A pilot study of a low-threshold, low-intensity cognitive behavioral intervention for traumatized adolescents

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Our pilot study with 11 adolescents indicates that the self-help material The Psychological First Aid Kit may serve as a flexible and useful therapeutic tool in areas related to trauma, interpersonal relations, and school, write Solfrid Raknes and colleagues.

BY: Solfrid Raknes, Kari Dyregrov, Ståle Pallesen, Asle Hoffart, Shirley Stormyren and Bente Storm Mowatt Haugland

Traumas such as sexual and domestic violence affect a large number of young people worldwide (Benjet et al., 2016; Finkelhor, Turner, Shattuck, & Hamby, 2015). Elevated levels of post-traumatic stress (PTS), manifested in symptoms of hyper-arousal, intrusion, and avoidance of trauma-associated situations and thoughts, are highly prevalent after trauma. These symptoms are also identified as risk factors for developing post-traumatic stress disorder (Ehlers & Clark, 2000). Living with high levels of PTS typically interferes with a child's development and capacity for learning (Zilberstein, 2014). Furthermore, traumatized adolescents are at increased risk for exposure to new episodes of violence, and early intervention might be crucial for the prevention of further traumatization (Dardis, Dixon, Edwards, & Turchik, 2014). Effective treatments of adolescents' post-traumatic stress symptoms typically address problems related to previous trauma. Such treatments attempt to revise maladaptive trauma responses once adolescents' are safe. Providing cognitive behavioral (CB) interventions to adolescents with high levels of PTS has shown promising results, in terms of both symptom relief and preventing the development of post-traumatic stress disorder (Cohen, Mannarino, & Iyengar, 2011; Dyregrov & Yule, 2006; Macdonald et al., 2012).

Traumatized adolescents do not seek help for psychological problems as often as needed, and the majority of adolescents who do seek help are not offered evidence-based interventions (Major et al., 2011; Stige, Træen, & Rosenvinge, 2013). Barriers to adolescents receiving evidence-based psychological health interventions include a high threshold to seek assistance and the costs related to upscaling existing interventions (Pityaratstian et al., 2015; Singla et al., 2014). To reduce the threshold for receiving health interventions after trauma, outreach services have been established, which are located in arenas where the traumatized adolescents must be, such as at schools or at forensic interviews. To increase access to evidence-based interventions, low-intensity cognitive behavioral (LI-CB) interventions have been developed (Bennett-Levy et al., 2010). Compared to standard CBT, LI-CB interventions try to achieve similar

outcomes with less costly and more easily accessible interventions. LI-CB interventions can be delivered by less-specialized therapists. Furthermore, LI-CB interventions are typically briefer, with fewer interventions, and use self-help material in and between sessions. These factors can make the LI-CB interventions easier to upscale, especially in countries where therapist time is expensive and resources are scarce.

The Psychological First Aid Kit (PF) (Raknes, 2010a, 2010b) is a package of new self-help materials and clinician training methods that has been widely disseminated in Norway. A feasibility study involving primary healthcare workers (*N* = 511) concluded that six months after a short training seminar, the majority of the healthcare workers continued to use the PF. Moreover, they reported the materials as a useful part of brief interventions (Haugland, Mauseth, & Raknes, 2013).

When new interventions are developed and used in new health services, they should be evaluated. This pilot study is the first to investigate the potential benefit of a brief intervention that includes the self-help material from the PF. The study was conducted in a natural setting where the therapists had a high clinical workload. The aims of this study were a) to investigate whether traumatized adolescents who received the PF as part of a brief LI-CB intervention showed symptom relief post-intervention, b) to ascertain whether results persisted through a one-year follow-up, and c) to explore how the self-help kit was used in the intervention.

Method

Procedure and participants

The study was approved by the Regional Committee for Medical and Health Research Ethics, region West (2011/2445), and was registered in ClinicalTrials.gov (NCT01612104). Participants (*N* = 11) were recruited from the Children's House in Oslo, Norway, which is an active outreach, low-threshold service for adolescents who are involved in police-reported cases as victims and/or witnesses of violence and/or sexual abuse. Standard procedure at the Children's House is for therapists to observe the adolescents' witness statements and offer brief intervention to those they think will benefit from it. The inclusion criteria for participating in the study were a) the adolescent showed stress responses during the forensic interview, b) the adolescent and caregiver were able to speak and read Norwegian, c) the adolescent and caregiver agreed to participate and to sign an informed consent form, and d) the adolescent would normally be offered a brief intervention at the Children's House. Potential participants were excluded if they had a previous known diagnosis of mental retardation or had reading skills below normal at age eight. All participants recruited were female, aged 12–16 years (*M* = 13.7, *SD* = 1.30). Nine participants were native Norwegians; two were immigrants. Seven participants lived with their mother as the primary caregiver, two lived every second week alternately with their mother and father, and two were in the care of the child welfare services.

To assess trauma experiences, the therapists administered the child version of the structured interview *Assessment of Traumatic Experiences* (KATE; NKVTS, 2011a). The caregiver completed the questionnaire version of the same instrument (NKVTS, 2011b). KATE is recommended for disclosure of trauma experiences (NKVTS, 2015) and was among the instruments known and used in the Children's House previous to this study. The feasibility of KATE for assessing trauma experiences in children has been carefully described in previous research (Ormhaug, 2012). All adolescents reported exposure to sexual or physical violence and to more than one trauma episode. Eight reported repeated multiple abuse histories, with the majority reporting that violence had occurred between close relations. Three reported having been neglected and having witnessed domestic violence.

Therapists

Three therapists, all female, participated. Two of them provided intervention to four adolescents while one provided intervention to three adolescents. One of the therapists was a psychologist, and two were social workers (Mean age = 48 years). All of the therapists had significant experience working with adolescents (Mean age = 18 years). One had prior training in trauma-focused CBT, but none had formal education in CBT. The therapists attended a two-day PF training workshop before the study started, and they participated in four two-hour group supervision sessions during the intervention phase.

Design

To explore the feasibility and potential of the LI-CB intervention, an exploratory mixed-method design was applied in this pilot study. Therapist-administered, paper-and-pencil questionnaires provided the basis for the quantitative analyses, while audiotapes and worksheets used during the intervention provided data for the qualitative analyses. The adolescents, caregivers, and therapists completed standardized inventories measuring the adolescents' PTS symptom level, general mental health status, and quality of life before and after the intervention. The same measures were repeated at three-, six-, and 12-month follow-up. In cases where the adolescents and/or caregivers were not able to come back to the Children's House to complete the questionnaires during the follow-up period, they were given the opportunity to complete them at home.

Intervention

The LI-CB intervention was not supposed to follow a predefined schedule of activities according to a manual. Instead, the therapists were encouraged to use the PF when expedient and in ways they found meaningful. Otherwise, they were supposed to offer intervention as usual. All participants received a PF to work with during and between sessions. The PF contains a booklet with text and illustrations explaining basic principles in the CB model. Red and green figurines represent negative automatic (red) and alternative (green) thoughts. Worksheets called the Helping Hand (see Figure 1) accompany the booklet.

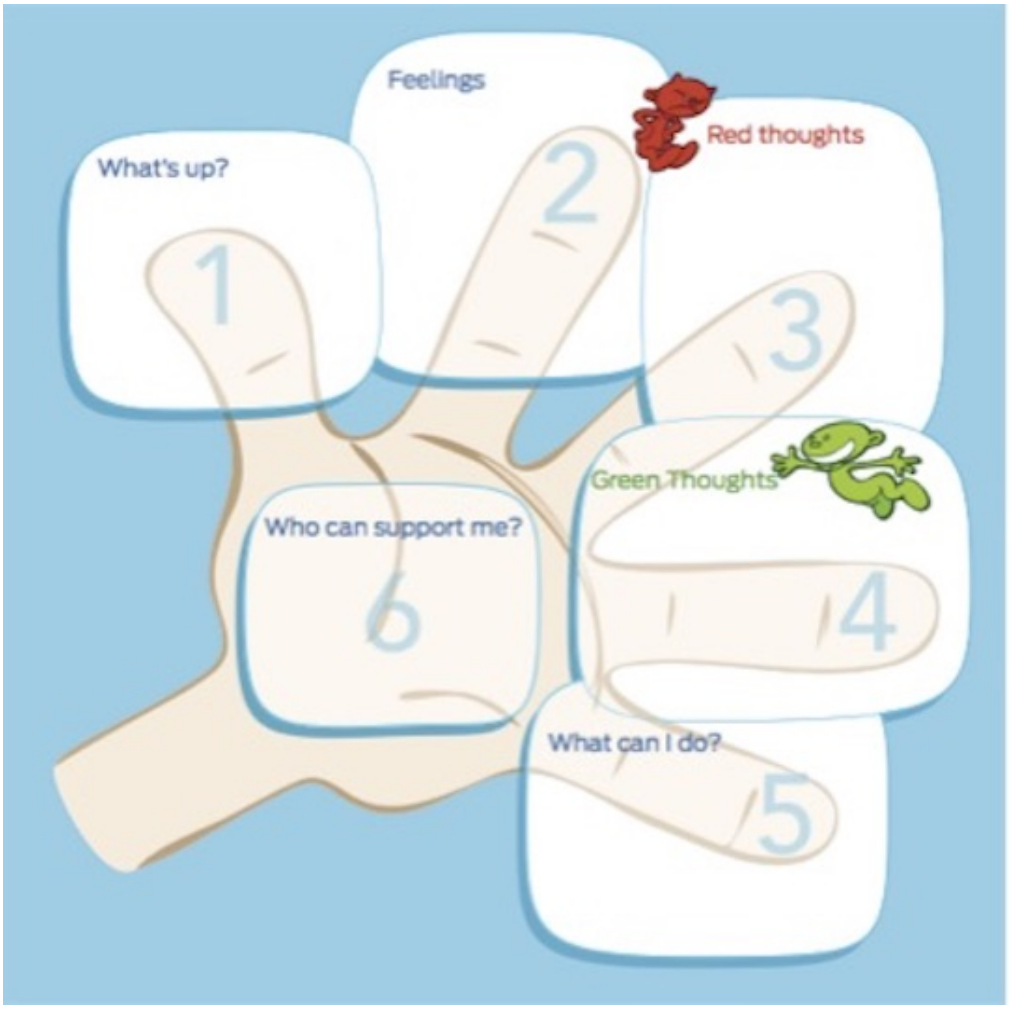

FIGURE 1: The worksheet from the PF kit.

The intervention started within two weeks of the forensic interview. It was comprised of two to six sessions (*M* = 3.55, *SD* = 1.21). The caregiver was provided with the intervention rationale and was invited to joint sessions if the therapist thought that including him or her would be crucial to the outcome. The duration of the intervention period varied from 11 to 105 days (*M* = 45.89, *SD* = 30.35). The adolescents who were in need of prolonged treatment were identified and motivated to accept further referral.

Quantitative material and analyses

The level of PTS symptoms was the primary outcome measure in this study. The *Children's Revised Impact of Event Scale (CRIES)* is a 13-item, four-point scale (range from 0–65, with the lower the score the better) that is used to measure PTS symptoms (Chen, Zhang, Liu, Liu, & Dyregrov, 2012). The CRIES consists of three subscales assessing intrusion, avoidance, and arousal. When used for screening purposes, as in the present study, it is recommended that only the intrusion and avoidance subscales of the CRIES be used. If the sum of the scores on these two scales is 17 or more, then the probability is very high that the child will meet the diagnostic criteria for having PTS disorder (Perrin, Meiser-Stedman, & Smith, 2005).

The secondary outcome benchmarks are intended to measure potential changes in a

broad array of mental health symptoms, as well as in function and quality of life, in the traumatized adolescents. *The Child Post-Traumatic Cognitions Inventory (cPTCI)* is a child-reported, 41-item, four-point scale (range from 0–123, with the lower the score the better) that is used to measure negative post-traumatic appraisals (Meiser-Stedman et al., 2009). The *Children's Global Assessment Scale (C-GAS)* is a clinician-rated, one-item scale (range from 0–100, with the higher the score the better) that is used to measure the child's level of functioning on a health-illness continuum (Shaffer et al., 1983). *The Parental Emotional Reaction Questionnaire* (*PERQ)* is a parent-reported, 15-item, five-point scale (range from 15–75, with the lower the score the better) that is used to measure the caregiver's reaction to the child's exposure to trauma (Cohen & Mannarino, 1996). *The Strengths and Difficulties Questionnaire* (*SDQ*) is a 25-item, three-point scale (range from 0–50, with the lower the score the better) that is used to measure adolescents' general mental health problems (Goodman & Scott, 1999), here completed by the caregiver. *The Spence Children's Anxiety Scale* (*SCAS)* is a 38-item, four-point scale (range from 0–114, with the lower the score the better) that is used to measure the severity of anxiety symptoms (Spence, 1998), here completed by the caregiver. *The Short Mood and Feelings Questionnaire* (*SMFQ)* is a 13-item, three-point scale (range from 0–26, with the lower the score the better) that is used to measure symptoms of depression in adolescents (Costello, Benjamin, Angold, & Silver, 1991), here completed by the caregiver. *The Questionnaire for Measuring Health-Related Quality of Life in Children and Adolescents* is a 24-item, five-point scale (range from 0–120, with the higher the score the better) that is used to measure quality of life (Ravens-Sieberer & Biullinger, 1998), here completed independently by the adolescent (*KINDL-C*) and the caregiver (*KINDL-P*).

Data were analyzed using SPSS 22. Changes in primary and secondary outcomes were analyzed using repeated measures ANOVA and were further explored by least significant difference post-hoc tests. A p-value < .05 was considered statistically significant. The mean from the three follow-up measure points was used as a composite follow-up score in tests for significance. Only those adolescents who had valid data from pre-intervention, post-intervention, and follow-up were included in the analysis.

Qualitative data material and analysis

The qualitative data collected in this study were comprised of 42 audiotaped sessions with 11 adolescents as well as a total of 66 worksheets that were completed during the sessions. The audiotapes were transcribed and read to gain an overall understanding of the content. The aim of this transcription was to identify various in-session uses of the PF material. Based on the transcribed audiotapes, we explored whether the PF was used in each session and, if so, which part of the self-help kit was used. Since using the worksheets is supposed to be a central part of the PF, we wanted to analyze what psychological themes they were used to discuss. The worksheets were analyzed using a six-phase approach to thematic analysis (Braun & Clarke, 2008). The NVivo 10.2.1 software was used to make notes and to create and organize themes for the

worksheets.

The main themes and sub-themes reflecting the use of the worksheet were derived from the fixed categories given by the worksheet through a bottom-up analysis. They were obtained by first generating initial codes, then searching for themes, and finally reviewing potential themes. Codes, sub-themes, and main themes, including the process of defining and naming the themes, were discussed by the first, second, and fifth author to ensure they had a singular focus, did not overlap, and addressed our research questions. The validity of the themes was strengthened by comparing the ones we identified with the originally completed worksheets to ensure that 1) the meaning had not been altered during the analysis process and 2) the themes were grounded in the data (Berg, 2007). Drawing from our experience as psychologists and cognitive behavioral therapists, our terminology and frames for understanding themes stem from a psychological, trauma, and CBT perspective. Thematic analyses were conducted in Norwegian, close to the source material and in the mother tongue of the researchers, to increase the validity of the research (Qvale, 1998).

Results

Dropout date

Due to enrollment in another treatment, one adolescent resigned from the study before the intervention started. Once the intervention began, there were no dropouts.

Quantitative results

There was a significant decrease in the CRIES score over time, $F(2,16) = 7.87$, $p < .05$. Post-hoc tests indicated significant reductions from 29.67 ($SD = 3.6$) at pre-intervention to 18.89 ($SD = 3.36$) at post-intervention and 13.00 ($SD = 4.54$) at follow-up (see Table 1). The effect size in terms of Hedge's g was 0.98 from pre- to post-intervention and 1.29 from pre-intervention to follow-up. The proportion of adolescents who scored above the cutoff on the CRIES decreased from 80% at pre-intervention to 40% at post-intervention. All three therapists had clients who moved from above to below the cutoff on the CRIES during the intervention period. There was a significant increase in the CGAS score over time, $F(2,16) = 15.06$, $p < .05$, from 71.63 ($SD = 7.95$) at pre-intervention to 79.38 ($SD = 6.68$) at post-intervention and 81.23 ($SD = 7.69$) at follow-up. There was also a significant decrease in the PERQ score over time, $F(2,16) = 20.39$, $p < .05$, from 42.56 ($SD = 8.05$) at pre-intervention to 34.56 ($SD = 11.36$) at post-intervention and 27.78 ($SD = 5.63$) at follow-up. The mean scores of other measures of symptom levels tended to decrease over time, while scores of quality of life tended to increase over time; however, none of these changes was statistically significant.

TABLE 1: Changes in Symptom Level, Quality of Life, and Functioning.

Measures	Pre			Post		Follow-up		$F(2/16)$	Sign			Hedges' g		
	n	M	SD	M	SD	M	SD		a	b	c	a	b	c
CRIES	9	29.67	10.84	18.89	10.07	13.00	13.63	7.87	*	*	n.s.	0.98	1.29	0.45
cPTCI	9	19.78	8.79	11.11	6.35	14.33	12.26	3.34	*	*	n.s.	1.08	0.48	0.31
KINDL-C	9	86.22	15.06	94.11	13.15	88.15	13.69	1.65	*	n.s.	n.s.	0.53	0.12	0.42
C-GAS	8	71.63	7.95	79.38	6.68	81.23	7.69	15.06	*	*	n.s.	1.01	1.17	0.24
PERQ	9	42.56	8.05	34.56	11.36	27.78	5.63	20.39	*	*	n.s.	0.77	2.03	0.72
SDQ	9	12.78	6.69	10.89	7.09	10.50	4.77	1.33	n.s.	n.s.	n.s.	0.31	0.37	0.06
SCAS	9	18.78	5.69	21.79	7.45	15.69	5.90	3.25	n.s.	n.s.	n.s.	0.43	0.51	0.86
SMFQ	9	5.89	5.16	4.78	3.23	4.52	2.99	0.57	n.s.	n.s.	n.s.	0.24	0.31	0.08
KINDL-P	9	90.89	12.21	88.56	10.49	88.85	10.59	0.43	n.s.	n.s.	n.s.	0.19	0.17	0.03

NOTE: The Children's Revised Impact of Event Scale and the Child Post-Traumatic Cognitions Inventory (cPTCI) were completed by the adolescent. The Children's Global Assessment Scale (C-GAS) was completed by the therapist. The Parental Emotional Reaction Questionnaire (PERQ), the Strengths and Difficulties Questionnaire (SDQ), the Spence Children's Anxiety Scale (SCAS), and the Short Mood and Feelings Questionnaire (SMFQ) were completed by the parent. The Questionnaire for Measuring Health-Related Quality of Life in Children and Adolescents was completed by both the adolescent (KINDL-C) and the parent (KINDL-P). Changes were calculated from (a) pre to post, (b) pre to follow-up, and (c) post to follow-up. The mean from the three follow-up measure points was used as a composite follow-up score in tests for significance. Significant at the $p < 0.05$ level.

Qualitative analyses and results

A summary of the parts of the PF used in the sessions, in terms of frequency of use, is presented in Table 2. All parts of the PF were used in all the interventions. The textbook was used in the sessions to explain the basic CBT principles and was read as a homework assignment. The red and green figurines were used for symbolizing thoughts, for fun in the sessions, and as reminders of helpful thoughts between sessions.

TABLE 2: Elements of the self-help material used in each session.

Part of PF used	S1	S2	S3	S4	S5	S6
Worksheet	91	100	100	80	100	100
Textbook	73	82	67	40	0	0
Figurine	73	73	56	0	0	0

NOTE: % of sessions where treatment worksheet, textbook, or figurines was used; coded from reviewing session audiotapes.

Data from the 66 worksheets that adolescents completed during sessions were used to address the following themes: 1) situations, 2) feelings, 3) red thoughts, 4) green thoughts, 5) coping strategies, and 6) supporters. Examples from the process of analyses, including text-abstracts from the worksheets, are presented in Table 3.

TABLE 3: Extract of qualitative analyses of 66 in-session completed worksheets.

Main themes	Sub-themes	Data extracts
Situation described		
Trauma	Dealing with trigger	*In school, thinking about the assault*
	Processing narrative	*A boy led me into the bathroom*
	Safety planning	*If my dad, the perpetrator, shows up again*
Relation	Challenge	*Mummy refused to buy me a new schoolbag*
	Problem	*A friend turned his back to me and said, "Just leave!"*
	Conflict	*My best friend's father has told her that the abuse I suffered was not true.*
	Bullying	*Bob says rude things to me, that I'm a slut and a fucking whore – and the other boys just laugh.*
Activity	School work	*I will have a school presentation.*
	Sleep	*In bed, try to sleep.*
Red thoughts		
Internal attribution	Not coping, future	*I'll make a fool of myself.*
	Not coping, past	*I didn't try hard enough to get away.*
External attribution	Not good, future	*Maybe he will hit me or do something that can destroy me.*
	Not good, past and now	*They did not trust me previously and will not support me now.*
Green thoughts		
Internal attribution	Coping, past	*I said let me go, stop!* *I said I didn't want this!*
	Coping, now	*I am older now, I am stronger, and I dare to do more.*
	Coping, future	*I can manage to walk away.*
External attribution	Bad, past	*It was his fault.*
	Good, now	*He cannot do me any harm now.*
Coping strategies		
Regulate myself	Talking	*Report it; it gives me release and my thoughts clear up.*
	Doing, escape	*Run away.*
	Doing, exposure	*Take the tube several times, practice.*
Regulate other(s)	Talking	*Answer them rudely; tell the adults.*
	Talking	*Tell her about my feelings.*
	Doing, help-seeking	*Go for help.*

Related to the *situations* theme, three sub-themes were found: a) trauma-related situations (safety planning, dealing with trauma triggers, working with the trauma narrative), b) relational situations (challenge, problem, conflict, bullying), and c) situations involving activities (schoolwork, sport, sleep). Related to the *feelings* theme, the sub-themes of anxiety, courage, guilt, anger, happiness, proudness, engagement, and affiliation were explored. Related to the themes of *red and green thoughts*, four

sub-themes were identified: a) internal-external attribution, b) negative-positive thinking, c) time (past, present, future), and d) meta-thoughts (e.g., “stop thinking” and “change thoughts”). Related to the *coping strategies* theme, two sub-themes were identified: a) behavior to regulate oneself or the other person(s) and b) behavior to change the situation (escape, talking, help-seeking, listening, thinking, and writing). Related to the *supporters* theme, grown-ups, peers, and oneself were the main categories identified, with mothers and friends specifically mentioned most often as supporters.

Discussion

The level of PTS symptoms decreased during the intervention period and remained low in the one-year follow-up period. It was promising that the proportion who scored above cutoff on the CRIES decreased from 80% pre-intervention to 40% post-intervention. These results are in line with the emerging body of research suggesting that CB early interventions can contribute to a reduction in PTS symptoms in traumatized adolescents (Gillies, Taylor, Gray, O’Brien, & D’Abrew, 2012; Meiser-Stedman et al., 2016; Roberts, Kitchiner, Kenardy, & Bisson, 2010). The results are also consistent with studies on LI-CB treatment for adults with elevated levels of PTS, indicating that interventions with minimal therapist contact combined with self-help material can contribute to significant decreases in PTS symptoms for traumatized individuals (Cuijpers, van Straten, & Andersson, 2008; Ivarsson et al., 2014). Still, it should be noted that a recent meta-analysis suggests that considerable natural recovery can occur up to six months post-trauma (Hiller et al., 2016).

From analyses of the in-session completed worksheets, we found that they were used to enhance coping in areas related to trauma, interpersonal relations, and school activities. The PF material was used to address maladaptive trauma responses in terms of developing safety plans, encouraging exposure to non-dangerous trauma reminders, and empowering reattribution work. The plurality of dilemmas, situations, symptoms, feelings, and thoughts for which the worksheets were used in the sessions suggests the value and necessity of a flexible and context-oriented approach in a low-threshold service for traumatized adolescents. This finding is consistent with previous research on early-intervention work with abused children in which the help-seeker receiving low-threshold services for trauma typically requires support in a vast and diverse problem area (Constantino, Crane, Noll, Doswell, & Braxter, 2007).

During the sessions, a broad spectrum of coping strategies was discussed and a diversity of supporters was identified. This suggests that the intervention helped the adolescents to use and strengthen their coping strategies and social network in challenging situations. Developing helpful coping strategies is a central element in recovery after trauma (Ellis, Nixon, & Williamson, 2009; Greenberg, Brooks, & Dunn, 2015) and is also a strategy recommended by female child abuse victims (Smith, 2007). Given that the availability of an effective social support system after traumatic

events is crucial for progress in the early phase after trauma, an early intervention that might strengthen the traumatized adolescent's social network is promising (Constantino et al., 2007; Ellis et al., 2009).

Methodological limitations and strengths

A number of limitations in the present study preclude the conclusions we can draw about the effects of the intervention on participant outcomes. One limitation is the small number of participants and the lack of a control group. Then, factors other than the intervention might have been more important for change. Such factors include natural recovery and maturation (Kazdin, 2003) and other treatment interventions the participants might have received during the follow-up period. Since the brief intervention was flexible with regard to the number of sessions and consisted of more elements than just the self-help kit, we also cannot draw conclusions about which of its specific components might have contributed to the decrease in PTS symptoms. Importantly, these therapists were highly experienced, and their own expertise might have influenced the results in a positive way. Further, another threat to the external validity of our findings was that none of the study participants were boys. Finally, the therapists who also administered and collected the data were supervised by the developer of the PF. This relationship may have biased the results in a favorable direction. Also, in the present study, the outcome measures were not specifically selected based on the intervention content, although they have been used in previous CBT trials on children with PTSD (Cary & McMillen, 2012; Dyregrov & Yule, 2006; Mifsud & Rapee, 2005). Future studies on this patient population should include outcome studies pertaining more specifically to the intervention process and content. Conversely, control groups, a higher number of participants, and researchers unaffiliated with the delivery of the therapy would be strengths associated with a more rigorous research design, one that would be appropriate for drawing conclusions regarding the effect of the intervention.

Limitations notwithstanding, the pilot study suggested that the intervention, which included CB self-help material and was carried out in a natural setting within an agency that specializes in working with traumatized adolescents, was feasible. This study advances its field by incorporating a mixed methods design rather than relying solely on qualitative or quantitative methods (Carr, 2008; Creswell & Plano-Clark, 2006). Outcome data provided by multi-informants—adolescents, parents/guardians, and therapists included—comprised another asset of the study, hence the relatively long follow-up period. Furthermore, because there has been relatively little qualitative research on what traumatized adolescents and their therapists actually discuss in cognitive behavioral-based early interventions (Jones, 2011), this study makes an important contribution to the literature.

Conclusion

This pilot study adds to the growing literature on LI-CB interventions for adolescents.

The study represents the first evaluation of a brief intervention that included the The Psychological First Aid Kit (PF) in a low-threshold service. Our findings suggest that the intervention is feasible. The PF was used in a flexible way, and important intervention gains were realized and sustained during long-term follow-up for the majority of the participants. The results are promising and provide a basis for future research with methodological rigor to investigate the potential effects of LI-CB interventions that include use of the PF.

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Abstract

A pilot study of a low-threshold, low-intensity cognitive behavioral intervention for traumatized adolescents

This pilot study investigated whether traumatized adolescents (*N* = 11) who received brief cognitive behavioral intervention, including self-help material, reported symptom relief. It also explored how the self-help material was used. A mixed methods, exploratory, one-group intervention design was used. The results indicated that the self-help material served as a flexible and useful therapeutic tool, one used to enhance coping in areas related to trauma, interpersonal relations, and school. Adolescents' levels of post-traumatic stress symptoms decreased, and the results were sustained at the one-year follow-up period. The promising results provide a basis for studies with better methodological rigor to investigate effects of interventions that include the use of self-help material in low-threshold services for adolescents.

Keywords: adolescent, CBT, mixed method, self-help, trauma.

Author affiliation: Solfrid Raknes – Regional Centre for Child and Youth Mental Health, Uni Research Health, Bergen, Norway; Kari Dyregrov – Faculty of Health and Social Sciences, Bergen University College, Bergen Norway & Center for Crisis Psychology, Bergen, Norway; Ståle Pallesen – Department of Psychosocial Science, University of Bergen, Bergen, Norway; Asle Hoffart – Modum Bad Psychiatric Center, Modum, Norway & Department of Psychology, University of Oslo, Oslo, Norway; Shirley Stormyren – Children's House, Oslo, Norway; Bente Storm Mowatt Haugland – Regional Centre for Child and Youth Mental Health, Uni Research Health, Bergen, Norway.

Contact information: Solfrid Raknes, Regional Centre for Child and Youth Mental Health, Uni Research Health, Pb. 7810, 5020 Bergen, Norway. Email: solfrid.raknes@hotmail.com.

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