THE EFFECTIVENESS OF SOMATIC EXPERIENCE BASED STABILIZATION PROGRAM FOR REFUGEE WOMEN'S POST-TRAUMATIC STRESS, MINDFULNESS AND SOCIAL SUPPORT LEVEL

Abstract: This quasi-experimental study examines the effects of the Somatic Experience Stabilization Program (SESP) on post-traumatic stress, mindfulness, and social support levels among refugee women. This study was conducted with 22 women who applied to a non-governmental organization for social and psychological support. Impact of Event Scale Revised (IES-R), Mindfulness Attention Awareness Scale (MAAS) and Multidimensional Scale of Perceived Social Support (MSPSS) were utilized for pre-test, post-test, and follow-up tests. While experimental group received a six-session SESP intervention developed by the researcher, control group received no intervention. SESP for refugee women was found to be significantly effective in decreasing post-traumatic stress and increasing mindfulness and social support levels. The effects of the program persisted during the follow-up test.

Keywords: Somatic experience, trauma, refugees, mindfulness, social support

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INTRODUCTION

The issue of refugees has been seen as a problem for many countries in light of the various civil wars and turmoil taking place in the Middle East in recent years (Kap 2014). Since the start of the Syrian Civil War in 2011, 6.7 million people have escaped the country seeking protection (UNHCR 2019). Most of these (approximately 3.7 million) have since remained in Turkey for temporary protection (Directorate General of Migration Management 2020). Refugees are at high risk in terms of developing mental health problems due to pre, peri and post-migration distress and traumatic experiences, such as torture, impoverishment etc. (Heeren et al. 2012; Ibrahim and Hassan 2017). The magnitude of these traumatic experiences varies in terms of gender, age, education and self-esteem. In other words, being a female with low self-esteem and having less education puts one at greater risk to post-traumatic stress disorder (Buhmann 2014; Pumariega et al. 2005). Many studies indicated that women's vulnerabilities are so much during times of traumatic events such as war and natural disasters etc. (Bradshaw and Fordham 2015; Mondal 2014). In addition, it is reported that refugees have 10 times more post-traumatic stress disorder than normal populations (Fazel et al. 2005). Syrian refugees in Turkey show a higher rate of post-traumatic stress disorder (Acartürk et al. 2018; Kaya et al. 2019).

Refugees with post-traumatic stress experience an intense sense of loss including a loss of security, identity and future, and lack an ability to look back and predict the future, control their own lives, and lack hope, personal strength; in short, whatever belongs to them is considered fleeting (Figley and Kiser 2013; Kalmanowitz 2016). In addition to these, trauma experienced by refugees is often described as complex trauma due to the long-term effects and multiple threats faced by refugees (Courtois 2008). Thus, refugees with complex trauma have a higher degree of external control (Koch and Weidinger-von der Recke 2009) and they do not wish to talk about their experiences (Van der Kolk 2006), showing somatic distress, such as pain (McGrath et al. 2020; Rometsch et al. 2020). Furthermore, they carry the trauma of their experiences in their bodies (Fuchs 2004; Kandel 2006). In line with this, trauma is described as a psychophysical experience, even when the traumatic event does not harm one physically (Rothschild 2000; Van der Kolk 2015).

To understand the body, it is important to understand how the brain functions. The brain, from bottom to top, consists of three parts: the reptilian brain, limbic system and neocortex. The reptilian, located in the brain stem, is responsible for survival actions such as sleeping, breathing, bodily sensations, pain, perceiving danger and determining a danger response, or "fight, flight and freeze." While the limbic system is responsible for emotions and emotional experiences, the neocortex is responsible for thought and verbal expression, executive functioning, and self-awareness. In secure situations, all parts of the brain work harmoniously and hierarchically. In the case of danger, the neocortex is shut off, and the reptilian brain and limbic system are activated. That is why traumatic events are recorded in implicit memory. Thus, to understand trauma and its effects on the lives of refugees, the somatic approach must be understood (Ament-Lenke 2018; Van der Kolk 2015) as the best way to deal with the trauma. One somatic-based approach is 'Somatic Experiencing®' (SE®).

SE® is a short-term, body-centred, flexible psycho-biological approach developed to reduce negative effects and symptoms of trauma and chronic stress (Levine and Frederick 1997). The approach is psychobiological in the SE works with the nervous system and especially autonomic nervous system (ANS) (Levine 2010, 2015; Payne et al. 2015). According to Levine and Frederick (1997), in a threatening life situation, the ventral path of the parasympathetic system of ANS first comes into play and individual tries to regulate nervous system by seeking social relations/help. However, if the stimulation of the threat experienced by the individual is high and the ventral path of the parasympathetic system of ANS cannot cope with this threat through social interaction, the sympathetic system of the individual is stimulated in the ANS and the ANS turns to the fight/flight response depending on the type of life they have experienced. However, sometimes the sympathetic system of ANS of the individual may not be able to give the fight/flight responses because the trauma is very sudden or social conditions will not allow it. In this case, the ANS goes into an emergency alarm state to

protect the body and can show the freezing response in the dorsal line of the parasympathetic system, which is the most primitive response. The freezing response protects the individual at that moment but causes the energy of the individual's reactions to the threat to accumulate and become trapped in various parts of the body. Thus, trauma and chronic stress cause the individual to experience a loss in the self-regulation capacity of the nervous system. Losses in self-regulation capacity cannot provide discharge due to the energy stimulation in the nervous system, and the energy that does not discharge affects our nervous system as well as causes disruptions and an integrative failure in the three brains in our central nervous system; reptile, limbic system and neocortex (Levine 2010, 2015).

In this context, SE® directs chronic stress and trauma experienced by the individual to the internal sensations (internal organs, musculoskeletal system) in terms of their conscious awareness, completing the reactions that the body cannot complete in a stressful situation and enabling the discharge of the accumulated energy and re-integrative operation of the three brains in the central system and the nervous system. It aims to regain its self-regulatory capacity (Levine 2010, 2015; Payne et al. 2015).

In SE®, to be aware of the body, inner sensations and experiences, individuals monitor and recognize body stimulus (numbness), experience them (resolution of numbness) and accompany them. These experiences of body awareness are also related to the mindfulness levels of the individual (Mehling 2016; Tihanyi et al. 2016). Mindfulness, defined as monitoring inner experiences in the present moment, paying attention to what is happening here and now, noticing the nature of one's awareness and responding to the environment without judgment (Kabat-Zinn 2003), includes the continuous and repetitive observation of whole inner body sensations (Bishop et al. 2004). The observation of inner body sensations leads to body awareness (Kattenstroth 2009; Tihanyi et al. 2016). In addition, both mindfulness and body awareness can increase self-regulation (Levine 2010, 2015). Previous studies showed mindfulness-based therapy decreases post-traumatic stress disorder and increases the mindfulness level of refugees (Kalmanowitz and Ho 2016; Reebs et al. 2020). Moreover, social relations are also crucial for self-regulation in SE® (Levine 2010, 2015). Social support provides traumatized individuals with social resources and reduces the feeling of loneliness and post-traumatic stress (Cryder et al. 2006; Tedeschi and Calhoun 2004). Also, many studies that have shown that social support decreases the post-traumatic stress level in refugees (Palic and Elklit 2011; Stewart et al. 2010). In particular, strength-based group programs studying with refugees meet the need for community healing among the refugee population (Drozdek and Bolwerk 2010; Im and Rosenberg 2016) as refugees come from collective cultures and feel a loss of their communal identity due to trauma. It has been stated that group programs for refugees provide to rebuild group identity (Drozdek and Bolwerk 2010; Verreault 2017). In line with this, some research has shown that group programs for refugees are more effective compared to the individual therapy (Bass et al. 2011; Block et al. 2018). Furthermore, many studies that show the effectiveness of the SE® approach working individually in various traumatic experiences such as following the 2004 tsunami (Parker et al. 2008), war (Brom et al. 2017), tornados (Leitch et al. 2009), earthquakes (Leitch and Miller-Karas 2009), specialists working with post-traumatic stress disorder (Winblad et al. 2018) and those with painful disorders (Andersen et al. 2017). Several studies working with SE have shown that group programs are effective in decreasing post-traumatic stress (Briggs et al. 2017; Taylor and Saint-Laurent 2017). In SE® group programs, individuals firstly must deepen focus on tracking felt sensations and their nervous system then they meet others. Group professionals monitor the nervous system on the multiple levels of the group organism and support both individuals and groups to enlarge their capacity for traumatic experiences (Taylor and Saint-Laurent 2017). Some studies based on different types of somatic-based therapies, such as dance movement therapy (Arroyo 2018; Koch and Weidinger-von der Recke 2009), the somatic-focused approach (Hinton et al. 2006) and body awareness therapy (Nordbrandt et al. 2020) indicated the effectiveness of somatic approach working individually in decreasing the post-traumatic stress level of refugees. A few somatic-based group programs working with refugees,

particularly women, have had an effective role in decreasing post-traumatic stress levels (Verreault 2017). All somatic-based approaches working with trauma start to work on stabilization. Stabilization is the prerequisite to working on traumatic experiences (Levine 2015; Verreault 2017).

In all the studies mentioned above, there has not been one that show the effectiveness of SE in refugees, particularly female refugees except one qualitative study interviewing four psychotherapists trained in mind-body based approach that worked with adult refugees (Ament-Lenke 2018). Thus, this study is the first to show the effectiveness of SESP among refugee women. The programs based on the somatic approaches (non-verbal and resource oriented) were cross-culturally adapted to conduct with refugees easily (Gray 2011; Koch and Weidinger-von der Recke 2009; Zehetmair et al. 2018). Moreover, the program of the study is structured and is open for the benefit of specialists working in the field, including those based in non-profit organizations, training centres, and guidance centres. Thanks to its holistic perspective and refugee-focus, the program provides a unique contribution to the literature. With this in mind, the current study aimed to examine the effects of SESP for refugee women's post-traumatic stress, mindfulness and social support level. The study tested the following hypotheses to reach these aims.

HYPOTHESES

H_1: The SESP for refugee women will be significantly more effective in decreasing the post-traumatic stress levels of experimental group than the post-traumatic stress levels of control group, and this effect will be sustained in two months following the completion of the program.

H_2: The SESP for refugee women will be significantly more effective in increasing the mindfulness level of experimental group than the mindfulness levels of control group, and this effect will be sustained in two months following the completion of the program.

H_3: The SESP for refugee women will be significantly more effective in increasing social support of experimental group than the social support levels of control group, and this effect will be sustained in two months following the completion of the program.

METHOD

RESEARCH DESIGN

This quasi experimental study examines the effects of SESP on refugee women's post-traumatic stress, mindfulness, and social support levels. In the Table 1, the first factor shows the independent functional groups (experiment and control), while the other factor shows repeated measurements (pre-test, post-test, follow-up test) in different conditions related to the dependent variable (Sani and Todman 2006).

Table 1. Research pattern

Groups	Pre-Test	Intervention	Post-test	Follow Up Test
Experimental	IES-R MAAS MSPSS	(SESP)	IES-R MAAS MSPSS	IES-R MAAS MSPSS
Control	IES-R MAAS MSPSS	No intervention	IES-R MAAS MSPSS	IES-R MAAS MSPSS

PARTICIPANTS

Ethical permission was acquired from İstanbul Medeniyet University in Social Ethics Committee. In this study, refugee women were applied psychological support into a non-governmental organization (NGO), between 2019-2020. The convenience sampling method was used. Before application, informed consent was obtained from the women. IES-R, MAAS, and MSPSS were used. Twenty-two women were randomly placed in the experimental and control groups upon their acceptance of voluntary participation. Participants in the experimental and the control groups were matched in terms of demographic variables and their scale scores. In particular, all participants were living in a state shelter-in-place. The control group underwent SESP after the study was completed. The age range of the experimental group was 25-52 ($\bar{X}$=36.82 Sd=9.1) and the control group was 22-53 ($\bar{X}$=37.09, Sd=9.5). In addition, 45.5% of the participants in the experimental group and 54.5%

of the control group had graduated from secondary school. All the participants were not working. Both experimental and control group had at least 2 children. The demographic characteristics were given in Table 2.

Table 2. Demographic features of participants in experimental and control groups

	Age Range	Age μ	Age Sd	Education Level	n	%	Number of Children	n	%
Experimental Group	25-52	36.82	9.14	Primary School	1	9.1	2	5	45.5
				Secondary School	5	45.5	3	5	45.5
				High School	3	27.3	4	1	91.1
				University	2	18.2			
Control Group	22-53	37.09	9.58	Primary School	1	9.1	2	7	63.6
				Secondary School	6	54.5	3	3	27.3
				High School	3	27.3	4	1	9.1
				University	1	9.1			

DATA COLLECTION INSTRUMENTS

IMPACT OF EVENT SCALE REVISED (IES-R)

This scale was developed by Horowitz, Wilner, and Alvarez (1979), revised by Weiss and Marmar (1997) and adapted into Turkish by Corapcioglu, Yargic, Geyran, and Kocabasoglu (2006). This self-report scale consists of 22-item with 5-Likert type. The scale has three sub-dimensions: intrusion, avoidance, and hyperarousal. The correlation of the scale and its sub-scales with the CAPS scale were handled by Spearman analysis and as a result of the evaluation, the total score (r=.70), the intrusion score (r=.69) and hyperarousal score (r=.63) and the avoidance score (r=.49) were stated. The internal consistency coefficient of the scale was found to be .94 for the whole group. In this study Cronbach alpha coefficient was 84.

MINDFULNESS ATTENTION AWARENESS SCALE (MAAS)

This scale was developed by Brown and Ryan (2003) and adapted into Turkish by Ozyesil, Arslan, Kesici, and Deniz (2011). The unidimensional scale consists of 15 items with 6-Likert type. For original form factor loadings varied between .27 and .78. According to the confirmatory factor analysis of original form was c2=189.57 (Sd=90, p<.01), GFI; 92, CFI: .91, RMSEA: .058. The internal consistency coefficient (coefficient alpha) of the scale was .82. The total correlations of the items obtained ranged from .25 to .72. Test-retest reliability was .81 for four weeks intervals. The scale was thought to be unidimensional as original form. As a result of confirmatory factor analysis for Turkish version, the coherence index was c2=187.811 (Sd=90, p<.01), (c2/Sd)=2.086, RMSEA=.06, standardized RMS=,06, GFI=.93 and AGFI=.91. The item-total correlations for Turkish version were ranged from .436 to .682. The Cronbach's alpha for the reliability of the scale was .80. In this study Cronbach alpha coefficient was .78.

MULTIDIMENSIONAL SCALE OF PERCEIVED SOCIAL SUPPORT (MSPSS)

This scale was developed by Zimet, Dahlem, Zimet, and Farley (1988) and was adapted into Turkish by Eker, Arkar, and Yaldız (2001) to measure the adequacy of social support on three different sources, including family, friend, and special person. The self-report scale consists of 12-item with 7 Likert-type. The validity and reliability of the scale were provided from three different groups (psychiatric patients, surgical patients and non-patient group formed by randomly selected patient visitors). The internal consistency ranges from .80 to .90 in both groups' total scores. According to the result of the factor analysis obtained by the three groups, three factors were obtained that explained 75% of the total variance in accordance with the original scale. The internal consistency coefficient of the scale was found to be .91 for the whole group. In this study Cronbach alpha coefficient was .86.

EXPERIMENTAL PROCEDURES

THE SCOPE OF SESP ON REFUGEE WOMEN

The psychological group program was developed by the researcher. The researcher has SE certification and continuing supervision from the SE community. The aim of the SESP is to increase mindfulness and social support and decrease post-traumatic stress of refugee women. Before the program development, theoretical information about post-traumatic stress, social support and mindfulness, and SE programs about refugees was collected (Block et al. 2018; Drozdek and Bolwerk 2010; Kalmanovitz and Ho 2016; Reebs et al. 2020). During the literature search, it was understood that post-traumatic stress was described as a psychophysical experience (Rothschild 2000; Van der Kolk 2015). Refugees, in particular, experience more long-term effects (Courtois 2008) and show more somatic distress without expressing these experiences (Van der Kolk 2006). Thus, in order to understand trauma and its effects on the lives of refugees, the somatic-based approach must be understood (Ament-Lenke 2018; Van der Kolk 2015). In this way, this program was organized in terms of 'Somatic Experiencing®.

All somatic-based approaches, including SE®, have stated that traumatized individuals need to experience stabilization to regulate and to increase the capacity of the ANS. Stabilization is the prerequisite to dealing with traumatic experience on a deeper level (Levine 2015; Verreault 2017). Based on this information, psychological intervention group program consists of stabilization activities based on SE®. Furthermore, the literature states that group programs for refugees are more effective compared to individual therapeutic measures due to the formation of group identity (Block et al. 2018; Drozdek and Bolwerk 2010; Verreault 2017). Thus, the program was organized in group form. The SE® stabilization included core SE elements. These included grounding, finding resources, tracking body sensations, social engagement, and safety mechanism (boundaries) "vu" sounding. All these elements have been embedded into the group activities. Lastly, other studies about the effectiveness of the SE® approach working individually occurs in various traumatic experiences such as the case of the 2004 tsunami (Parker et al. 2008), war (Brom et al. 2017), earthquakes (Leitch and Miller-Karas 2009), among specialists working with post-traumatic stress disorder (Winblad et al. 2018) and those with pain disorders (Andersen et al. 2017), as well as those working SE® informed group programs (Briggs et al. 2017; Taylor and Saint-Laurent 2017) were taken into consideration.

THE CONTENT OF SESP FOR REFUGEE WOMEN

SESP for refugee women is a psychological intervention group program composed of six sessions including eighteen psychological activities. Each session consists of three activities (warm-up, the purpose of session activity, ending with positive feelings and resources), with each activity lasting an average of 20 minutes. One of the warm-up activities is called "Arriving and Grounding." In this activity, the participants notice and sense the ground and armchair they sit in and realize what they observe and perceive in their body. The second of the stabilization activities is called "Stabilized Colourful Ball." The participants think about a stressful event they experienced the previous week, then pick a ball representing this stress among the coloured shrinking balls and observe their senses and feelings while holding the ball in their hand. The same procedure is applied for remembrance of the positive events as well. Then, they hold and sense these two balls in their hand and share what is happening. The third of the activities aimed at leaving the session in a resourceful way and is known as "Finding Resources in Around." The aim of this activity is to focus on the resources available and finding one (object, flowers in around) to regulate themselves. Lastly, the SESP program includes biopsychosocial and awareness of physiological, emotional, behavioural, images, thoughts and spirit. This awareness is also seen in SE® as SIBAM (sensation, image, behaviour, affect, meaning). Table 3 also summarizes the topics in each session.

Table 3. Somatic Experience® Based Stabilization Program (SESP)

Session	
1st	▪ Meeting and group cohesion ▪ Arriving the place to adapt to environment ▪ Arriving into themselves and finding resources to adapt in here and now ▪ Determining group rules and purpose
2nd	▪ Focusing here and now and expressing a daily experience ▪ Experiencing to track their body sensations when expressing daily experiences ▪ Finding body resources in the body to adapt in here and now ▪ Touching their shoulders and their feet of group members to realize the body sources of the group
3rd	▪ Talking about their daily feelings in here and now ▪ Tracking their feelings and listening to what they say ▪ Tracking their breathing when talking about what they are feeling ▪ With lunar breathing exercises containing their feelings and adapting in here and now
4th	▪ Talking about their daily images/or thoughts in here and now ▪ Monitoring their sensations when talking about their images ▪ Containing the images' sensations through the body in here and now ▪ Finding especially imagine resources to adapt in here and now.
5th	▪ Observing their behavior when expressing daily tough experiences in here and now ▪ Being aware of the both individual and group borders that protect themselves against these daily difficulties ▪ Feeling and containing both individual borders and group borders in their body ▪ Regulating daily tough experiences with Vu breathing exercises
6th	▪ Monitoring and experiencing their integrity in here and now ▪ Containing what they have learnt during sessions ▪ Terminating the program with positive group feedback

SESP APPLICATION PROCEDURES (TIME, PLACE)

The program was conducted in the meeting room of an NGO working with refugee women in Istanbul with participants seated in a circle. The researcher with SE certification and continuing supervision guided the program. The translator also graduated from counselling department was attended. And two clinical psychologists were observer in the group. The training program lasted for six weeks, with 90-minute sessions per week.

DATA ANALYSIS

In order to decide which tests (parametric or non-parametric) should be used during data analysis, the pre-test scores of the IES-R, MAAS and MSPSS obtained from the individuals in the experimental and control groups were analysed. According to the preliminary analysis, the data had a homogeneous and normal distribution. Thus, parametric tests could be used in the study. In the study, there were both experimental and control groups. In terms of measures, those taken of the groups themselves as well as between individuals were taken. One of the ways in which the statistical significance of the change in pre-test, post-test and follow-up test measurements was used Two-way ANOVA for repeated measures on a single factor. Thus, a 2 x 3 two-factor ANOVA technique was used for repeated measurements, as suitable for split-plot (mixed) designs (Sani and Todman 2006). As a result of this analysis, data was assessed by the Tukey (HSD) test in order to analyse the difference source. The SPPS 22.00 program was used.

RESULTS

RESULTS ON PRELIMINARY ANALYSIS

To utilize parametric tests in the analysis of the homogeneity, normal distribution, skewness, and kurtosis values were all analysed. According to the parametric test results of the pre-test measurements, there were found no significant differences among the average scores in terms of IES-R ($F_{(1-20)}$=.186, p>.05), MAAS ($F_{(1-20)}$=.011, p>.05) or MBSS ($F_{(1-20)}$=0.04, p>.05). Furthermore, the Kolmogorov-Smirnov test of the IES-R (.114, p>.05), MAAS (.116, p>.05) and MSPS (.127 p>.05) were larger than (p) .05 (Sani and Todman 2006). The Kolmogorov-Smirnov test results indicated normal distribution. The skewness and kurtosis levels gathered from the scores of both the experimental and control groups in pre-test measurements on each of the three scales were between +1 and -1, which showed normal distribution.

RESULTS FOR THE EFFECTIVENESS OF SESP IN POST-TRAUMATIC STRESS

The first hypothesis of the research predicted that: "SESP for refugees will be significantly more effective in decreasing the post-traumatic stress levels of experimental group than control group and this effect will be sustained in two months following the completion of the program." The pre-test, post-test, follow up test, arithmetic averages, and standard deviations of the IES-R scale among participants in both experimental and control groups have been presented in Table 4.

Table 4. The means and standard deviations of IES-R in experimental and control groups

Measurements	Pre-test		Post-test		Follow-up test	
Groups	$\bar{X}$	*Sd*	$\bar{X}$	*Sd*	$\bar{X}$	*Sd*
Experiment (N=11)	61.54	5.14	32.72	5.17	26.27	7.01
Control (N=11)	62.81	8.3	63	7.5	62.45	9.11

In light of Table 4, the pre-test averages for the experimental and control groups were observed to be close, while there were differences between post-test and the follow up test of either group. The IES-R of both groups' measurement scores were tested to see if the averages showed significant differences. This was conducted by a variance analysis (ANOVA). The results were presented in Table 5.

Table 5. Variance analysis results of two factors on IES-R scores in experimental and control groups

Source	Sum of squares	*Sd*	Average of squares	*F*	*p*	Eta square
Between groups	174842.561	21				
Group (E//C)	8409.470	1	8409.470	71.662	.000	.9782
Error	2346.970	20	117.348			
Within groups	8538.000	22				
Measurement (pre-post-follow up)	3921.485	1	1960.742	101.00	.000	.835
Group*Measurement	3840.030	1	1920.015	98.908	.000	.832
Error	776.485	20	19.412			

As shown in Table 5, in the results of the IES-R scale, the group effect was found to be significant ($F_{(1\text{-}20)}$=71.662 p<.01). Without discriminating between the pre-test, post-test and follow-up tests in the experimental and control groups, there were found significant differences between the average scores in the IES-R. Between the average scores of individuals gathered from pre-test, post-test and follow-up test, there were signs of significant differences, irrespective of group discrimination ($F_{(2\text{-}20)}$=101.00 p<.01). Regardless of group discrimination, this result indicated that the post-traumatic stress levels of the individuals varied in terms of the experimental process. Furthermore, it was observed that the value of common effect (group*measurement) was significant ($F_{(2\text{-}20)}$=98.908 p<.01). This indicated that the scores of individuals on the IES-R scale in pre-test, post-test, and follow up measurements in experimental and control groups varied. A Tukey test was used to analyse a significant difference in terms of the measurements between groups. The findings were shown in Table 6.

Table 6. Tukey test results on differences in between and within subjects of measurements of IES-R

Experimental				Control		
	Pre-test	Post-test	Follow-up test	Pre-test	Post-test	Follow-up test
Pre-Test	-	-28.82**	35.27**		-	-
Post-Test		-	6.45		-30.28**	
Follow-up Test		-	-			-36.18**
Pre-Test				-	-.0.19	0.36
Post-Test					-	0.55
Follow-up Test						-

*p<.05 **p<.01

The first hypothesis of the research was verified according to Table 6. A significant difference was demonstrated between the average scores of the IES-R on pre-test obtained from the experimental group compared with the scores gained from post-test and follow up tests. However, the difference between the average scores of IES-R pre-tests of control group and those from post-test, follow up tests were not significant. Thus, the SESP was successful in causing a significant decrease in post-traumatic stress levels for the experimental group.

THE RESULTS FOR THE EFFECTIVENESS OF SESP IN MINDFULNESS

It was theorized that: "SESP for refugee women will be significantly more effective in increasing mindfulness levels of experimental group than control group and this effect will be sustained in two months following the completion of the program." Means and standard deviations (MAAS) of pre-test, post-test, and follow up tests of both experimental and control groups were presented in Table 7.

Table 7. Means and standard deviations of MAAS in experimental and control groups

Measurements	Pre-test		Post-test		Follow-up test	
Groups	$\bar{X}$	*Sd*	$\bar{X}$	*Sd*	$\bar{X}$	*Sd*
Experiment (N=11)	43.81	3.42	67.09	3.33	66.63	4.64
Control (N=11)	44.00	4.77	41.18	5.5	43.27	3.95

Table 7 showed that the pre-test averages of the experimental and control groups were close, while differences emerged in the post-test and follow up-tests scores of both groups. The mean differences in MAAS scores of both groups were examined via a variance analysis (ANOVA).

Table 8. Variance analysis results of two factors on experimental and control groups' MAAS scores

Source	Sum of squares	Sd	Average of squares	*F*	*P*	Eta Square
Between groups	171666.00	21				
Group (E//C)	4418.182	1	1621.929	2.933	.000	.791
Error	1170.485	20	44.571			
Within groups		22				
Measurement (pre-post-follow up)	1666.636	1	1541.99	17.558	.000	.767
Group*Measurement	2276.273	1	1138.126	23.981	.000	.745
Error	1898.424	20	47.461			

As shown in Table 8, the results on the MAAS scale showed a significant effect ($F_{(1\text{-}20)}$=2.93 p<.01). Without discriminating between the pre-test, post-test, and follow-up test of the experimental and control groups, there was a significant difference in the average scores on the MAAS. There were also significant differences in the average scores of individuals gathered from pre-test, post-test and follow-up test ($F_{(2\text{-}20)}$=17.55 p<.01). Without group discrimination,

this result showed that the mindfulness levels of each individual changed over the course of the experimental process. Furthermore, it was seen that the common effect (group*measurement) was significant ($F_{(2\text{-}20)}$=23.98, p<.01). This showed that the scores of individuals from the MAAS scale in the pre-test, post-test, and follow-up measurements in the experimental and control groups varied. A Tukey test was used to analyse any significant difference in terms of the measurements between groups. The findings gathered were presented in Table 9.

Table 9. Tukey test results on differences in between and within subjects of measurements of MAAS versions

Experimental				Control		
	Pre-test	Post-test	Follow up test	Pre-test	Post-test	Follow up test
Pre-Test	-	-23.28*	-22.82*		-	-
Post-Test		-	.46		25.91*	
Follow up Test		-	-			23.26*
Pre-Test				-	2.82	0.73
Post-Test					-	-2.09
Follow up Test						-

*p<.05 **p<.01

The second hypothesis of the research was verified, as shown in Table 9. A significant difference was acquired between average scores of MAAS pre-test of experimental group and those from post-test and follow up-tests. However, the difference between the averages of the MAAS pre-test of control group and those from post-test, and follow-up tests were not significant. Thus, the SESP was significantly efficient in increasing the mindfulness levels of the experimental group.

THE RESULTS FOR THE EFFECTIVENESS OF SESP IN SOCIAL SUPPORT

The third hypothesis stated: "SESP will be significantly more effective in increasing the social support levels of refugee women in the experimental group than control group and this effect will be sustained in two months following the completion of the program." The pre-test, post-test, and follow-up tests, arithmetic averages, and standard deviations (MBSS) of the participants in experimental and control groups are shown in Table 10.

Table 10. Means and standard deviations of MBSS in experimental and control groups

Measurements	Pre-test		Post-test		Follow up test	
Groups	$\bar{X}$	*Sd*	$\bar{X}$	*Sd*	$\bar{X}$	*Sd*
Experimental N=11	25.63	2.80	66.90	6.30	68.45	4.29
Control N=11	25.72	3.92	28.09	6.1	26.27	4.33.

In light of the results presented in Table 10, the pre-test averages of experimental and control groups were close, while differences emerged between post-test and follow-up tests scores of both groups. A variance analysis (ANOVA) was used to determine whether the MBSS of both groups' measurement score averages had significant differences or not. The results of this analysis were presented in Table 11.

Table 11. Variance analysis results of two factors on experimental and control groups' MBSS scores

Source	Sum of squares	Sd	Average of squares	F	p	Eta square
Between groups	106562.182	21				
Group (E//C)	12001.515	1	12001.515	290.957	.000	.936
Error	824.979	20	41.248			
Within groups	3058.667	22				
Measurement (pre-post-follow up)	6938.455	1	3469.227	163.549	.000	.891
Group*Measurement	6072.394	1	3036.197	143.135	.000	.877
Error	-848.485	20	21.212			

As shown in Table 11, in the results on the MBSS scale the group effect was found to be significant ($F_{(1-20)}$=290.957, p<.01). Without discriminating between pre-test, post-test, and follow up of experimental and control groups, significant differences emerged between the groups' average scores on the MBSS.

Between the average scores of individuals gathered from the pre-test, post-test, and follow-up tests, there were also significant differences ($F_{(2-20)}$=163.549 p<.01). Without group discrimination, this result indicated that social support levels of the participants varied, depending on the experimental process. Furthermore, it was observed the common effect (group*measurement) was significant ($F_{(2-20)}$=143.135; p<.01). This outcome indicated that the scores of participants from MBSS in pre-test, post-test, and follow up measurements in both experimental and control groups varied. A Tukey test was used to analyse a significant difference in terms of the measurements between groups. The findings gathered were presented in Table 12.

Table 12. Tukey test results on differences in between subjects and within subjects of measurements of MBSS scores

Experimental				Control		
	Pre-test	Post-test	Follow up test	Pre-test	Post-test	Follow up test
Pre-Test	-	-41.27**	-42.82**		-	-
Post-Test		-	-1.55		38.81**	
Follow up Test		-	-			42.18**
Pre-Test				-	-2.37	-0.55
Post-Test					-	1.82
Follow up Test						-

The third hypothesis of the research was verified and shown in Table 12. Significant differences can be seen between the average scores of the MBSS from the pre-test of the experimental group and those from the post-test and follow-up tests. However, the difference between the average scores of the MBSS pre-test of the control group and those from post-test and follow up-tests was not significant. Thus, SESP was significantly efficient in increasing levels of social support in the experimental group.

DISCUSSION AND CONCLUSION

The aim of this study was to understand the effects of the SESP on the refugee women's post-traumatic stress, mindfulness, and social support level. The results of this study suggested that the 6-week SESP applied to refugee women was significantly effective in decreasing post-traumatic stress and increasing mindfulness and social support levels. Female refugees have been more influenced than males (Buhman 2014; Pumariega et al. 2005) and, in line with the literature, the program was developed for refugee

women. It is also stated that stabilization programs have an effect in traumas (Levine 2015; Verreault 2017). In this regard, the study program was organized according to the stabilization of SE.

The first result of this study showed that SESP was significantly effective in decreasing post-traumatic stress levels among refugee women. The results of this study were parallel with those of previous studies, showing that SE reduces post-traumatic stress in different types of trauma, both individually (Andersen et al. 2017; Brom et al. 2017; Leitch and Miller-Karas 2009; Parker et al. 2008; Winblad et al. 2018) and as a group (Briggs et al. 2017; Taylor and Saint-Laurent 2017). Although some somatic-based studies working with refugees as individuals (Arroyo 2018; Hinton et al. 2006; Koch and Weidinger-von der Recke 2009; Nordbrandt et al. 2020) and as a group (Verreault 2017) support the first result of the study indirectly, there has not been any SE study that works with refugees individually and as a group to reduce post-traumatic stress level. Especially grounding and boundaries exercises in the program may provide individuals to "be present" by distancing themselves from stressful situations and to find some resources to contain their traumatic experiences (Levine 2015). Thus, it can be said that this study is the first SE study working with refugees to decrease post-traumatic stress level.

The second result of this study indicated that SESP was significantly effective in increasing mindfulness levels in refugee women. This is because mindfulness observation of inner body sensations leads to body awareness (Kattenstroth 2009; Tihanyi et al. 2016), which is an important part of SE®. Moreover, mindfulness-based programs like SE® are based on the self-regulation process (Levine 2010, 2015). Although mindfulness-based programs including body awareness increase the mindfulness level of refugees (Kalmanovitz 2016; Reebs et al. 2020) indirectly, this supports the second result of the study and there has been no SE® study working with refugees individually and as a group to monitor mindfulness levels. Especially body tracking and breathing exercises may provide individuals to "be present" by paying attention to their body sensations and increasing the level of mindfulness. Thus, it can be inferred that this study is the first study working with refugees to deal with increasing mindfulness.

The last result of this study has shown that SESP is significantly effective in increasing support levels in refugee women. As Levine (2015) indicated that social relations are also crucial in regulating ANS. A number of studies (Palic and Elklit 2011; Stewart et al. 2010) emphasize the importance of social support, especially group support program (Block et al. 2018; Drozdek and Bolwerk 2010; Im and Rosenberg 2016) in refugees. It is also stated that group programs for refugees are more effective compared to individual programs (Bass et al. 2011; Block et al. 2018). Although SE®-based programs are generally organized individually, considering the result of these studies, SESP program based on SE® was organized for a group of refugee women. In other words, social engagement and touching may provide individuals to feel togetherness. Thus, the social support level of refugee women may be increased.

There was no study that shows the effectiveness of SE® in refugees. Only one qualitive research interviewing four psychotherapists trained in mind-body based approaches that work with adult refugees has been published (Ament-Lenke 2018). Thus, this study is the first study to show the effectiveness of SESP among refugees. The program of the study is based on somatic approaches (non-verbal, and resource oriented) and is cross culturally adapted to suit refugees better (Gray 2011; Koch and Weidinger-von der Recke 2009; Zehetmair et al. 2018). Moreover, the program of the study is structured and open for the benefit of specialists working in the field, including those based in NGOs, training centres and guidance centres.

Despite the contribution of this research, there were some limitations. Firstly, all the scores gathered from the self-report scales. Thus, social desirability may have effect on the research. Secondly, the sample was only refugee women that limits the generalizability of the results. Thus, this research can be tested on diverse and heterogeneous groups. Thirdly, the current study only had experimental and control groups. Therefore, a placebo group could be added to increase the reliability of the results. Fourthly convenience sampling method was used. Thus, randomly sampling methods could be used to represent refugee women population. Finally, the

SE® program was applied to participants with no comparison having been made with a different mind-body based program such as, Body Awareness Therapy, Mindfulness Based Therapy. Thus, a practical comparison with other programs in the literature would boost these findings.

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