Exploring the Impact of Sport and Play on Social Support and Mental Health: An Evaluation of the "Women on the Move" Project in Kajo-Keji, South Sudan

Fabienne Staempfli[1], Daniel Matter[1]

[1] *Swiss Academy for Development, Biel/Bienne, Switzerland*

Corresponding author email address: fabienne.staempfli@outlook.com

Abstract

This paper summarises some of the key findings of the post-intervention study of the project "Women on the Move". The intervention targeted women traumatised by war and violence and took place between 2012 and 2016 in the county of Kajo-Keji, South Sudan. We examined the impact of the project's trauma-informed sport and play-based intervention on women's mental health and perceived availability of social support. The intervention provided psychosocial support, aimed at strengthening the women's resilience and coping abilities as well as improving their health and promoting social cohesion. We used a quasi-experimental study design with measurement points pre- and post-intervention (nine months and three and a half years after the start of the activities, respectively). The questionnaire analysed a range of variables (demographics, health, challenges, coping abilities, social support and income generating activities), most of which were investigated with the use of culturally adapted versions of internationally validated psychometric scales. The results indicate that the women's perceived availability of social support increased and their mental health improved significantly over the course of the project.

Keywords: *Sport and play, psychosocial intervention, social support, mental health, South Sudan*

Introduction

Background

Nearly four decades of civil war and ongoing conflict have left deep scars on South Sudan and its people. Many remain traumatised as a result of having experienced or witnessed the sudden deaths of family members, violence, illness, forced displacement and ethnic discrimination (1). Women are especially vulnerable due to their responsibilities of often being the sole caretakers of families and the additional burden of encountering sexual and gender-based violence (SGBV). Studies indicate that up to 50% of the population suffer from mental illnesses such as posttraumatic stress disorder (PTSD) or depression, with significantly higher rates for women compared to men (2). With social and support networks destroyed due to migration and displacement, as well as low levels of trust in communities, supporting psy-

chosocial rehabilitation of women is a crucial undertaking.

The Women on the Move (WotM) project was aimed at these women. It was jointly implemented by the Swiss Academy for Development (SAD) and the South Sudan Psychosocial Program (SSPP), and targeted traumatised women in the county of Kajo-Keji in South Sudan between 2012 and 2016. The project applied a trauma-informed approach with a sport and play-based psychosocial intervention, and supported women in dealing with traumatic experiences, offered psychosocial support and promoted the development of social cohesion. As part of the monitoring & evaluation process of the project, a post-intervention study was conducted. Some of the key findings of this study will be discussed in this paper[1].

A trauma-informed sport and play-based intervention

When it comes to effective strategies to support trauma survivors, the literature differentiates between two approaches: *trauma-specific* and *trauma-informed*. The two approaches have profound differences in their approach to understand mental health caused by conflict (4-6). Trauma-specific practices take a direct approach to addressing trauma-related symptoms and PTSD. A mixture of counselling and clinical intervention help the survivors recover from traumatic experiences. Trauma-informed methods, on the other hand, rely on more indirect methods, highlighting the importance of awareness, knowledge and skills needed by staff to support trauma survivors. Ideally, a trauma-

informed response creates an environment that is sensitive to traumatic stress and the vulnerabilities of trauma survivors, and that encourages participation. Miller and Rasmussen (6) further argue for addressing daily stressors, as they play a crucial role in mediating direct war exposure and mental health outcomes. The substance abuse and mental health services administration (SAMHSA) (7) distinguishes six guiding principles of trauma-informed care that should lead such an intervention:

- Safety
- Trustworthiness and transparency
- Peer support and mutual self-help
- Collaboration and mutuality
- Empowerment, voice, and choice
- Cultural, historical, and gender issues

A sport and play-based intervention is well suited for a trauma-informed approach. This approach adheres to these guiding principles by allowing the inclusion of people with different trauma backgrounds and creating a safe environment for the participants (8). Inclusive projects like this are more likely to lead to sustainable outcomes for the community as a whole, as they create connectedness and stable support networks. By encouraging social interaction, communication and cooperation, a sport and play-based intervention also fosters social cohesion and social support networks (9). Apart from the commonly known physical benefits, such as improving health and reducing chronic diseases, participation in sport and physical activity also has a range of positive impacts on mental health. These can include improving self-esteem, building confidence and reducing stress (10). Additionally, sport facilitates the

---

[1] For a complete overview of the results, see the WotM project evaluation report (3).

development of core life skills such as tolerance, respect and teamwork as well as promoting discipline and leadership. Such skills and abilities are crucial to building resilience – the capacity to withstand stress and shocks, often also defined as inner strength, responsiveness and flexibility that individuals have to help them respond to stress and trauma in healthy and positive ways (8).

By enabling social cohesion, a trauma-informed sport and play-based intervention also facilitates the positive impact of social support on mental health and trauma recovery, which is widely discussed in the literature (11-13). Social support depends on the availability of people whom one can trust, rely on and make them feel cared for as well as valued as a person (14). The importance of social support has been recognised in cutting down the effects of stressful events, contributing to positive change in a person and to personal growth. Relying on social support can be an effective coping strategy, as it acts as a buffer for experiencing violence and developing symptoms of PTSD (12, 15). Measures of social support include structural aspects, such as the existence and quantity of social relationships, and functional aspects, e.g. the quality of these relationships (14). Sherbourne and Stewart (13) distinguish between four dimensions of social support: emotional/informational support (empathetic understanding, offering of advice, information or feedback), tangible support (provision of material aid or behavioural assistance), affectionate support (receiving love and affection), and positive social interaction (availability of someone to do fun or relaxing things with). These four dimensions have varying effects and represent different coping answers depending on the type of stress someone is experiencing (11). Coping is defined by Lazarus (1966, 1981) as "cognitive and behavioral efforts to master, reduce, or tolerate the internal and/or external demands created by a stressful transaction" (cited in (13), p. 328). Cutrona and Russell (11) differentiate between two main coping strategies: emotion-focused coping and problem-focused coping, each of which is more effective in specific settings. The authors (11) hypothesise that while uncontrollable events, such as loss of assets, medical illness, or loss of relationships, require high levels of emotional support to facilitate emotion-focused coping, controllable events, e.g. network crisis or job stress, require relatively greater levels of instrumental or tangible support to help prevent or solve problems. Further, Glass et al. (12) showed that tangible support in particular, rather than total social support, buffers the relationship between trauma history and posttraumatic stress symptoms.

To summarise, social support is an invaluable resource to individuals who have experienced a traumatic event, as it offers coping strategies that help to deal with past and daily life and may provide an individual's connection to the broader community as well as increase their overall health (10, 16). Facilitating social cohesion and building stable and sustainable support networks is thus a promising strategy, and should be a key element of a trauma recovery strategy. A sport and play-based intervention provides good conditions for a successful application of a trauma-informed approach, and puts a special emphasis on the importance and value

of social support. The wide ranging benefits result in sports programmes being increasingly utilised as a means of trauma relief for individuals and communities affected by large-scale disasters (17).

Methods

Intervention

Mental health and psychosocial well-being are closely linked to physical health. There is strong evidence that these mental states can be improved through participation in physical activity (8). With its sport and play-based psychosocial intervention, the WotM project attempted a holistic improvement of the women's well-being. The project activities targeted women aged between 18 and 40. The bi-weekly sport and play activities took place on five, and later on eight[2], different playing fields across the county of Kajo-Keji, each lasting approximately two hours.

Group sport activities supported women to reduce feelings of stress and anxiety, build mutual reliance and trust, and overcome joint challenges. These activities were complemented by group counselling sessions, sensitisation and awareness raising meetings, and psychoeducational inputs on topics such as alcoholism, HIV/AIDS, or child protection. In addition, life skill games were introduced to impart competencies such as problem-solving skills, proactiveness and decision-making. Finally, livelihood, as well as savings and loan groups, were introduced in the main implementation phase of the project to empower the women economically, increase their resilience against stressful situations and build stable and sustainable social support networks.

Evaluation design[3]

Data were collected at the start of the intervention (baseline, T_0, October 2012), nine months later (T_1, July 2013) and three and a half years after the start of the project (T_2, April 2016). Demographic and socio-economic data (age, marital status, number of children, level of education, migration history, and income generating activities) were collected in the baseline study. Assessments were done by using a questionnaire developed by SAD, which was based on culturally adapted versions of internationally validated psychometric scales. The questionnaire was translated into the local language, Bari, and included questions regarding mental and physical health, challenges, traumatic experiences, coping abilities and social support[4].

The perceived availability of social support was measured with the *MOS (Medical Outcome Study) Social Support Survey* by Sherbourne and Stewart (13). The authors identified 19 different items, 17 of which were used in the study at hand, to measure availability of social support[5]. The items are divided into the four subscales of tangible support, emotional or informative support, affectionate support, and positive social interaction.

---

[2] In June 2014, three new playing fields were set up.

[3] Apart from the quantitative survey, 25 most significant change interviews and five focus group discussions were conducted at T_1 and complemented the data collected in the questionnaires. These results are discussed in the WotM project evaluation report (3).

[4] For a complete overview of all the components of the questionnaires, see the WotM project evaluation report (3).

[5] See Annex Table 3.

For measuring mental health, the study used the short form of the *civilian version of the PTSD checklist (PCL-C)* developed by Lang and Stein (18). The PCL-C asks about symptoms in the previous month in relation to generic stressful experiences[6]. It can be used with any population, and with survivors who may have symptoms due to multiple events, as the symptom endorsements are not attributed to one specific event. The short version of the PCL-C is a 6-item scale, containing two items from each of the three symptom clusters (re-experiencing, avoidance and hyperarousal). Clinical cut-offs based on western norms (> 14) were used to estimate prevalence rates of PTSD[7].

Participants

For the recruitment of survey participants, the project aimed to take a census of the very first project participants. To achieve this, coaches were asked to interview women who took part in project sensitisation meetings conducted in early 2012 and expressed a genuine interest in participating in project activities. Participation in the survey was voluntary. Baseline measurements took place in October 2012 (T_0), where 340 women were interviewed. With 353 women signing up for the activities in the first week of the project, and 340 participating in the baseline survey, the goal of the census was almost achieved.

Interviews

The coaches of the five initial playing fields acted as interviewers. They received interview training conducted by SAD staff, where they acquired knowledge and skills such as the purpose of the survey, ethical guidelines, factors and biases influencing responses, and practical training. Informed consent was obtained by use of an explanatory text which was read aloud due to the high illiteracy rate.

Ethical approval

The WotM project and study were implemented in close cooperation with the Department of Gender and Social Welfare and the Department of Youth and Sports on the Kajo-Keji county level. Staff members of the two departments were part of the survey team and approved and monitored the implementation of the study.

Statistical analysis

The repeated measures of our primary outcomes (T_0 and T_2) were analysed with paired-samples t-tests (SPSS 23). Significant results are reported with estimates of the differences in mean scores of the respective item relative to baseline with a BCa 95% confidence interval and effect size.

Limitations

Some methodological limitations should be considered. As the project planning, execution and evaluation were done by a Non-governmental Organisation, some ethical and practical limitations were inevitable. First, due to ethical limitations, there was no control group applied to compare the changes that occurred over the course of the project. If change was found over time, it is not entirely certain

---

[6] See Annex Table 4.

[7] Screening is not meant to replace assessment or diagnosis, but it is used to identify people as likely or unlikely to suffer from PTSD. Ideally, a person who is screened positive should undergo a clinical assessment by a trained clinician to make appropriate diagnosis.

that change happened due to the intervention. The situation of project participants before and after the intervention may have changed owing to myriad reasons independent of the project (e.g. normal healing process, external changes etc.). Second, assessing the mental health of the participants is a complex and difficult endeavour. Due to practical limitations, the assessment of the women's mental health was done with the short version of the PCL-C. The PTSD screening results need thus be interpreted with caution, as it is not equivalent to a detailed PTSD screening or mental health assessment. Finally, the fact that the coaches acted as interviewer may have resulted in bias due to social desirability, faking good or bad, or motivation to please or fear to displease the interviewer. However, it also opened up possibilities, as the coaches have formed a close and trusting bond with the participants, possibly making it easier for the women to open up (19). Particularly with regards to the sensitive nature of questions pertaining to SGBV and traumatic experiences, trusting the interviewer is crucial and might lead to more honest answers.

Results

Baseline characteristics

The socio-demographic characteristics of the sample are detailed in Table 1. The majority of women were between 18 and 30 years old, married, completed primary education, and had children.

Table 1. Socio-demographic characteristics of participants at baseline (T_0)

	Participants (*N* = 340)
Age	
Mean	28.65
Min-Max	13-60
Standard deviation	8.427
Education	
Did not attend school	47 (14%)
Primary school	199 (59%)
Secondary school	88 (26%)
High school	3 (0.9%)
University	1 (0.3%)
Marital status	
Married	260 (77%)
In a relationship	32 (9%)
Not in a relationship	16 (5%)
Divorced	9 (3%)
Widowed	20 (6%)
Children	
Yes	304 (91%)
Mean number	3.46
Min-Max	1-15
Standard deviation	2.065
Forced migration	
Fled once	179 (53%)
Fled twice	88 (26%)
Fled three times or more	7 (3%)
Income Generating Activities	
Yes	328 (97%)
Mean number	2.53
Standard deviation	1.494
Traumatic experiences[8]	
Mean number	11.29
Mix-Max	1-49
Standard deviation	8.58
PTSD	
Screened positive	266 (83%)

[8] Examples of traumatic experiences: serious illness, being hit or kicked hard enough to get injured (as a child and/or an adult), bombing during war, sudden death of close family member etc. In total, 16 different pre-defined traumatic experiences based on the *Trauma History Screen* (THS) developed by Carlson et al. (20), were used in the study at hand.

Drop out

At baseline (T_0), 340 women were questioned. At T_1, in July 2013, 293 women (86%) were interviewed, and at T_2, in April 2016, 191 women (56%) were followed up on. Of these 191 women, 179 had been interviewed at both T_0 and T_1.

The problem of respondent attrition is common with longitudinal surveys, and the study at hand might be even more prone to it due to the significant deterioration of the security and socio-economic situation in South Sudan (21). Following some of the survey methodologies discussed by Olsen (22), the study tried to minimise the impact of attrition. The main advantage in encouraging respondent cooperation was having the survey as part of the project. This made participation a more realistic and attractive prospect over a longer period of time. Further, emphasising persistence, the twelve participants who missed the second data collection round, were still followed up on in the third survey.

Changes in perceived availability of social support

Paired-samples t-tests yielded significant differences in mean scores for the perceived availability of overall social support as well as for all four social support subscales at follow-up (see Table 2). There was a significant change in perceived overall social support available to the women at the first ($M_0 = 2.80$, $SD_0 = 0.63$) and the third data collection ($M_2 = 3.52$, $SD_2 = 0.64$). This difference, -0.72, BCa 95% CI [-0.84, -0.60], was highly significant $t(182) = -$

12.21, $p < .001$, and represented a large-sized effect[9], $d = -1.13$.

Perceived availability of emotional support increased from an average value of 2.82 ($SD_0 = 0.69$) to 3.52 ($SD_2 = 0.63$), $t(182) = -10.61$, $p < .001$, BCa 95% CI [-0.83, -0.58], with a large-sized effect of $d = -1.07$. Similarly, there was a significant increase in average tangible support available from the beginning of the project ($M_0 = 2.51$, $SD_0 = 0.96$) to three and a half years later ($M_2 = 3.39$, $SD_2 = 1.07$), $t(182) = -8.64$, $p < .001$, BCa 95% CI [-1.09, -0.67], with a large-sized effect of $d = -0.86$. There was also a significant improvement in regards to average available affectionate support prior to the project ($M_0 = 3.02$, $SD_0 = 0.90$) and towards its end ($M_2 = 3.59$, $SD_2 = 0.85$). This difference, -0.57, BCa 95% CI [-0.73, -0.40], was highly significant $t(182) = -7.40$, $p < .001$, with a medium-sized effect of $d = -0.65$. Finally, the analysis also showed a significant increase in average availability of positive social interaction from prior to the project ($M_0 = 2.83$, $SD_0 = 0.81$) to towards its end ($M_2 = 3.56$, $SD_2 = 0.77$), $t(182) = -9.96$, $p < .001$, BCa 95% CI [-0.89, -0.58], with a large-sized effect of $d = -0.92$.

Changes in mental health

We also assessed the extent to which PTSD symptoms changed over time. Analyses revealed that 83.1% of study participants were screened positive for PTSD at the time of the baseline data collection, using a cut-off score of 14 (a maximum score of 30 can be reached). Three and a half years later, this share dropped to 63.4%. The paired-samples t-test suggested

[9] According to Cohen (23): $d = 0.2$ small effect, $d = 0.5$ medium effect, $d = 0.8$ large effect.

that the participants were on average less afflicted by PTSD symptoms ($M_2 = 2.66$ $SD_2 = 0.67$), compared to before the project ($M_0 = 3.20$, $SD_0 = 0.84$) (Table 2). This difference, 0.54, BCa 95% CI [0.42, 0.67], was highly significant $t(182) = 8.68$, $p < .001$, and the effect was found medium to large ($d = 0.72$).

Table 2. Mean PTSD symptoms and social support scores, standard deviation, effect sizes ($T_0 – T_2$) and *P*-values

Variable	*Baseline*		*Follow-up 2*		N	BCa 95% CI for Mean Difference		t	p	Cohen's d
	M_0	SD_0	M_2	SD_2						
PTSD Symptoms	3.20	0.84	2.66	0.67	183	0.42	0.67	8.68	.000	0.72
Overall Social Support	2.80	0.63	3.52	0.64	183	-0.84	-0.60	-12.21	.000	-1.13
Emotional Support	2.82	0.69	3.52	0.63	183	-0.83	-0.58	-10.61	.000	-1.07
Tangible Support	2.51	0.96	3.39	1.07	183	-1.09	-0.67	-8.64	.000	-0.86
Affectionate Support	3.02	0.90	3.59	0.85	183	-0.73	-0.40	-7.40	.000	-0.65
Positive Social Support	2.83	0.81	3.56	0.77	183	-0.88	-0.59	-9.96	.000	-0.92

*** $p < .001$, ** $p < .005$, * $p < .01$
$d = 0.2$ small effect, $d = 0.5$ medium effect, $d = 0.8$ large effect

Discussion

Our results suggest that both the perceived availability of social support and the mental health (measured with the prevalence of PTSD symptoms) of participants have improved significantly over the period of the project activities.

All four dimensions of social support have undergone a significant increase, with the tangible support experiencing the highest increase. This is particularly positive, as Glass et al. (12) found the highest buffering effect in tangible support. We suggest that the strong increase in tangible support may be explained by the introduced livelihood groups and the support generated with it. This is true for both the aspects of economic empowerment as well as social support provided by newly built support networks – both important aspects of tangible/material support.

Regarding the evaluation of the women's mental health, the study limitations mentioned earlier should be considered. Assessing the mental health of the participants is a complex task. In the specific case of PTSD, its overall prognosis and course depend on various factors such as gender, age and the trauma experience (24, 25). It is thus difficult to say how long it takes for trauma victims to recover. What is clear, however, is that a lack of treatment for war victims is a long-term predictor for PTSD. Bichescu et al. (26) found that one third of their examined individuals suffered from PTSD even four decades after the trauma experience. Individuals receiving treatment, on the other hand, demonstrated substantial improvements in PTSD status (24). While keeping the methodological limitations of no control group and the short form of the PTSD screening in mind, the study at hand managed to show a significant decrease

in PTSD symptoms after a three and a half year intervention.

It can thus be concluded that the trauma-informed sport and play-based intervention of the WotM project had a positive impact on the participants' overall health by promoting social support and increasing their resilience and coping abilities. These results are in accordance with the theoretical framework discussed above. However, as these findings are highly context-specific, continued research is needed to further back up the theoretical argument. The study would certainly benefit from the application of a control group. Further, to optimise the method, it would be helpful to disentangle the effects of the specific intervention components by comparing different "intervention packages", such as only sport and play, sport and play + counselling, and sport and play + counselling + livelihood.

References

1. United Nations Development Programme (UNDP). Search for a new beginning: Perceptions of truth, justice, reconciliation and healing in South Sudan; 2015. Available at: http://www.ss.undp.org/content/dam/southsudan/library/Rule%20of%20Law/Perception%20Survey%20Report%20Transitional%20Justice%20Reconciliation%20and%20Healing%20-.pdf.

2. Roberts B, Damundu EY, Lomoro O, Sondorp E. Post-conflict mental health needs: A cross-sectional survey of trauma, depression and associated factors in Juba, Southern Sudan. Bmc Psychiatry. 2009; 9: p. 1-10.

3. Staempfli F, Ammann P, Meier L, Matter D. Women on the move – evaluation report. Biel/Bienne: Swiss Academy for Development; 2016. Available at: http://sad.ch/wp-content/uploads/2016/12/SAD-WotM_ME_Full_Report_2016.pdf.

4. De Candia CJ, Guarino K, Clervil R. Trauma-informed care and trauma-specific services: A comprehensive approach to trauma intervention. Washington, DC: American Institutes for Research; 2014.

5. Substance Abuse and Mental Health Services Administrations (SAMHSA). Trauma-informed care in behavioral health services. Rockville, MD: SAMHSA; 2014. Available at: https://www.ncbi.nlm.nih.gov/books/NBK207201/pdf/Bookshelf_NBK207201.pdf.

6. Miller KE, Rasmussen A. War exposure, daily stressors, and mental health in conflict and post-conflict settings: Bridging the divide between trauma-focused and psychosocial frameworks. Social Science & Medicine. 2010; 70(1): p. 7-16.

7. Substance Abuse and Mental Health Services Administrations (SAMHSA). SAMHSA's concept of trauma and guidance for a trauma-informed approach. Rockville, MD: SAMHSA; 2014. Available at:

http://store.samhsa.gov/shin/content/SMA14-4884/SMA14-4884.pdf.

8. Wiedemann N, Ammann P, Bird MB, Engelhardt J, Kroenen K, Meier M, et al. Moving together: Promoting psychosocial well-being through sport and physical activity. Copenhagen: International Federation of Red Cross and Red Crescent Societies Reference Centre for Psychosocial Support; 2014.

9. Sport for Development and Peace International Working Group (SDP IWG). Harnessing the power of sport for development and peace: Recommendation to governments. Toronto: Right to Play; 2008. Available at: http://www.righttoplay.ca/moreinfo/aboutus/Documents/Sport%20For%20Dev%20-%20ENG.pdf.

10. Warburton DER, Nicol CW, Bredin SSD. Health benefits of physical activity: The evidence. Can Med Assoc J. 2006; 174(6): p. 801-809.

11. Cutrona CE, Russell D. Type of social support and specific stress: Toward a theory of optimal matching. In: Sarason G, Sarason BR, Pierce GR, editors. Social support: An interactional view. New York: Wiley; 1990: p. 319-366.

12. Glass N, Perrin N, Campbell JC, Soeken K. The protective role of tangible support on post-traumatic stress disorder symptoms in urban women survivors of violence. Research in Nursing & Health. 2007; 30(5): p. 558-568.

13. Sherbourne CD, Stewart AL. The MOS social support survey. Social Science & Medicine. 1991; 32(6): p. 705-714.

14. McDowell I. Measuring health: A guide to rating scales and questionnaires (3rd ed). New York: Oxford University Press; 2006.

15. Wenzel SL, Tucker JS, Elliott MN, Marshall GN, Williamson SL. Physical violence against impoverished women: A longitudinal analysis of risk and protective factors. Women Health Iss. 2004; 14(5): p. 144-154.

16. Wolfe T, Ray S. The role of event centrality, coping and social support in resilience and posttraumatic growth among women and men. Int J Ment Health Pr. 2015; 17(2): p. 78-96.

17. Henley R. Helping children overcome disaster trauma through post-emergency psychosocial sports programs: A working paper. Biel/Bienne: Swiss Academy for Development; 2005. Available at: https://resourcecentre.savethechildren.net/sites/default/files/documents/2637.pdf.

18. Lang AJ, Stein MB. An abbreviated PTSD checklist for use as a screening instrument in primary care. Behav Res Ther. 2005; 43(5): p. 585-594.

19. Holbrook AL, Green MC, Krosnick JA. Telephone versus face-to-face interviewing of national probability samples with long questionnaires - comparisons of respondent satisficing and social desirability response bias. Public Opin Quart. 2003; 67(1): p. 79-125.

20. Carlson EB, Smith SR, Palmieri PA, Dalenberg C, Ruzek JI, Spain D, et al. Development and validation of a brief self-report measure of trauma exposure: The trauma history screen. Psychological Assessment. 2011; 23(2): p. 463-477.

21. Office for the Coordination of Humanitarian Affairs (OCHA). South Sudan: Humanitarian needs overview 2016; 2015. Available at: http://reliefweb.int/sites/reliefweb.int/files/resources/2016_HNO_South%20Sudan.pdf.

22. Olsen RJ. The problem of respondent attrition: Survey methodology is key. Mon Labor Rev. 2005; 128(2): p. 63-70.

23. Cohen J. Statistical power analysis for the behavioral sciences (2nd ed). Hillsdale: L. Erlbaum Associates; 1988.

24. Usman M, Rehman A, Bakhtawar N, Adnan Bas Hir B. Prognosis of PTSD in treated vs. non-treated groups. Journal of Pakistan Psychiatric Society. 2015; 12(1): p. 39-42.

25. Brewin CR, Andrews B. Meta-analysis of risk factors for posttraumatic stress disorder in trauma-exposed adults. Journal of Consulting & Clinical Psychology. 2000; 68(5): p. 748-766.

26. Bichescu D, Schauer M, Saleptsi E, Neculau A, Elbert T, Neuner F. Long-term consequences of traumatic experiences: an assessment of former political detainees in Romania. Clinical Practice and Epidemiology in Mental Health. 2005; 1(1): p. 17.

12

Annexes

Table 3. *MOS (Medical Outcomes Study) Social Support Survey* (excerpt of the questionnaire)[10]

People sometimes look to others for companionship, assistance, or other type of support. *How often is each of the following types of support available to you if you need it?* You can answer with "Not at all", "A little of the time", "Moderately often", "Very often", or "Extremely often".

		SC*	Not at all	A little	Moderately	Very	Extremely
1	Someone to give you good advice about a crisis	E	1	2	3	4	5
2	Someone to take you to the doctor if you needed it	T	1	2	3	4	5
3	Someone who shows you love and affection	A	1	2	3	4	5
4	Someone to have a good time with	P	1	2	3	4	5
5	Someone to give you information to help you understand a situation	E	1	2	3	4	5
6	Someone to confide in or talk to about yourself or your problems	E	1	2	3	4	5
7	Someone who hugs you	A	1	2	3	4	5
8	Someone to get together with for relaxation	P	1	2	3	4	5
9	Someone to prepare your meals if you were unable to do it yourself	T	1	2	3	4	5
10	Someone whose advice you really want	E	1	2	3	4	5
11	Someone to do things with to help you get your mind off things	P	1	2	3	4	5
12	Someone to help with daily tasks if you were sick	T	1	2	3	4	5
13	Someone to share your most private worries and fears with	E	1	2	3	4	5
14	Someone to turn to for suggestions about how to deal with a personal problem	E	1	2	3	4	5
15	Someone to do something enjoyable with	P	1	2	3	4	5
16	Someone who understands your problems	E	1	2	3	4	5
17	Someone to love and make you feel wanted	A	1	2	3	4	5

*Subscale: E = Emotional/Informative Support, T = Tangible Support, A = Affectionate Support, P = Positive Social Interaction

[10] Adapted version of the *MOS (Medical Outcomes Study) Social Support Survey* by Sherbourne and Stewart (13).

Table 4. Short form of the civilian version of the PTSD checklist *(PCL-C)* (excerpt of the questionnaire)[11]

I will read a list of *problems and complaints to you that people sometimes have in response to stressful life experiences*. Please tell me for each one how much you have been bothered in the last month by this problem by choosing between "Not at all", "A little bit", "Moderately", "Quite a bit", and "Extremely".

		SC*	Not at all	A little bit	Moderately	Quite a bit	Extremely
1	Repeated, disturbing memories, thoughts, or images of a stressful experience from the past?	R	1	2	3	4	5
2	Feeling very upset when something reminded you of a stressful experience from the past?	R	1	2	3	4	5
3	Avoid activities or situations because they remind you of a stressful experience from the past?	A	1	2	3	4	5
4	Feeling distant or cut off from other people?	A	1	2	3	4	5
5	Feeling irritable or having angry outbursts?	H	1	2	3	4	5
6	Having difficulty concentrating?	H	1	2	3	4	5

*Symptom Cluster: R = Re-experiencing, A = Avoidance, H = Hyperarousal

---

[11] By Lang and Stein (18).