to 14	6	Medium
7	18 to 19	17 to 18	14 to 15	13 to 14	16	15 to 16	7	Medium
8	20 to 21	19 to 20	16 to 17	15 to 16	17	17	8	High
9	22	21 to 23	18	17 to 18	18 to 19	18 to 19	9	High
10	23 to 25	24 to 25	19 to 20	19 to 20	20	20	10	Very High

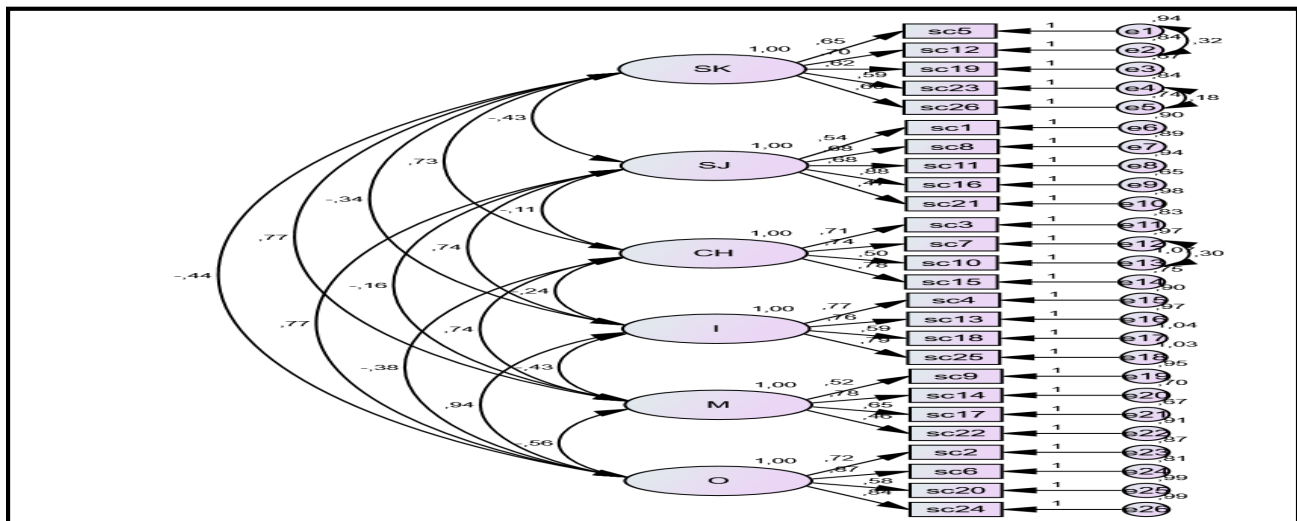


Figure No.1: Standardized solution of the six-factor model of the Greek version of SCS

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.

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CONFLICT OF INTEREST

We declare that we have no conflict of interest.

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