



Enhancing need satisfaction to reduce psychological distress in Syrian refugees

Article

Accepted Version

Weinstein, N. ORCID: <https://orcid.org/0000-0003-2200-6617>, Farah, K. and Nicole, L. (2016) Enhancing need satisfaction to reduce psychological distress in Syrian refugees. *Journal of Consulting and Clinical Psychology*, 84 (7). pp. 645-650. ISSN 0022-006X doi: <https://doi.org/10.1037/ccp0000095> Available at <http://centaur.reading.ac.uk/93614/>

It is advisable to refer to the publisher's version if you intend to cite from the work. See [Guidance on citing](#).

Published version at: <http://dx.doi.org/10.1037/ccp0000095>

To link to this article DOI: <http://dx.doi.org/10.1037/ccp0000095>

Publisher: American Psychological Association

All outputs in CentAUR are protected by Intellectual Property Rights law, including copyright law. Copyright and IPR is retained by the creators or other copyright holders. Terms and conditions for use of this material are defined in the [End User Agreement](#).

www.reading.ac.uk/centaur

CentAUR

Central Archive at the University of Reading

Reading's research outputs online

Running Head: NEED SATISFACTION IN REFUGEES

Enhancing Need Satisfaction to Reduce Psychological Distress in Syrian Refugees

Originally submitted: Oct. 1, 2014; Revision submitted Oct. 30, 2015.

Abstract

Objective: Becoming a refugee is a potent risk factor for indicators of psychological distress such as depression, generalized stress, and post-traumatic stress disorder (PTSD), though research into this vulnerable population has been scant, with even less work focusing on interventions. The current study applied principles from self-determination theory (SDT; Ryan & Deci, 2000) to develop and test an intervention aimed at increasing need-satisfying experiences in refugees of Syrian civil unrest. **Method:** Forty-one refugees who fled Syria during the past 24 months and resettled in Jordan participated in the study and were randomly assigned to receive the intervention or a neutral comparison. **Results:** The one-week long intervention alleviated some of the need frustration likely associated with refugee status, a major aim of the intervention, and also lowered refugees' self-reported symptoms of depression and generalized stress as compared to the comparison condition, though it did not reduce symptoms of PTSD. **Conclusions:** Discussion focuses on how these findings speak to the universal importance of need satisfaction for mental health, and how need-satisfying experiences can help buffer against the profound stress of being a refugee. Avenues for longer-term or more intensive interventions that may target more severe outcomes of refugee experiences, such as PTSD symptoms, are also discussed.

Keywords: Self-determination theory; basic psychological need satisfaction; refugees; mental health; depression

Public health significance: Findings suggest a simple intervention that reduced need frustration in refugees, and which required little training to implement, is beneficial for reducing generalized stress and symptoms of depression, but not posttraumatic stress symptoms. This study highlights the importance of having experiences that satisfy basic psychological needs for refugee mental health, with implications for working with other individuals living in high stress conditions.

Enhancing Need Satisfaction to Reduce Psychological Distress in Syrian Refugees

The United Nations estimates that 250,000 Syrians have moved to and stayed in Jordan as a result of the conflicts (“Syrian Refugees, a Snapshot of the Crisis-In the Middle East and Europe”, n.d). Like refugees in comparable situations across the globe, relocated Syrians often report stress, depression, and symptoms of post-traumatic stress disorder (PTSD; World Food Programme, 2012) and their basic psychological needs for autonomy, relatedness, and competence may also be frustrated (Care Jordan, 2012). Psychological interventions to aid refugees are rare – in Lebanon, for example, only 1% of Syrian refugees have access to mental health services (El Chammay, Kheir, & Alaouie, 2013); as such, time-limited services are needed when working with these populations (Murray, Davidson, & Schweitzer, 2010). The current work employs self-determination theory (SDT; Ryan & Deci, 2000), a theory concerned with understanding how the environment supports or thwarts people’s basic psychological needs and their consequent well-being, to test an exploratory, simple and easy-to-implement needs-based intervention with refugees recently relocated from Syria.

According to SDT, people’s social environments and circumstances can either support or thwart three universal and fundamental psychological needs for *competence* (feeling effective), *relatedness* (feeling close and connected to others), and *autonomy* (acting with choice and volition). Studies in SDT show that across the lifespan, people thrive in need-supportive environments, and they suffer psychologically when subjected to need-thwarting environments (for a review see Vansteenkiste & Ryan, 2013). For example, people who have need-supportive relationships tend to have lower depression (Soenens et al., 2008a), disordered eating (Soenens et al., 2008b), and aggressive behavior (Joussemet et al., 2008). More immediate to the current work, links between low need satisfaction and maladjustment have been shown in Middle Eastern samples (Ahmad, Vansteenkiste, & Soenens, 2013), and in those who temporarily

relocate outside of their home country (Vansteenkiste, Lens, Soenens, & Luyckx, 2006).

Given that most refugees do not relocate by choice, they ostensibly experience a significant degree of need frustration. Qualitative assessments support this view; vulnerabilities recognized as major causes of psychological distress among Syrian refugees included social isolation (from Jordanians and Syrians and as a result of being separated from family; thwarting relatedness), feeling vulnerable and powerless (thwarting autonomy), impaired self-efficacy and lack of access to information (thwarting competence; Care Jordan, 2012).

Despite their greater risk for distress than the general population (Fazel, Wheeler, & Danesh, 2005), there is little empirical evidence to support psychosocial interventions with refugees, and these interventions can be very difficult and expensive to implement. Based on research reviewed above, it may be the case that psychological need frustration is tied to poor mental health of refugees, and that providing refugees with need-satisfying experiences may buffer against some psychological distress. Given our assumption that refugees have likely encountered need-thwarting experiences, providing opportunities for need satisfaction may ameliorate some of their current psychological distress. This may be the case for two reasons: an intervention that increases opportunities for need satisfaction might divert refugees away from need-thwarting activities, or it could potentially equip refugees with greater psychological resources to be resilient in the face of stress (Vansteenkiste & Ryan, 2013).

Thus far, no research has systematically examined the effects of need frustration on mental health outcomes of refugees and traumatized individuals, nor has work attempted an intervention relying on motivational principles in working with refugees. In fact, few studies have tested whether an intervention aimed at enhancing psychological needs can improve mental health outcomes, particularly in a vulnerable population. This study was intended to: (1) examine the relation between need frustration and psychological distress as reflected in symptoms of

depression, generalized stress, and PTSD in a sample of Syrian refugees and, (2) investigate the effects of a basic, easy-to-implement psychosocial intervention which encourages individuals to seek out need-satisfying activities. The intervention is non-clinical in nature, but offers a framework by which individuals working with refugees might address mental health; it was also aimed at testing a causal relation between need frustration and psychological distress, thus informing motivational and mental health literatures. It was designed to help refugees rediscover their basic psychological needs, learn how to satisfy them in small but meaningful ways that are achievable within their current circumstances, and by doing so promote greater well-being within their new way of life. The intervention aimed to enhance need satisfaction through encouraging small acts that facilitated closeness and reconnection with family or beloved ones, that increased a sense of achievement and engagement in interesting and valued acts, and finally, by encouraging self-congruent decision-making and self-expression, in accord with SDT recommendations (e.g., Ryan & Deci, 2000). We hypothesized that Syrian refugees' levels of needs frustration would be linked to more symptoms of depression, generalized stress, and PTSD and that an intervention aimed at enhancing need satisfaction would positively affect the refugees' mental health as indicated by reductions in depressive symptoms, generalized stress, and PTSD symptoms as compared to a control condition. We focused on need-thwarting experiences and negative indicators of mental health, since these are especially prevalent and problematic in refugee populations as refugees are exposed to high and chronic levels of past and current stressors (World Food Programme, 2012).

Method

Participants and Procedure

Forty-one participants (21 male and 20 female) ages 15 to 68 years ($M = 28.80$, $SD = 10.53$) took part in this study. The sample consisted of Syrian refugees who fled Syria during the

past 24 months and who are currently residing in Jordan. Participants were mostly from a low-class and middle-class background, and were recruited by humanitarian aid workers and volunteers of a charity foundation (Mulham Volunteering Team) that had been providing aid for Syrian refugees for nine months prior to the intervention. Participants were randomly assigned to one of two conditions: need satisfaction intervention ($n = 24$) or control condition ($n = 17$).

All participants were asked to complete a baseline questionnaire asking about need frustration, depressive symptoms, generalized stress, and symptoms of PTSD. Participants in the intervention condition were asked to engage in a weeklong effort to try a variety of daily activities. Twelve suggested activities (see Appendix) were discussed with participants, and they were instructed they had the option to choose any activity on the list, and they could do the same activities multiple times and ignore activities that did not suit them. Participants were also provided with examples of activities through which they could achieve each task. For example, in an activity aimed at satisfying their need for relatedness, participants were asked to positively connect with others by expressing their feelings of gratitude to a beloved one. In an activity aimed at satisfying their need for competence, participants were asked to teach someone a skill they are good at such as how to cook a certain dish or how to cut hair in a certain style. Study staff conducted a 10-15 minute meeting every other day with each participant to talk about the activities and discuss their thoughts and feelings about it; this discussion was non-structured and guided by participants. These follow-up meetings were organized by the volunteer organization that was meeting regularly with the participants outside the study, and we felt they were important in encouraging continued engagement with the intervention. Participants in the Control condition were visited by members of the organization as they typically would be. At the end of the week, participants of both groups were asked to complete a second survey measuring need

frustration, depressive symptoms, generalized stress, and PTSD symptoms.¹

Measures

Psychological need frustration. Measures were translated to Arabic and back-translated by an independent experimenter. The revised basic psychological needs scale was used to assess need frustration. Six items from the revised basic psychological needs scale (Chen et al., 2014) measured need frustration, including: “I feel forced to do many things I wouldn’t choose to do”, and “I feel rejected by one or more important people in my life”. Participants responded using a scale ranging from 1 (*not at all true*) to 5 (*very true*), reflecting on the previous month; $\alpha = .71$.

Depressive symptoms. Thirteen items from the Center for Epidemiological Studies Depression Scale (CES-D; Radloff, 1977) assessed depressive symptoms. Items (e.g., “I felt sad” “my sleep was restless”) were rated on a scale from zero (*never*) to four (*very often*), $\alpha = .72$.

Generalized stress. Four negatively valenced items of the Perceived Stress Scale (e.g., “how often have you felt that you were unable to control the important things in your life?”) were used (PSS; Cohen, Kamarack and Mermelstein, 1983) as well as four items reflecting a relaxed mood (e.g., “I felt calm”) from the State Trait Anxiety Inventory (STAI; Spielberger, 1983), which were reversed to make one composite score of generalized stress. Participants responded on a five-point scale ranging from zero (*never*) to four (*very often*), $\alpha = .61$.

Posttraumatic stress disorder (PTSD). The 17-item self-reported PTSD symptoms scale (Foa, Cashman, Jaycox, & Perry, 1997) asked participants to rate symptoms from 0 (*not at all or only one time*) to 3 (*almost always*). Items included: “Having upsetting thoughts or images

¹ Ethics procedures were reviewed and approved at the University of Essex. Participation in the study was entirely voluntary, and individuals did not receive compensation for taking part. It was explained that all data would be collected anonymously (data were linked using randomly assigned study IDs not linked to participant names). Participants were instructed on these issues by the experimenter and verbally agreed to take part.

about fleeing from Syria that come into your mind when you do not want them to,” ($\alpha = .83$).

Results

Cross-sectional Analyses

Correlational analyses. Neither age ($r_s < .20$, $p_s > .23$) nor gender ($t_s < 1.13$, $p_s > .26$) related to other variables of interest and were therefore not included in primary analyses. See Table 1 for correlations between major study variables.

Relations between need frustration and mental health. To test whether higher levels of need frustration would relate to indicators of poor mental health, symptoms of depression, generalized stress, and PTSD at Time 1 were regressed in three separate models onto need frustration at Time 1. As predicted, need frustration was linked to more symptoms of depression, $\beta = .44$, $t(39) = 3.06$, $p = .004$, $r = .44$; $b = .32$ with 95% CI, .11 to .53, more generalized stress, $\beta = .33$, $t(38) = 2.16$, $p = .04$, $r = .33$; $b = .42$ with 95% CI, .02 to .81, and more symptoms of PTSD, $\beta = .33$, $t(37) = 2.18$, $p = .04$, $r = .34$; $b = 3.35$ with 95% CI, .25 to 6.46.

Effects of the Intervention

Manipulation check. Repeated-measures analyses of covariance (ANCOVAs) tested Time 1 and 2 outcomes as a function of time and time X condition interaction. Descriptive statistics, effect sizes, and confidence intervals are presented in Table 2. Findings indicated no effect of time on need frustration, $F(1, 39) = 1.92$, $p = .17$, but an interaction of time with condition, $F(1, 39) = 8.38$, $p = .006$. Simple effects showed no change in the comparison condition, $F(1, 16) = 0.64$, $p = .43$, but lower need frustration over time in the intervention condition, $F(1, 23) = 17.16$, $p < .001$.

Symptoms of depression. Depressive symptoms did not change across the time points, $F(1, 39) = 0.19$, $p = .66$, except as a function of condition, $F(1, 39) = 26.91$, $p < .001$. Whereas the comparison condition increased in symptoms of depression, $F(1, 16) = 11.81$, $p = .003$, those

in the intervention condition showed fewer symptoms over time, $F(1, 23) = 15.12, p = .001$.²

Generalized stress. Symptoms of stress reduced over time, $F(1, 39) = 4.81, p = .04$, an effect that interacted with condition, $F(1, 39) = 8.40, p = .006$. While there was no change in generalized stress for the comparison condition, $F(1, 16) = 0.24, p = .63$, the intervention group reported lower stress over time, $F(1, 23) = 14.30, p = .001$.

PTSD. In a final model, symptoms of PTSD did not change over time generally, $F(1, 39) = 2.01, p = .16$, or as a function of condition, $F(1, 39) = 1.02, p = .32$.

Discussion

Consistent with expectations, refugees who experienced more need frustration also exhibited higher levels of depressive symptoms, generalized stress, and symptoms of PTSD. These findings are consistent with previous research linking need frustration to distress in general populations, largely correlational and derived in Western cultures (e.g., Vansteenkiste & Ryan, 2013; notable exceptions include work by Ahmad et al. 2013 with Jordanian adolescents). Furthermore, this research informs qualitative assessments that identify need-thwarting experiences such as social isolation, feelings of powerlessness, and inability to plan for the future as some of the core vulnerabilities experienced by refugees from Syria (Care Jordan, 2012). It may be that these experiences are harmful because they negatively impact psychological needs, though future research would need to directly examine this.

The primary purpose of this study was to evaluate whether participating in a one-week long, need-engaging intervention would reduce psychological distress, and findings showed it

² Exploratory ANOVAs predicting Time 1 mental health indicators found higher scores in the experimental group: depression, $F(39) = 26.95, p < .001$, generalized stress, $F(38) = 10.15, p = .004$, and PTSD symptoms, $F(38) = 5.10, p = .03$ (no relation with initial need thwarting, $F(39) = 2.67, p = .06$). As such, we reran models using a multivariate regression analytic which better accounts for imbalanced scores at baseline (e.g., Vickers & Altman, 2001); findings using this approach showed similar results in terms of significance and direction of the effect.

reduced symptoms of depression and generalized stress over one week.³ This intervention supported refugees' sense of choice in pursuing need satisfying experiences, and it required little training for staff members who implemented it, apart from clarifying the nature of psychological needs so that staff could better assist refugees in identifying concrete ways to meet their needs on a day-to-day basis. In taking this approach, the intervention enabled refugees to draw on their own capacity, strengths, and resources. These results inform the motivation literature. Though past research has identified a robust relation between psychological needs and mental health in medical settings (for example, see meta-analysis by Ng et al., 2012; Su & Reeve, 2011) and the general population (Vansteenkiste & Ryan, 2013), interventions that enhance need satisfaction are less common, and to our knowledge no intervention has aimed to enhance psychological needs with the goal of psychological symptom reduction.

Although refugees' generalized stress and depressive symptoms improved after the one-week intervention, we did not see amelioration of PTSD symptoms. We believe the reason may be deep and direct connections of PTSD symptoms with specific traumatic experiences, which must be directly processed with a therapist for symptom alleviation (Cohen, Mannarino, & Deblinger, 2006). It is also possible the one-week intervention period was too short to address the more severe symptoms of PTSD, which are typically treated by interventions lasting three to six months (Foa, Keane, Friedman, & Cohen, 2008). Although the intervention did not directly affect symptoms of PTSD, it might have done so indirectly through its effects on depressive symptoms and generalized stress. The present sample was too small to test for this, but future research may explore these potential indirect links.

The present study was first to explore a new intervention based in self-determination

³Although baseline differences suggested there may have been greater opportunity for change in the experimental group, shifts were also observed in the control group, indicating that effects were not completely driven by the experimental group.

theory (Ryan & Deci, 2000). These results reflected a first exploration with a relatively small group of refugees living in Jordan, and may not generalize to refugees living in other areas or conditions. In addition, we did not test other important indicators of refugee mental health, including engagement and daily functioning, positive indicators of well-being such as happiness and energy, or physical health indicators (e.g., blood pressure, cortisol levels), leaving future work to fill this gap. This preliminary work tested immediate responding to the intervention, and future research should also collect indicators of mental health after some delay. Furthermore, our intervention played into needs directly and indirectly (e.g., through prosocial behavior), and further research should examine which activities are selected, and whether these varied activities affect each of the three needs differently. Finally, future research should use multiple informants to rate degree of adaptation (Ahmad et al., 2013); for example, reports from aid workers blind to condition would increase validity of findings.

This study is among the first to apply a motivational approach to a sample of individuals at risk for mental health problems, showing externally valid, causal support for the link between psychological needs and psychological distress. The present work also highlights an encouraging approach for reducing distress experienced by refugees, particularly with respect to symptoms of stress and depression. These results are promising in that with a little structured support, refugees can take active and small steps to improve their mental health by engaging with the social and environmental resources already present in their lives. The intervention that was applied provides an opportunity for clinicians to fill the need for extensive psychosocial interventions for post-war and trauma victims. In addition, through this study we learned that need frustration is linked to three indicators of psychological distress in refugees, extending support for a self-determination theory model of mental health in vulnerable populations. Our intervention further suggests a causal relation between psychological needs and distress; this is one of relatively few studies that

have done so in adult populations and particularly in populations with more severe levels of psychological distress. In sum, this study offers both practical and theoretical contributions to understanding refugees and to the field of human motivation, and it guides future avenues for interventions that alleviate distress in refugees.

References

- Ahmad, I., Vansteenkiste, M., & Soenens, B. (2013). The relations of Arab Jordanian adolescents' perceived maternal parenting to teacher-rated adjustment and problems: The intervening role of perceived need satisfaction. *Developmental psychology, 49*, 177.
- Care Jordan (2012). *Baseline assessment of community identified vulnerabilities among Syrian refugees living in Amman*. Care Jordan. Amman, Jordan.
- Chen, B., Vansteenkiste, M., Beyers, W., Boone, L., Deci, E. L., Van der Kaap-Deeder, J., ... & Verstuyf, J. (2014). Basic psychological need satisfaction, need frustration, and need strength across four cultures. *Motivation and Emotion, 39*(2), 216-236.
- Cohen, S., Kamarack, T., & Mermelstein, R. (1983). A global measure of perceived stress. *Journal of Health and Social Behaviour, 24*, 385–396.
- Cohen, J. A., Mannarino, A. P., & Deblinger, E. (2006). *Treating trauma and traumatic grief in children and adolescents*. New York: The Guilford Press.
- El Chammay, R., Kheir, W., & Alaouie, H. (2013). *Assessment of mental health and psychosocial support services for Syrian refugees in Lebanon*. UNHCR, Lebanon.
- Fazel, M., Wheeler, J., & Danesh, J. (2005). Prevalence of serious mental disorder in 7000 refugees resettled in western countries: a systematic review. *The Lancet, 365*, 1309-1314.
- Foa, E. B., Cashman, L., Jaycox, L. & Perry, K. (1997). The validation of a self-report measure of posttraumatic stress disorder: The Posttraumatic Diagnostic Scale. *Psychological Assessment, 9*, 445–451.

- Foa, E. B., Keane, T. M., Friedman, M. J., & Cohen, J. A. (Eds.) (2008). *Effective treatments for PTSD: Practice guidelines from the International Society for Traumatic Stress Studies*. Guilford Press.
- Joussemet, M., Vitaro, F., Barker, E.D., Coté, S., Nagin, D., Zoccolillo, M., & Tremblay, R.E. (2008). Controlling parenting and physical aggression during elementary school. *Child Development, 79*, 411-425.
- Murray, K. E., Davidson, G. R., & Schweitzer, R. D. (2010). Review of refugee mental health interventions following resettlement: Best practices and recommendations. *American Journal of Orthopsychiatry, 80*, 576-585.
- Ng, J. Y. Y., Ntoumanis, N., Thøgersen-Ntoumani, C., Deci, E. L., Ryan, R. M., Duda, J. L., & Williams, G. C. (2012). Self-determination theory applied to health contexts: A meta-analysis. *Perspectives on Psychological Science, 7*, 325-340.
- Radloff, L. S. (1977). The CES-D Scale: A self-report depression scale for research in the general population. *Applied Psychological Measurement, 1*, 385-401.
- Ryan, R. M., & Deci, E. L. (2000). The darker and brighter sides of human existence: Basic psychological needs as a unifying concept. *Psychological Inquiry, 11*, 319-338.
- Ryan, R. M., Patrick, H., Deci, E. L., & Williams, G. C. (2008). Facilitating health behaviour change and its maintenance: Interventions based on self-determination theory. *The European Health Psychologist, 10*, 2-5.
- Soenens, B., Luyckx, K., Vansteenkiste, M., Luyten, P., Duriez, B., & Goossens, L. (2008a). Maladaptive perfectionism as an intervening variable between psychological control and adolescent depressive symptoms: A three-wave longitudinal study. *Journal of Family Psychology, 22*, 465-474.
- Soenens, B., Vansteenkiste, M., Vandereycken, W., Luyten, P., Sierens, E., & Goossens, L. (200

- 8b). Perceived parental psychological control and eating-disordered symptoms: Maladaptive perfectionism as a possible intervening variable. *Journal of Nervous and Mental Disease*, 196, 144-152.
- Spielberger, C. D. (1983). *Manual for the State-Trait Anxiety Inventory: STAI (Form Y)*. Palo Alto, CA: Consulting Psychologists Press.
- Su, Y., & Reeve, J. (2011). A meta-analysis of the effectiveness of intervention programs designed to support autonomy. *Educational Psychology Review*, 23, 159-18
- Vansteenkiste, M., Lens, W., Soenens, B., & Luyckx, K. (2006). Autonomy and relatedness among Chinese sojourners and applicants: Conflictual or independent predictors of well-being and adjustment? *Motivation and Emotion*, 30, 273-282.
- Vansteenkiste, M., & Ryan, R. M. (2013). On psychological growth and vulnerability: Basic psychological need satisfaction and need frustration as a unifying principle. *Journal of Psychotherapy Integration*, 23(3), 263.
- Vickers, A. J., & Altman, D. G. (2001). Statistics notes: Analysing controlled trials with baseline and follow up measurements. *British Medical Journal*, 323(7321), 1123-1124.
- World Food Programme (2012). *Needs Assessment of Displaced Syrians in Jordan* (2012). Amman: Jordan. Retrieved from <http://documents.wfp.org/>

Author Note

Correspondence concerning this article (and requests for an extended report of this study) should be addressed to [author's full name and address will be inserted here].

Table 1

Means, standard deviations, and correlations between main study variables at Time 1 (baseline) and Time 2 (post-intervention)

	<i>M(SD)</i>	1	2	3	4	5	6	7
1. Need frustration T1	2.65(0.88)							
2. Need frustration T2	2.52(0.61)	.88**						
3. Generalized stress T1	-0.24(1.14)	.33*	.29~					
4. Generalized stress T2	-0.49(1.09)	.26	.23	.87**				
5. Depressive symptoms T1	1.94(0.63)	.44**	.35*	.46**	.30~			
6. Depressive symptoms T2	1.91(0.41)	.21	.19	.19	.14	.77**		
7. PTSD symptoms T1	21.43(8.96)	.33*	.30~	.60**	.39*	.45**	.31~	
8. PTSD symptoms T2	20.49(7.50)	.20	.15	.50**	.24	.42**	.27~	.87**

Notes. PTSD refers to symptoms of post-traumatic stress disorder, T1 refers to Time 1 (before the intervention) and T2 refers to Time 2 (after the intervention).

** $p < .01$, * $p < .05$, ~ $p < .08$

Table 2

Means and standard deviations at Time 1 (baseline) and Time 2 (post-intervention) as a function of condition. For interest, means for each of the three need frustrations are presented separately. Effect sizes and confidence intervals are presented for moderating effects of condition on time (primary effects).

	<i>Time 1</i>		<i>Time 2</i>		η_p^2	<i>b</i>	95% CI
	<i>Comparison</i>	<i>Intervention</i>	<i>Comparison</i>	<i>Intervention</i>			
Need frustration	2.31 (0.22)	2.88 (0.18)	2.43 (0.16)	2.59 (0.13)	.18	.20	0.01 to 0.40
Autonomy frustration	2.47	3.15	2.21	2.82			
Competence frustration	2.44	3.19	2.82	2.75			
Relatedness frustration	2.12	2.25	2.29	2.19			
Depressive symptoms	1.35 (0.12)	2.27 (0.10)	1.75 (0.10)	2.03 (0.08)	.41	.27	0.05 to 0.50
Generalized stress	-0.82 (0.25)	0.20 (0.22)	-0.77 (0.26)	-0.23 (0.22)	.18	.47	0.08 to 0.87
PTSD symptoms	17.88 (2.07)	24.04 (1.78)	17.59 (1.75)	22.30 (1.50)	.03	.24	-2.57 to 3.05

Appendix

Instructions at start of the study

These are few ideas for some activities that you will be asked to do every day. Each day, you will be asked to identify a specific activity – something you can easily or regularly do, and which you would enjoy. Draw one of the slips and let's discuss it together.

Points for discussionEach morning:

What will you do today?

Why have you chosen it?

Each morning following:

Have you felt what you did yesterday was beneficial?

Take an interest in this activity, considering your experiences around it, your thoughts and feelings in response, and any benefits or difficulties. What is your perspective about it?

Activities

1. Today, think about something you could do, that would help you to feel like you can express yourself honestly [autonomy]
2. Today, think about something you could do, that would help you to feel like a challenge, but one you feel you can be effective in doing [competence]
3. Today, think about something you could do, that would help you to feel connected and close to someone important to you in your life [relatedness]
4. Today, think about something you could do, that would help you to feel like you can help or aid others [e.g., You could offer a small bit of help to a friend or a younger person who is in need of help] [relatedness, competence]
5. Today, make a meaningful choice about something important to you, even if it's a small thing [autonomy]
6. Today, tell someone who is important to you that you care for them [give them positive feedback, provide emotional support] [relatedness]
7. Today, share your feelings of gratitude toward someone close to you [a sincere praise of their attitudes and actions. Acknowledge their unique and unusual contribution] [relatedness]
8. Today, try doing an activity that you are good at – appreciate your own skills/hobbies if possible [competence/autonomy]
9. Today, teach someone something you are good at [transfer your knowledge; show them how to do it] [competence]
10. Today, engage in a positive dialog with someone. Discuss your feelings and thoughts [relatedness/autonomy]
11. Today, share a small task with a beloved one [e.g. member of your family] – try doing it together, like a team [relatedness]
12. Today, take a break from engaging an activity which you do only because you feel you have to, and which you don't really value [autonomy]