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### Original Article

## Determining predictive variables in personal peacefulness: With regards to gender and marital status differences

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#### Abstract

**Introduction:** The concept of peace as a personality trait needs permanent patterns of behaviors, states and attitudes during different times and contexts (individual, interpersonal and international). The aim of this study was determining predictive variables in personal peacefulness with regards to gender and marital status.

**Materials and Methods:** The study consisted of four stages. In first stage, using a sample of 30 volunteer students, peace related variables were categorized. In second stage of the study, applying R-3.3.3 the correlation among 22 aforementioned variables was identified. In third stage, three multivariate regression analyses were calculated to predict personal peacefulness based on other peace-related variables using SPSS-23. In last stage, gender and marital status differences in answer to peace scales were analyzed using MANOVA on a sample of 206 students.

**Results:** The findings of the first stage of the study categorized peace-related variables in three groups (cognitive, emotional and relational). The findings of the second stage of the study showed the correlation matrix among variables. The results of the third stage demonstrated that conflict resolution, connectedness to nature, self-compassion and sense of humor were significant predictors of personal peacefulness in group of relational variables ( $R^2 = 0.89$ ). In group of emotional variables; hope, mind reading, aggression and harmony were significant predictors of personal peacefulness ( $R^2 = 0.89$ ). In group of cognitive variables; inhibition and need for cognition were significant predictors of personal peacefulness ( $R^2 = 0.93$ ). The findings of last stage of the study showed a significant main effect of marital status and gender for intra and inter-personal peacefulness. Further, the interaction between gender and marital status was significant only for interpersonal peacefulness.

**Conclusion:** In general terms, there are many psychological variables which may affect personal peacefulness. Discovering those variables leads us to new promoting peace-health educations. It is important to consider gender and marital status differences in designing more precise interventions.

**Keywords:** Conflict psychology, Gender, Marital status, Peace, Personality.

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## Introduction

For centuries, peace has only been discussed in religious leaders' instructions such as Lao-tzu, Christ, Buddha, and Dalai Lama. They believed that people should foster peace in their lives and the surrounding world. Compassion, empathy, and nonviolence are proposed as some ways for promoting peace. In medieval ages, discussions on peace spread from religion to education and philosophy (1). Peace is defined as a positive social coexistence in which direct and structural violence is improbable and behaves in justice, respect, worth and value with all human, animals and creatures. Peace psychology is the study of mental and behavioral process that prevents violence (2).

One of the most influential authors and researchers in peace is the social scientist, Johan Galtung, who is the founder of the discipline of peace and conflict studies. Galtung, in his peace theory and with regards to peaceful change in conflicts, developed the following peace formula:  $\text{peace} = \text{equity} \times \text{harmony} / \text{trauma} \times \text{conflict}$  (1). From Galtung's point of view peace is an umbrella term which refers to human's interests and general goals. He has considered three synonyms for peace: (a) stability or equilibrium which deals with intrapersonal peacefulness, (b) absence of organized collective violence which is related to peace between human groups, and (c) positive characteristics including cooperation and integration as two factors create interpersonal peacefulness (3). Given this, there might be various factors related to peace namely patience, tolerance, compassion, forgiveness and love on the one hand and, nonviolence toward all the creatures on the other (4).

Various studies have shown that peace can be considered as a personality trait (5). Peacefulness as a personality trait involves the consistency in individuals' peaceful behaviors, states and attitudes over time and across relevant contexts (individual, interpersonal and international). One of the reasons for expecting consistency in peacefulness is that values, capacities, and cognitive abilities that foster peacefulness in one context or at a particular time are also likely to be stimulated in fostering peacefulness for other contexts and at later times (5). As a personality trait, inner peace could be defined as the tendency for self-acceptance, self-compassion, nonviolence

toward self, harmony between different aspects of self and as a disposition for experiencing positive emotional states. Within this trait, self-acceptance is a psychological concept which positively correlates with positive affects (6) and life satisfaction (7) and negatively correlates with negative affect and neurosis (8). In addition, previous studies have demonstrated that peaceful persons have more optimistic views about the future which leads to experience more positive mood status (9). Also, previous research (10,11) has found that the experience of positive and harmonious emotions leads to increase conflict resolution, cooperation, engagement and helping behaviors, in turns confirm the transition of being peaceful from individual domain to interpersonal ones. Furthermore, in interpersonal domain, an individual with higher level of peacefulness is less likely to act in hurtful ways toward others and is more likely to act in cooperative, thoughtful, supportive and responsible. All these characteristics can be called agreeableness (12).

Researchers have reported a reciprocal association between intra and interpersonal peacefulness in such a way that increasing one will affect the other. For instance, peaceful feelings such as serenity, security and satisfaction allow a person to give relatively more attention to relationship issues and promote flexible social problem solving, which in turns enhance the sense of social bonding (13).

Rather than motivational factors, perceptual and cognitive variables are other core components in personality peacefulness structure. For example, studies have shown that peaceful people have higher ability to peacefully resolve conflicts in social situations (6). This ability could be described by using empathy and perspective taking. Through estimating others' mental states based on available evidence, they are assumed as criteria for social interactions (14). Perspective taking has closely interrelated to executive functions (set of processes which are involved in onset, maintain, change, and stop behaviors) such as inhibitory control (15). Thus, it can prevent automatic reactions to stimuli by searching appropriate responses in memory (16). One of the hypotheses in the present study was that inhibitory control may contribute to more efficient message transfer to other through perspective taking.

Peace with nature is another aspect of personality peacefulness (17). How a person relates to the nature could be very similar to the way they relate to other people. For instance, Tam (18) reported that those who considered an identity for nature showed more pro-environmental behaviors. In addition, if peaceful individuals are more successful in their social interactions, they will enjoy interacting with nature. This may be due to the fact that protecting the environment is one of peaceful individuals' values (19). Herzog and Strevey (20) reported a significant correlation between connectedness to nature and different aspects of psychological wellbeing such as personal growth and satisfaction.

Demographic factors including gender and marital status are usually efficacious variables in psychological fields and Peace psychology is not an exception to this. Many studies have investigated levels of nonviolence with regard to gender differences (21-23). For instance, Severson et al. (24) understood that female university students scored lower in psychological and physical nonviolence than males. Research in the field also showed that except for inner peace, men and women were different in other peace domains (interpersonal, social and international (25). Previous research also indicated that variety in men and women's communication inclinations was the major cause of the gender differences in the field of peacefulness and nonviolence (26,27).

With regard to marital status, no study, as far as the authors know, has found working on distinctions in peacefulness among single and married individuals. The findings of previous studies are divergent in this regard. For instance, DePaulo and Morris (28) reported that having positive interpersonal relationships was more significant for single women. Also, singles experienced a higher level of self-confidence, independence and job commitment with more personal growth (29). Moreover, in Tobin, Graziano, Vanman, and Tassinary's study (30), married people exhibited higher ability controlling negative emotions which was related to agreeableness personality trait and positively correlated to peacefulness. Despite of lacking relevant studies regarding aforementioned variables, discovering the effects of gender and marriage was another hypothesis in current study.

Reviewing the literature revealed that interpersonal peacefulness was related to variables such as neurosis, negative affect, prone to aggression, psychological detachment, life satisfaction, happiness and gratitude. Furthermore, agreeableness, aggression, vengefulness, dominance, cooperation, valuing friendship, positive relationships and nonviolence (31). Regardless of identifying aforesaid features, less has been done predicting their roles in building peacefulness personality trait. Consequently the aim of the current study was to determine predictive variables role in personal peacefulness with regards to gender and marital status.

### Materials and Methods

This study was ex post facto and correlational in nature. It included four stages. Participants were given a written description of the study and were offered participation in the study if they met the following criteria: 1) complete satisfaction to participate in research; 2) no acute or chronic psychological disorder; 3) no other psychological treatment/training during the study; 4) the ability to participate in the study and 5) 19-40 years old. Exclusion criteria consisted of no cooperation, no complete answer to the tests booklet and serious medical disease.

The participants were assured that tests were just measuring some psychological characteristics. Moreover, written informed consent was obtained from all of the participants and there were also told that their data will be privately and confidentially held and reported. The Research Ethics and Governance Committee at University of Isfahan approved the study protocol. Following stages were undertaken in this study.

First stage: Before gathering the data, 30 students who were recruited via internet-sample size was determined according to similar studies and Mayers et al. (32) and were asked to categorized peace relate variables (to relational, emotional and cognitive) which derived from literature review. In this stage, the participants were asked to write one of the following letters on the variables; "R" for relational, "E" for emotional and "C" for cognitive. Then, by counting the numbers of the letters, the category label was determined. In order to be sure about

the degree of accuracy in categorization, kappa coefficient was calculated by three psychologists. Finally, raters' agreement was compared to the students' categorization.

Second stage: After classifying the peace variables, applying R.3.3.3 the correlation among 22 variables with total peace score was verified. Third stage: In this stage, in order to selecting efficacious peace-related variables, 60 university students (University of Isfahan, Iran) were selected through convenience sampling during three weeks.

They were screened with regards to Mental Health Continuum- Long Form (33) and Outcome Questionnaire (34) and intra/interpersonal peacefulness scales. Finally, 30 students were selected- according to Delavar (35) recommendation for ex post facto studies. All of them showed the complete health profile (flourishing) and scored high in peace scales. Flourishing profile was depicted applying MHC (well-being symptoms) and OQ (illness symptoms). They answered to the test booklet (consisted of 22 tests) in order to investigating the relationship between target (sum of the intra/interpersonal peacefulness scores) and predictors. In order to control for method bias, a separation between the measures of the predictors and criterion variable was applied. In so doing, a two-week interval was considered allowing previously remembered information disappears from memory (36).

For testing the research hypotheses, three multiple regression analysis (separately for relational/ emotional/ cognitive) in SPSS (V23.) was carried out. The effect of self-compassion, hope, aggression, need to cognition, honesty, quality of life, conflict resolution, resiliency, emotional intelligence, harmony, nature connectedness, positivity, interpersonal reactivity (empathy/ perspective taking/ personal distress), sense of humor, justice, gratefulness, forgiveness, mind reading, selective attention and inhibitory control were studied on personal peacefulness personality. Forth stage: In this stage, the sample size was determined by G-power software. Meta-analysis was performed on related variables to determine effect size (Cohen  $d^2$  was .5). Statistical power ( $1-\beta$ ) was considered .8 and  $\alpha$  was set .05. G-power software confirmed 206 persons were adequate

for regression analysis for 22 variables. Participants were selected using Google Docs Form. Gender differences and marital status in intra/interpersonal peacefulness and peace with nature were analyzed applying MANOVA using SPSS-23.

#### Research instruments

A) *Buss-Perry Aggression Questionnaire (AGQ)*: The Aggression Questionnaire contains 4 subscales, labeled physical aggression (9 items;  $\alpha=.78$ ); verbal aggression (5 items;  $\alpha=.85$ ); anger (7 items;  $\alpha=.84$ ); and hostility (8 items;  $\alpha=.77$ ) (38). Responses range from 1 (Extremely uncharacteristic of me) and 5 (Extremely characteristic of me). The AGQ has demonstrated good internal consistency,  $\alpha = .8$  in Persian population (37).

B) *Interpersonal Peacefulness Scale (IPS)*: The IPS is a 15-item self-report measure. It uses a 7-point likert scale. A "1" was defined as meaning "Extremely Inaccurate" and a "7" was defined as "Extremely Accurate." For the following items, a response of "7" counts as a score of 7 (and 6=6, 5=5, 4=4, 3=3, 2=2, 1=1): Considerate, Peaceful, Cooperative, Generous, Kind, Agreeable, and Helpful. For the other eight items, the scores are "reverse scored". The alpha reliability for the 15-item scale was .82 (5). In the current study, the IPS showed high internal consistency ( $\alpha = .81$ ).

C) *The Harmony in Life Scale*: This instrument assesses a global sense of harmony in one's life and consists of 5 statements for which participants are asked to indicate degree of agreement on a 7-point Likert scale (1 D strongly disagree, 7 D strongly agree). The harmony score was established by summarizing the 5 statements for each participant. They showed a .9 Cronbach's  $\alpha$  in their study (39).

D) *Self-Perception Scale (SPS)*: The Self-perception scale developed by Nelson (5) is a 12 item questionnaire that aims to measure the first two types of intrapersonal peacefulness. The first type is tendency for self-acceptance, self-compassion and non-violence towards self and the second type is harmony between aspects of self. In the current study, the SPS showed high internal consistency ( $\alpha = .81$ ).

E) *Positive Thinking Skills Scale (PTSS)*: It was developed by Ingram and Wisnicki (40) and

consisted of 30 questions. On the PTSS, respondents are asked how frequently they use each of the eight skills on a 4-point scale ranging from 0 = never to 3 = always. The PTSS has been proven to have good reliability (Cronbach's  $\alpha$  of .89). Scores may range from 0 to 24 with higher scores indicating more frequent use of positive thinking skills. The PTSS has reported good internal consistency in Persian population ( $\alpha = .89$ ) (41).

*F) Schultz's single-item Inclusion of Nature in Self (INS):* The INS is a single-item pictorial measure consisting of seven pairs of overlapping circles, with each pair of same-sized circles overlapping slightly more than the preceding pair. Participants were told that each circle on the left of the pair represented themselves, while the circle on the right represented the nature. They were asked to circle the picture that best describes their relationship with nature. In the current study, Cronbach alpha value was .9 (42).

*G) Adult State Hope Scale (ASHS):* It was developed by Snyder et al. (43). They reported good internal consistency (.84) and test-retest reliability (.85) by testing 4126 students. Defining hope as a cognitive set comprising agency (belief in one's capacity to initiate and sustain actions) and pathways (belief in one's capacity to generate routes) to reach goals, the Hope Scale was developed and validated previously as a dispositional self-report measure of hope.

The ASHS has reported good internal consistency in Persian population ( $\alpha = .82$ ) (44).

*H) Self-Compassion Scale (SCS):* It consists of 26 items and six sub-categories including self-kindness, self-judgment, common humanity, isolation, mindfulness, and over-identified items. The SCS is appropriate for ages 14 and up. Items are rated on 5-point Likert Scale, ranging from 1= almost never to 5= almost always. Findings suggested that the SCS demonstrated good validity and reliability (45,46). The SCS has reported good internal consistency in Persian population ( $\alpha = .84$ ) (47).

*I) The Situational Humour Response Questionnaire (SHRQ):* It measures the personality to smile and laugh in a variety of daily life situations. It consists of 25 items. Each item was rated on a 7-point scale from 0= not at all funny to 6= very funny. The Cronbach alphas

ranged between .7 and .85. In Persian population, Cronbach alpha was .74 for joy of humor, .8 for laugh, .77 for verbal humor, .79 for social humor and .92 for humor in stressful situations (48,49).

*J) Need for Cognition Scale:* This scaled is made of 18 items. Participants were asked how much each statement was characteristic of them. The response scale ranged from 1, "extremely uncharacteristic," to 5, "extremely characteristic." Cronbach's alpha for this scale was .88 (50,51).

*K) Honesty Questionnaire:* It is made of 16 items. It measures compensation for deficiencies, honesty and truth, telling unreal statements, fear, anxiety and sensation seeking. In the current study, it showed high internal consistency ( $\alpha = .85$ ) (52).

*L) Connor and Davidson Resilience Scale:* The contains 25 questions with a 5-point response scale from rarely true to true nearly all of the time. The total score ranges from 0-100, with higher scores reflecting greater resilience. The CD-RISC has excellent psychometric properties (53). In Samani, Jokar and Sahragard (54) study, a high Cronbach alpha (.93) was reported.

*M) Interpersonal Reactivity Index (IRI):* It was developed by Davis (55). The 28-items answered on a 5-point Likert scale ranging from "Does not describe me well" to "Describes me very well". The measure has 4 subscales, each made up of 7 different items. These subscales are; Perspective Taking, Fantasy, Empathic Concern and Personal Distress. The reliabilities for the IRI range from .75 to .82 (55).

*N) Shrink Emotional Intelligence Inventory:* The 33 items was employed to assess the emotional intelligence according to Goleman theory (56).

In Iran, this instrument is validated by Mansouri (57) and its reliability was determined by Cronbach's alpha which was equal to .85.

It measures the 5 subscales of emotional intelligence including self-motivation, self-awareness, self-control, Empathy, and social skills.

*O) Justice:* It was selected from Peterson and Seligman Character Strengths and Virtues Test (58). They reported Cronbach's alphas more than .7 for all of the virtues including "Justice" (citizenship, fairness and leadership). Justice as a virtue concerns other people and the common good (59).

P) *The Gratitude Questionnaire-Six Item Form (GQ-6)*: It was developed by McCullough, Emmons and Tsang (60) and it consisted of 6 items ranging from "strongly disagree" to "strongly agree". Two items are reverse-scored to inhibit response bias. The total score ranges from 6-42, with higher scores reflecting greater gratitude. In Persian population, the GQ-6 has good internal reliability ( $\alpha = .8$ ) (61).

Q) *Heartland Forgiveness Scale*: It is an 18-item self-report questionnaire that measuring tendency to be forgiving. The HFS was made of three six-item subscales including forgiveness of self, forgiveness of others and forgiveness of situations. In Persian population, the HFS has good validity and reliability (62,63).

R) *Slow Movement Test*: This is a kind of executive function and examines the ability of inhibition. Participants put their index finger on a circle and move around it as slow as possible. At the same time, examinee record time. More time more skillful at inhibitory control.

S) *Reading the Mind in the Eyes Test (RMET)*: It is a kind of neuro-cognitive test which made by Baron-Cohen et al. (64). Participants were randomly presented with a series of 36 photographs of the eye zone of 19 actors and 17 actresses. Each photo was followed by four emotion descriptors such as bored, angry and so on. Participants were asked to choose which of the four descriptors best shows what the person in the photo is feeling. The maximum score is 36 and the minimum score is 0. In Persian population, the RMET showed acceptable reliability score ( $\alpha = .72$ ) (65).

T) *The Ruff 2 and 7 Selective Attention Test*: It consists of a series of 20 trials of a visual search and cancellation task. The examinee discovers and marks through all occurrences of the two target digits: 2 and 7. Correct hits and errors (Omission and Commission) are counted for each trial and work for scoring the test. Results of reliability demonstrated high internal consistency and high split-half reliability for all 2 and 7 Test measures (66).

U) *Evaluation of the Conflict Resolution Questionnaire*: The CRQ was developed as a measure of the conflict resolution ideas presented by Weeks (67), and Fisher and Ury (68). It has been used to measure a person's ability to create mutually beneficial resolutions

to conflict for all participants. CRQ consists of 40 items and 10 sub-scales which score based on a 5-point Likert.

Henning (69) reported .77 for Cronbach's alpha. Factor analyses in Persian population indicated that 10 distinct factors were underlying the CRQ (70).

V) *Quality of Life Ladder (QOL)*: QOL includes a picture of a ten-rung ladder measuring the different aspects of life satisfaction. The top of the ladder represents the best possible life and the bottom the worst possible life. Rungs 1-4 represent suffering, 4-7 struggling and 7-10 thriving.

In order to measure the individual quality of life the following questions were asked: "on which rung do you think you stand right now?", "on which rung do you think you were five years ago?" and "on which rung do you think you will stand five years from now?" (71). Cronbach's alpha for QOL in this study was .88.

W) *Mental Health Continuum-Long Form (MHC-LF)*: It is consisted of 35 items which measuring emotional, psychological and social well-being. Scores range from 39 to 271 with higher scores indicating more psychological well-being. The MHC-LF showed good internal consistency ( $\alpha = .8$ ) (33,72).

In the current sample a high internal consistency was obtained.

X) *Outcome Questionnaire (OQ)*: The OQ is a 45- item scale which designed to assess patient progress in psychotherapy. The questions address three subscales: social role, symptom distress, and interpersonal relationships. The reliabilities for the OQ range from .82 to .66 with an interval of two weeks. In this study, the reliability of the instrument, with Cronbach's alpha, equals to .81 (34).

## Results

First stage: The mean of age of the 30 participants was 24.7 years (SD = 5.2). 59% of them were female. Students categorized peace-related variables in three main groups (relational, emotional and cognitive).

The results of this stage are reported in table 1. A 2x2 kappa coefficient was proposed indicating degree of agreement between students' categorization and three psychologists assessment (Table 1).

**Table 1.** Categorizing peace-related variables and Kappa agreement coefficient

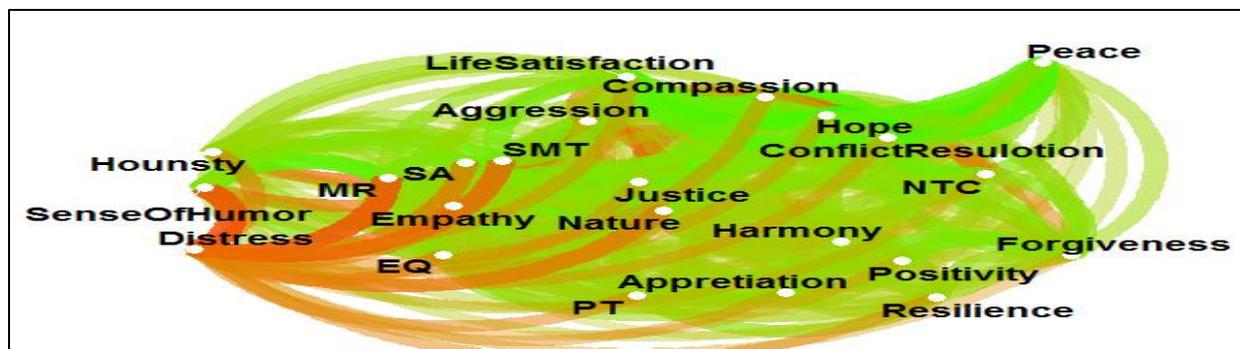
Group	Variable	Comparison	Kappa coefficient
Cognitive	Inhibitory control, selective attention, positivity, need for cognition	First psychologist and students	.68
		Second psychologist and student	.71
		Third psychologist and students	.7
Emotional	personal distress, hope, EQ, mind reading, life satisfaction, harmony, aggression, resilience	First psychologist and students	.81
		Second psychologist and student	.78
		Third psychologist and students	.82
Relational	Perspective taking, sense of humor, justice, gratefulness, conflict resolution, nature connectedness, self-compassion, honesty, empathy	First psychologist and students	.79
		Second psychologist and student	.8
		Third psychologist and students	.76

According to Table 1, Kappa coefficients were ranged from good to excellent. The Kappa coefficient can range from -1 and 1. Perfect agreement would equate to a kappa of 1, and chance agreement would equate to 0. Values < 0 as indicating no agreement and 0-0.19 as slight, 0.2-0.39 as fair, .4-.59 as moderate, 0.6-0.79 as substantial and 0.8-1 as almost perfect agreement (73). Second stage: The mean of age of the 60 participants was 25.2 years (SD = 4.8). 65% of them were female and all of them were

university students. Bivariate correlations of the all variables are summarized in network visualization (Fig 1). Also the correlation table is reported (Table 2). With regards to the figure 1, variables that are more correlated are closer together and the line between them is thicker. Positive correlations are depicted by green and negative correlations are mapped in red. The highest correlation was seen between perspective taking and interpersonal peacefulness ( $r = 0.76, P < 0.05$ ).

**Table 2.** Correlational matrix among peace-related variables

	Inhibition	Hope	Aggression	NFC	SOH	Inter-peace	Mind reading	Conflict resolution	Self-compassion	Harmony	Intra-peace	Nature
Inhibition	1											
Hope	.05	1										
Aggression	-.24**	-.38**	1									
NFC	.16*	.41**	-.32**	1								
SOH	.08	.1	.03	-.13	1							
Inter-peace	.44**	.08	-.42**	.1	.1	1						
Mind reading	.42**	.1	-.41**	.18*	.06	.76**	1					
Conflict resolution	.15*	.34**	-.24**	.32**	.11	.21**	.47**	1				
Self-compassion	.01	.57**	-.46**	.26**	.12	.07	.13	.38**	1			
Harmony	.05	.44**	-.25**	.09	.15*	.15*	.17*	.28**	.3**	1		
Intra-peace	.04	.42**	-.32**	.23**	.06	.12	.17*	.2**	.4**	.5**	1	
Nature	.05	.05	.001	.12	.13	.08	.2**	.22**	-.11	.12	.07	1



NTC: Need to Cognition, SMT: Slow Movement Test (Inhibitory control), SA: Selective Attention, MR: Mind Reading  
EQ: Emotional Intelligence, PT: Perspective Taking

**Fig 1.** Correlation between peace-related variables

Third stage: The mean of age of the 60 participants was 21.66 years ( $SD = 3.9$ ). 88% of them were female. First data screening and cleaning was performed in order to find missing values, outliers and multivariate statistical assumptions violation. Multiple outliers can be assessed with the use of Mahalanobis distance (74). The distances are interpreted using a  $P < 0.001$  and the corresponding  $\chi^2$  value with the degrees of freedom equal to the number of variables (here was 20 variables). None of the distances were bigger than or equal to  $\chi^2 = 45.315$ , so there wasn't any multiple outlier among the data. Homoscedasticity, as one of the regression analysis assumptions, were checked applying the scatter plot (75). In the present dataset, the residuals (the difference between the obtained dependent variable-total peacefulness and the predicted dependent variable scores) and the variance of the residuals were the same for all predicted scores. The Figure 2 shows a random displacement of peacefulness scores that take on a rectangular shape with no clustering or systematic pattern (76).

*Regression analysis of relational variables:* A step by step multiple regression analysis was carried out to predict peacefulness (criterion variable) based on sense of humor, perspective taking, justice, gratefulness, conflict resolution, nature connectedness, self-compassion, honesty and empathy (predictive variables). Results are reported in table 3. A significant regression equation was found ( $F(8, 21) = 33.4, P < 0.001$ ), with an  $R^2 \text{ adj} = 0.82$  (the R-squared adjusted was reported since the sample size was small).

Overall, the results showed that four out of nine relational variables were significant in predicting peacefulness. 80% of variance was explained by the current model. The predictive powers of the explanatory variables were as follows:

Conflict resolution > Nature connectedness > Self-compassion > Sense of humor

Multicollinearity was detected using Variance Inflation Factor (VIF). Note that the VIF are larger than 10, suggesting that a high degree of multicollinearity is present (74).

This model takes the form of a statistical equation where:

$$Y_{\text{pred}} = a + b_1 x_1 + b_2 x_2 + b_3 x_3 + b_4 x_4$$

$$Y_{\text{pred}} = -91.8 + 1.4 (\text{Conflict resolution}) + 4.1 (\text{Connectedness to nature}) + 0.3 (\text{Self compassion}) + 0.25 (\text{Sense of humor})$$

*Regression analysis of emotional variables:* Another step by step multiple regression analysis was carried out to predict peacefulness (criterion variable) based on personal distress, hope, emotional intelligence, reading the mind in the eyes, quality of life, harmony, aggression and resilience (predictive variables). Results are reported in Table 3. A significant regression equation was found ( $F(2, 27) = 70.9, P < 0.001$ ), with an  $R^2 \text{ adj} = 0.89$ . In general, the results showed that four out of eight emotional variables were significant in predicting peacefulness and more than 80% of variance was explained by the current model. The predictive powers of the explanatory variables were as follows: Hope > Mind reading > Aggression > Harmony This model takes the form of a statistical equation where:  $Y_{\text{pred}} = a + b_1 x_1 + b_2 x_2 + b_3 x_3 + b_4$

x4  $Y_{pred} = 54.5 + 2.03 (\text{Hope}) + 3.2 (\text{Mind reading}) - 0.4 (\text{Aggression}) + 1.2 (\text{Harmony})$   
 Although hope and mind reading showed high VIF, they were kept in regression equation because their t-values were significant. Despite they are highly collinear; they can be effective if

they enter the model separately. The following formula was applied in order to decide about keeping the aforementioned variables in the model (77):  $t = b_j/sb_j = B/ \text{st.d} > \alpha$

The Fraction was greater than alpha for both hope and mind reading.

**Table 3.** Regression analysis of peace-related variables

Variables	Relational	Predictive variable	B	SEB	$\beta$	t	P	VIF
		Conflict resolution	1.4	.15	1.2	9.1	.001	2.7
		Nature connectedness	4.1	1.5	.3	2.6	.01	2.7
		Self-compactness	.3	.45	.26	2.5	.01	1.7
		Sense of humor	.25	.26	.2	2.1	.05	2.4
	Emotional	Hope	2.03	.6	.7	3.2	.004	8.7
		Mind reading	3.2	1.5	.4	2.2	.04	7.2
		Harmony	1.2	.4	.2	2.5	.01	1.9
		Aggression	-.4	.2	-.3	-3.1	.005	2.2
	Cognitive	Need for cognition	.24	.1	.14	2.3	.001	1.5
		Inhibitory control	.44	.02	.88	15.04	.03	1.5

*Regression analysis of cognitive variables:* One more step by step multiple regression analysis was carried out to predict peacefulness (criterion variable) based on slow motion test (a kind of executive functions which called inhibitory control skill), selective attention, positivity and need for cognition (predictive variables). Results are reported in table 3. A significant regression equation was found ( $F(2, 27) = 205.2, P < 0.001$ ), with an  $R^2 \text{ adj} = 0.93$ . As a whole, the results showed that two out of four cognitive variables were significant in predicting peacefulness and 90% of variance was explained by the current model. It means that a 1 standard deviation increase in inhibitory control produces a 0.9 standard deviation increase in peacefulness and vice versa. The predictive power of the "inhibitory control" was greater than "need for cognition".

This model takes the form of a statistical equation where:  $Y_{pred} = a + b_1 x_1 + b_2 x_2$

$Y_{pred} = 94.4 + 0.24 (\text{Need to cognition}) + 0.44 (\text{Slow motion test})$

Fourth stage: The mean of age of the 206 participants was 25.5 years ( $SD = 5.3$ ). 144

were females and 130 were single. First, MANOVA ( $2 \times 2$ ) assumptions including normality, homogeneity of variance-covariance matrix and independence of observations were checked. Then analysis was run investigating the interaction between gender and marital status. Descriptive statistics and MANOVA results were displayed in Table 4. As reported in Table 4 a statistically significant main effect of marital status on the IPS and SPS was observed:

Wilks'  $\lambda = .4, F(1, 201) = 4.5, P < 0.03, \eta^2 = 0.33, \beta = 0.77$  and Wilks'  $\lambda = 0.4, F(1, 201) = 4.2, P < 0.04, \eta^2 = 0.23, \beta = 0.67$ .

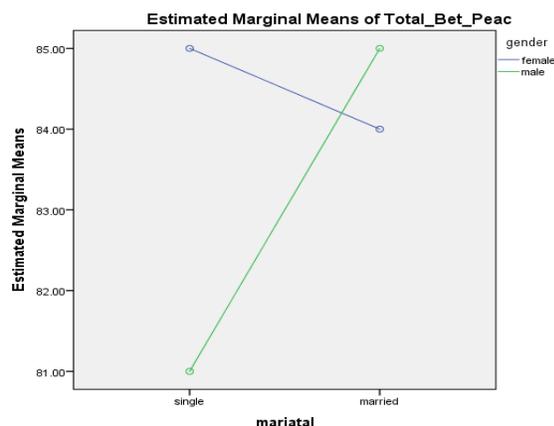
**Table 4.** Mean and standard deviation of peace scales for gender and marital status

Measurement	Gender		Marital status	
	Female	Male	Single	Married
Interpersonal peacefulness	86.6 ± 9.9	8.5 ± 13.7	82.6 ± 12.3	86.4 ± 9.2
Intrapersonal peacefulness	47.9 ± 6.04	45.9 ± 3.9	46.8 ± 4.8	48.4 ± 7.3
Peace with nature	5.02 ± 1.03	4.77 ± 1.2	4.8 ± 1.1	5.3 ± .9
Number	144	62	130	76

In addition, the main effect of gender on the IPS and SPS was statistically significant:

( $F(1, 202) = 3.8, P < 0.05, \eta^2 = 0.2$  and  $F(1, 202) = 5.22, P < 0.02, \eta^2 = 0.26$ )

Furthermore, the interaction between gender and marital status was only significant for the IPS (Fig 3):



**Fig:**

( $F(1, 201) = 5.3, P < 0.02, \eta^2 = 0.35, \beta = 0.76$ )

In pairwise comparisons, women were more peaceful in terms of both individual ( $84.9 \pm 1.2$ ) and interpersonal ( $47.9 \pm 8.09$ ). With regards to marital status, interpersonal peacefulness was higher among married individuals ( $84.4 \pm 10.5$ ) nevertheless; the intrapersonal peacefulness was considerable among singles ( $47.8 \pm 7.7$ ).

## Discussion

The purpose of the current study was to determine the variables affecting the concept of peacefulness. To this end, by studying the literature of peace psychology, three categories of variables namely cognitive, emotional, and communicative variables were selected. In the first stage of the research, members of each of these categories were identified. The results of the first stage showed that there was a good index of reliability (Kappa coefficient) between the subjects and the experts in these categories. Such a classification has been developed for the first time and only few studies have focused on the relationship between emotional and interactive variables and peacefulness. Mayton (25), for example, found that there was a significant positive correlation between physical and psychological non-violence and levels of

inner peace (self-acceptance). This finding is consistent with the results of the first phase of our research. In another study, students with low levels of neuroticism, which are a characteristic of people with high intrapersonal peacefulness, were found more likely to use negotiation in their communication conflicts (78).

Results of the second phase of the study showed that variables such as hope, conflict resolution skill, self-compassion, need for cognition, inhibitory control and perspective-taking had significant positive correlation with peacefulness, while aggression and distress had a significant negative correlation with this variable. Based on the unique form of the network-like diagram of relations and peace variables, authors of the current study suggest the "Fish of Peace" title for this diagram. This fish of peace swallows anger and distress and turns them into hope, forgiveness and optimism. Results of this section of the research are in agreement with other research findings which showed that self-acceptance was a psychological concept. This concept, on the one hand, had a significant positive relationship with positive emotions (6) and life satisfaction (7), and on the other hand, exhibited a significant negative relationship with negative emotions and neuroticism (8).

Following the third phase of the study, i.e. regression analysis, the results for cognitive variables indicated that inhibitory control and the need for cognition had the highest predictive power (0.9) for peacefulness attribute. These findings lent support to Moses' study (15) which revealed that inhibitory control prevents aggressive and impulsive reactions. Besides, Mayton (31) empirically demonstrated that peace-oriented people had high levels of need for cognition (pleasure of thinking).

Results of regression analysis for emotional variables showed that hope, mind reading (perspective taking), harmony and aggression were statistically significant in predicting peacefulness with harmony as the highest predictive power among these variables. These findings are along with Nelson's studies (5,12). In his studies, Nelson showed that peace-oriented people had characteristics such as hope, optimism, higher perspective taking, anger management skills and self-regulation. Nelson

has considered these attributes as enabling factors in peacefulness. Furthermore, the harmony present among various aspects of self is a definition of inner peace (79) which also accounts for the highest percentage of peace prediction in our findings.

Additionally, the regression analysis for relational variables indicated that sense of humor, conflict resolution skill, and self-compassion had a statistically significant correlation with the need for being in touch with nature. Among these variables, sense of humor had the highest share in the prediction of peace. In reviewing the literature on psychology of peace, only a few studies can be found that show the relationship between communicative variables and peacefulness. For example, Lyubomirsky et al. (10) reported that the experience of positive and harmonious emotions improved conflict resolution, cooperation, participation and helpful behaviors. As is shown by research findings, if peace-oriented individuals are more successful in their social interactions, they will also enjoy being in touch with nature because protecting nature is a part of their value system (19). It should also be noted that the above results are in keeping with the findings of Herzog et al. (20), which highlight the positive relationship between nature connectedness, sense of humor (positive mood) and psychological well-being among students.

Findings of the fourth phase of the research which is related to gender differences, indicated that compared to men, women gained higher scores in both intrapersonal and interpersonal peacefulness. These results lend credence to Mayton (31) who found that women were more relationship-oriented and better listeners. Moreover, they used more physical and facial expressions which ultimately led them to more peaceful relationships. Studies have also shown that girls exhibit higher levels of empathy than boys and, as was previously mentioned, empathy and compassion are the fundamental factors in promoting peacefulness (80). In addition, Severson et al. (24) found that female students achieved higher scores in terms of physical and psychological non-violence sub-scales than male students, which is again in line with our findings. Regarding the demographic variable of marital status, the results of the current research

showed that married people reported higher levels of interpersonal peacefulness than singles. A possible explanation for this finding is that married people are likely to face more conflicts in their marital life, leading them towards more peaceful solutions, and consequently, makes their behavioral repertoire richer for keeping the relationship. In this regard, the study by Tobin et al. (30) demonstrated that married people had a higher ability to control their negative emotions. This is related to the personality trait of agreeableness, and as noted above, this personality trait is highly correlated with peacefulness. On the other hand, our findings showed that singles reported more inner peace than married ones. For example, De Paolo BM, Morris (28) reported that having a positive and stable interpersonal relationship was more important for single women. Singles also had more trust in their beliefs, show greater independence and commitment in their jobs, and experience more individual growth (29). All of these findings are consistent with the results of this study.

However, the last finding related to the interaction between gender and marital status showed that married men and single women had higher levels of interpersonal peacefulness. The study by De Paolo and Maurice (28) in which having stable and strong relationships was more important for single women was another piece of support for the last result of the current study.

Although this study provides important insights into the peace psychology; student-based population and ignoring the different subcultures denote some limitations. So replication of the study in other samples and different cultures is necessary. Additionally, regarding increased relationship problems over societies, peace psychology can be considered as a rich source of training and education. By introducing new ways of emotion regulation it may help improving individual, social and organizational well-being.

For example, practitioners can use peace-based education to improve couples' relationships and teacher-student relationships which in turns can promote peer relationships. Paying attention to the gender and marital status differences is necessary in designing more efficacious health programs.

### Conclusion

According to the results, variables such as conflict resolution, nature connectedness, self-compassion, sense of humor, hope, mind reading, aggression, harmony, inhibitory control and need for cognition are related to peacefulness. Our findings indicated that peaceful characteristics are believed to be influenced by gender differences in such a way that women are more peaceful than men and it can also be concluded from the results that, marital status plays an important role in being

peacefulness or not we agreed that married people having higher level of peacefulness.

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