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Adolescents' experiences of psychosocial support after traumatisation in a school shooting

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Background: In November 2007, a student shot and killed eight people and himself at Jokela High School, Finland. **Method:** Availability and experiences of psychosocial support were investigated using data (N=231) collected with a questionnaire 4 months after the event. **Results:** Female gender, severity of trauma, psychiatric disturbance and post-traumatic distress were associated with receiving psychosocial support. Over half of the students with a high level of trauma-related symptoms reported immediate support as having been helpful. Additionally, support from family and friends was available to a majority of students. **Conclusions:** The factors associated with not receiving support or not feeling helped should be studied further for possible implications on crisis interventions.

Key Practitioner Message:

- It is important to provide professional support as quickly as possible after a major traumatic event, especially for those with a less supportive family network
- Family and friends were perceived as a helpful source of support
- Severely exposed students received professional support most frequently
- Follow-up should be provided to all exposed to a major traumatic event

Keywords: Adolescence; post-traumatic stress disorder; school; violence; case report

Introduction

On 7 November 2007, a school shooting occurred in Jokela High School, Finland. One of the school's students shot and killed six other students, the school's headmistress and the school nurse, before committing suicide. Consequently, several students were exposed to the traumatic event.

Experiencing traumatic events like natural disasters, accidents or violence may cause acute stress disorder (ASD) and post-traumatic stress disorder (PTSD). Stress disorders are caused by an extreme stressor involving a threat to life or serious injury. Symptoms in ASD are psychic numbing, being dazed or less aware of surroundings, derealisation, depersonalisation, anxiety, increased arousal, re-experiencing and dissociative amnesia, and symptoms typically occur within one month of the traumatic event (APA, 2000). If the symptoms prevail, a diagnosis of PTSD should be considered. The characteristic symptoms of PTSD are re-experiencing the traumatic event (e.g. intrusive memories, nightmares, dissociation, anxiety and physiological reactivity caused by triggers reminding one of the traumatic event), avoidance, emotional numbing and hyperarousal (e.g. sleeping and concentration difficulties, irritability and hypervigilance) (American Psychiatric Association, 2000).

The incidence of diagnosed PTSD in adolescents is approximately 30–40% following various kinds of traumatic experiences, although incidence rates of up to 50% have been reported (Yule et al., 2000; Flaherty et al., 2003). Adolescents experience adult-like PTSD symptoms (Flaherty et al., 2003). Self-injurious behaviour, substance abuse and aggressive outbursts may also occur (Flaherty et al., 2003). However, significant but less obvious impairment in functioning may occur even without post-traumatic disorders (Goenjian et al., 1995; Flaherty et al., 2003). Sub-syndromal symptoms also affect well-being and may disturb development (Flaherty et al., 2003). Further, the impact of traumatisation may differ depending upon developmental stage.

Previous traumatisation, childhood adverse life events and disruption in social support networks are strong predictors of trauma-related psychopathology (AACAP, 1998). Other risk factors for developing PTSD in adolescence are female gender, family history of psychiatric disorders, life stress, low socioeconomic status and low educational level (AACAP, 1998; Copeland et al., 2007). Parental distress and parental availability to discuss was associated with the level of PTSD symptoms in adolescents after the September 11 terrorist attack (Gil-Rivas et al., 2007).

Psychoeducation about possible common symptoms in treating traumatised persons has also been

recommended in treatment guidelines (NICE, 2005). It serves as a general early intervention to reduce psychological consequences of mass violence or disasters (APA, 2004). Youth exposed to a larger scale disaster need follow-up for more than the first month after the event (Dyregrov et al., 2003). If untreated, adolescents exposed to severe trauma may develop chronic PTSD and mood disorders (Goenjian et al., 2005). Therefore 'watchful waiting', that is, regular monitoring of possible trauma symptoms, is crucial. Traumatised children and adolescents should be assessed individually; if PTSD symptoms develop, trauma-focused cognitive behavioural therapy (TF-CBT) should be provided as the main treatment of choice (NICE, 2005).

There are studies supporting the use of individual and group cognitive behavioural therapy to reduce psychological symptoms among traumatised children and adolescents (Wethington et al., 2008). The effectiveness of play therapy, art therapy, psychodynamic therapy, pharmacologic treatment and psychological debriefing for children and adolescents need further research (Wethington et al., 2008).

Age and developmental level should be considered and psychiatric status assessed before providing TF-CBT (NICE, 2005; Cohen & Mannarino, 2008). Brief school-based trauma and grief-focused psychotherapy is effective in reducing PTSD symptoms (Goenjian et al., 1997, 2005). There are some controlled studies with small sample sizes that suggest eye movement desensitisation and reprocessing (EMDR) is effective when treating children and adolescents (Jaberghaderi et al., 2004; Ahmad, Larsson, & Sundelin-Wahlsten, 2007; Rodenburg et al., 2009).

Whenever possible, families of traumatised children and adolescents should be involved in the treatment of trauma-related symptoms (NIMH, 2001). Parents or guardians play a central role in supporting adolescents with PTSD. On the other hand, families are usually in need of crisis support as a whole (NICE, 2005). Friends and family are the most salient providers of assistance for children exposed to natural disaster (Prinstein et al., 1996).

Those most likely to be involved in treatment programs are female, traumatised adults with severe exposure, and having major PTSD symptoms (Gavrilovic et al., 2005; Elhai et al., 2006). Additionally, positive attitudes towards treatment and trauma frequency have been associated with the use of mental health services (Elhai et al., 2006). Trauma-related symptoms and comorbid major depressive disorder predict treatment-seeking of military personnel (Fikretoglu et al., 2007).

Hobfoll et al. (2007) recommend five empirically supported components in crisis management. The suggested crisis management following mass traumatisation includes promoting a sense of safety, calming, self- and community efficacy, connectedness, and hope. Strategies promoting a psychological sense of safety include those targeted at individual, organisational and community levels, while interventions should include a social system perspective. Techniques that could help in calming vary from CBT and targeted treatments like therapeutic grounding, breathing training and deep muscle relaxation to indirect approaches such as community level psychoeducation (Hobfoll et al., 2007).

Response to a local crisis

Jokela is an industrialised urban area located 45 km from the capital city of Finland, Helsinki; it is part of the municipality of Tuusula and has approximately 6000 inhabitants. Multidisciplinary crisis workers began providing acute psychosocial support and care immediately after the school shooting in evacuation centres at a nearby elementary school and the Jokela Church, and youth workers from the Jokela community centre worked intensively to provide support for the students (see Figure 1). The immediate crisis support consisted mostly of individual-level support.

Psychologists from the Finnish Red Cross provided crisis counselling and psychoeducation for school personnel, students and bereaved families. Based on their level of exposure, students were selected for peer support groups that were held within one week of the

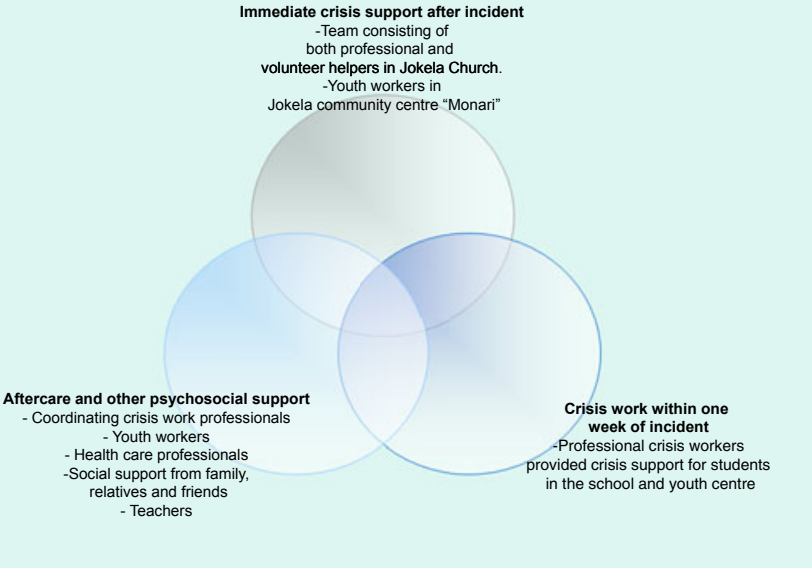

Figure 1 Response to local crisis

incident. Crisis psychologists prepared students and school personnel before they returned to school about one week after the incident, and they also accompanied students during their first days back at school.

After-care

Tuusula municipality strengthened student care by recruiting two psychologists, a school social worker and a school nurse to work in the Jokela High School. A part-time adolescent psychiatrist, psychotherapist and art therapist were also recruited. No referral was required for the low-threshold services they provided. After-care in school consisted mostly of supportive discussion and crisis counselling and, in some cases, EMDR.

After-care in the Jokela School was supported by the after-care co-ordination team and the Tuusula social and healthcare organisations, whose resources were strengthened. Adolescents also received treatment in a local psychiatric outpatient unit; those in need of long-term therapy were referred to private-sector therapists supplied by the Social Insurance Institution of Finland or the health care sector.

Study aims

Few studies report on the experiences of psychosocial support of traumatised adolescents, whereas social and health care authorities organising crisis work need such information in order to provide adequate trauma support. This study is part of a controlled follow-up study that aims to evaluate the support offered to adolescents exposed to a school shooting.

The first aim was to describe the immediate crisis work and crisis support received within one week of the incident. Furthermore, we analysed the associations of different background variables with receiving psychosocial support and with the perceived effect of psychosocial support.

Method

Procedure

The data presented here were collected by questionnaire in March 2008. All students (n = 474) at the Jokela High school at the time of the incident – age range 13–19 years – were invited to participate in the study. Teachers, students and their parents were informed about the purpose and aims of the study. Participation was voluntary and every participant was asked to sign a written informed consent. The study protocol was accepted by the Ethics Committee of Helsinki University Central Hospital. All the survey forms were screened after collection and extreme symptoms were addressed by psychiatrists who referred adolescents for treatment if necessary.

Measures

The first part of the questionnaire contained questions about different background factors such as family and living conditions, parental occupation (used to specify socioeconomic status), and possible previous psychiatric treatments. The students were asked whether they were offered and if they accepted crisis support immediately after the incident (irrespective of the provider). Immediate crisis support was evaluated by questions with 5 response alternatives; 1 = helped a lot; 2 = helped enough; 3 = helped a little; 4 = did not help; 5 = hindered recovery.

Different forms of further psychosocial support were identified by questions on where and from whom the students had received support the day after the incident. Items included support from family, other relatives, friends, teachers, youth workers; support from crisis workers within a week of the incident, health professionals working in the school, professionals working in an adolescent out-patient unit, workers from the local parish; and support from attending extra-curricular activities. These different forms of psychosocial support were evaluated by 12 questions with 5 response alternatives: 1 = no support available; 2 = some support; 3 = enough support; 4 = too much; 5 = was not interested. Accordingly, the perceived effect of each different type of psychosocial support was evaluated by 12 questions with 5 response alternatives: 1 = did not help; 2 = cannot say; 3 = did help; 4 = was irritating; 5 = was not interested.

The students were also asked about their exposure to the shooting. Five categories were formed for the severity of the trauma exposure based on the experienced threat to life and losses suffered. *Mild exposure:* Student who was not present at the school at the time of the incident and did not lose any significant acquaintances. *Moderate exposure:* Student who was at school at the time of the incident, but was not directly exposed to the shooting; was evacuated from the school building with or without guidance; did not lose any significant acquaintances. *Significant exposure:* Student who had to act to escape the shooter or had to hide to avoid danger to life or saw bodies or lost acquaintances. *Severe exposure:* Student who was near mortal danger or saw somebody threatened with a gun or lost friend(s) or somebody significant. *Extreme exposure:* Student who was in mortal danger or saw somebody being shot and killed or lost a family member (Suomalainen et al., 2010).

The Impact of Event Scale (IES) was used to assess post-traumatic distress following the critical event. The cut-off point for having post-traumatic distress was set at 19/20 and a high level of post-traumatic distress suggesting clinical PTSD at 34/35 (Horowitz, Wilner, & Alvarez, 1979; Horowitz, Field, & Classen, 1993; Neal et al., 1994). The General Health Questionnaire (GHQ) was used in a 36-question format to measure the psychological and psychosocial symptoms of students (Goldberg, 1972). The cut-off point 8/9 was used for assessing psychiatric disturbance or 'caseness' (Holi, 2003). Substance abuse and changes in substance use during the previous 6 months were investigated using three questions created for the purpose of this study.

Analyses

Distributions of variables are presented as percentages and frequencies. Group differences on demographic characteristics were examined using Chi-square tests for categorical variables and ANOVA for continuous variables. In all analyses, p-values <.05 were considered statistically significant. For the statistical analyses all the questions containing multiple response alternatives were collapsed to dichotomous variables or to variables with three categories. All

analyses were performed using SPSS 16.0 for Windows (SPSS, 2008).

Results

Sample

The study group included 474 Jokela High School students aged 13–19 years. Of these students, 48.7% (n = 231) participated in the study. Of the participants 61% were female and 39% were male. Mean age at the time of the incident was 15.0 years (*SD* 1.7), while 73.9% of the students lived with both biological parents. Over half (54.6%, n = 112) of the students came from lower middle class or working class families. One-tenth (10.8%, n = 25) of the students had received previous psychological support from an adult other than their guardian.

Almost half of the students had never used alcohol (45%, n = 104) and one in five (20.3%, n = 47) used alcohol more than twice a month. Twenty-nine percent (n = 67) of the students were severely to extremely exposed; one-fifth (19.2%, n = 44) had probable PTSD (IES 35–74) and an additional 23.6% (n = 54) had post-traumatic distress (IES 20–34). Almost one-third of the students (31.7%, n = 73) had reported symptoms suggesting psychiatric disturbance (GHQ ≥ 9) (Suomalainen et al., 2010).

Immediate crisis support

Most of the students were directed to the nearby elementary school or to the crisis centre in Jokela Church after the incident (87.2%, n = 164). Immediate crisis support (see Table 1) was offered to 69.3% (n =160) of the students, for females more commonly than for males (χ^2 = 5.944, df = 1, p = .015). Over two-thirds of the students (69.8%, n = 111) accepted immediate crisis support when offered.

A larger proportion of the male students felt that immediate crisis support helped, compared to female students. The difference was almost statistically significant (χ^2 = 3.777, df = 1, p = .052). A higher percentage of students with severe to extreme exposure were offered crisis support compared to students with mild to significant exposure (χ^2 = 5.693, df = 1, p = .017) (see Table 2). There were more students with post-traumatic distress at 4 months who were offered immediate crisis support compared to students with no distress (χ^2 = 9.117, df = 2 p = .010). Immediate support was more likely to be offered to the students with psychiatric disturbance at 4 months compared to students with no disturbance (χ^2 = 5.339, df = 1, p = .021). About half (54.2%, n = 13) of the students with probable PTSD (IES ≥ 35) felt that crisis support helped, while most (80.4%, n = 41) of the students with no distress (IES 0–19) felt that crisis support helped (χ^2 = 7.301, df = 2, p = .026). About half of the students (54.5%, n = 24) with psychiatric disturbance felt that crisis support helped, while 76.9% of the students with little or no disturbance felt that crisis support helped (χ^2 = 6.027, df = 1, p = .014).

Crisis work within one week

Over half of the students (56.5%, n = 130) reported that they received support from crisis workers within one week of the incident (Table 3). A larger proportion of students who had received previous mental support from adults received support from a crisis worker within one week compared to students who did not have previous mental support (χ^2 = 4.330, df = 1, p = .037). Over half of the students (59.7%, n = 71) who received support from a crisis worker within one week found it helpful (males 64.3%, n = 27 vs. females 57.1%, n = 44).

A larger proportion of students with severe to extreme exposure received support from a crisis worker within one week compared to the students with a lower level of exposure (χ^2 = 8.795, df = 1, p = .003) (Table 4). Around 60% of the students felt that crisis work within one week helped, irrespective of the level of exposure. There were no other associations between crisis work within one week and the rest of the background variables.

Table 1. Sociodemographic background factors and availability, acceptance and perceived effect of immediate crisis support

	Crisis support offered			Crisis support accepted			Perceived helpful		
	Yes	No		Yes	No		Yes	No	
Characteristic	(n = 160)	(n = 71)	p	(n = 111)	(n = 48)	p	(n = 75)	(n = 35)	p
Sex, % (n)									
Male	60.0 (54)	40.0 (36)	.015	67.9 (36)	32.1 (17)	.714	80.6 (29)	19.4 (7)	.052
Female	75.2 (106)	24.8 (35)		70.8 (75)	29.2 (31)		62.2 (46)	37.8 (28)	
Age, mean (*SD*)	16.2 (1.7)	15.8 (1.6)	.139	16.1 (1.7)	16.3 (1.7)	.717	16.1 (1.7)	16.3 (1.7)	.582
SES, % (n)									
Entrepreneur/upper middle class	69.9 (65)	30.1 (28)	.860	66.2 (43)	33.8 (22)	.531	65.1 (28)	34.9 (15)	.925
Lower middle/working class/others[a]	68.8 (77)	31.2 (35)		71.1 (54)	28.9 (22)		66.0 (35)	34.0 (18)	
Living arrangements, % (n)									
With both biological parents	67.6 (115)	32.4 (55)	.412	68.4 (78)	31.6 (36)	.598	67.5 (52)	32.5 (25)	.901
With one biological parent[b]	73.3 (44)	26.7 (16)		72.7 (32)	27.3 (12)		68.8 (22)	31.2 (10)	
Previous mental support from adult (Other than guardian), % (n)	80.0 (20)	20.0 (5)	.218	65.0 (13)	35.0 (7)	.616	69.2 (9)	30.8 (4)	-
No previous support	68.0 (140)	32.0 (66)		70.5 (98)	29.5 (41)		68.0 (66)	32.0 (31)	

[a]Others: student, housewife or pensioner
[b]Including few cases (n: min-max) living alone, with significant other or with an adult other than guardian

Table 2. Associations between the level of exposure, posttraumatic distress, psychiatric disturbance and substance use and availability, acceptance and perceived effect of immediate crisis support

	Crisis support offered			Crisis support accepted			Perceived helpful		
	Yes	No		Yes	No		Yes	No	
	(*n* = 160)	(*n* = 71)	*p*	(*n* = 111)	(*n* = 48)	*p*	(*n* = 75)	(*n* = 35)	*p*
Level of exposure, % (*n*)									
Mild to significant	64.6 (106)	35.4 (58)	.017	69.5 (73)	30.5 (32)	.912	63.0 (46)	37.0 (27)	.102
Severe to extreme	80.6 (54)	19.4 (13)		70.4 (38)	29.6 (16)		78.4 (29)	21.6 (8)	
Posttraumatic distress, % (*n*)									
IES 0-19	61.1 (80)	38.9 (51)	.010	65.8 (52)	34.2 (27)	.322	80.4 (41)	19.6 (10)	.026
IES 20-34	77.8 (42)	22.2 (12)		78.6 (33)	21.4 (9)		57.6 (19)	42.4 (14)	
IES 35-75	81.8 (36)	18.2 (8)		66.7 (24)	33.3 (12)		54.2 (13)	45.8 (11)	
Psychiatric disturbance, % (*n*)									
GHQ ≤ 8	64.3 (101)	35.7 (56)	.021	66.0 (66)	34.0 (34)	.194	76.9 (50)	23.1 (15)	.014
GHQ ≥ 9	79.5 (58)	20.5 (15)		75.9 (44)	24.1 (14)		54.5 (24)	45.5 (20)	
Substance use, % (*n*)									
No use	66.3 (69)	33.7 (35)	.585	69.6 (48)	30.4 (21)	.958	74.5 (35)	25.5 (12)	.279
Once in a month or less	70.5 (55)	29.5 (23)		68.5 (37)	31.5 (17)		67.6 (25)	32.4 (12)	
Over once in a month	74.5 (35)	25.5 (12)		71.4 (25)	28.6 (10)		56.0 (14)	44.0 (11)	

Table 3. Sociodemographic on background factors and crisis work within one week from the incident

	Received crisis support within one week			Perceived helpful		
	Yes	No		Yes	No	
	(*n* = 130)	(*n* = 100)	*p*	(*n*=71)	(*n*=48)	*p*
Sex, % (*n*)						
Male	52.8 (47)	47.2 (42)	.367	64.3 (27)	35.7 (15)	.448
Female	58.9 (83)	41.1 (58)		57.1 (44)	42.9 (33)	
Age, mean (*SD*)	16.1 (1.6)	16.0 (1.7)	.532	16.4 (1.7)	15.9 (1.5)	.139
SES, % (*n*)						
Entrepreneur/upper middle class	51.6 (48)	48.4 (45)	.099	65.9 (29)	34.1 (15)	.185
Lower middle/working class/others[a]	63.1 (70)	36.9 (41)		53.1 (34)	46.9 (30)	
Living arrangements, % (*n*)						
With both biological parents	54.7 (93)	45.3 (77)	.400	60.2 (50)	39.8 (33)	.754
With one biological parent[b]	61.0 (36)	39.0 (23)		57.1 (20)	42.9 (15)	
Previous mental support from adult						
(Other than guardian), % (*n*)	76.0 (19)	24.0 (6)	.037	66.7 (12)	33.3 (7)	.511
No previous support	54.1 (111)	45.9 (94)		58.4 (59)	41.6 (42)	

[a]Others: student, housewife or pensioner
[b]Including few cases (*n*: min-max) living alone, with significant other or with an adult other than guardian

Other psychosocial support

Most of the students reported that they had received support from their family (Table 5). A larger proportion of students living with both biological parents received support compared to the students who lived with one biological parent (92.9% vs. 83.3%, $\chi^2 = 4.733$, $df = 1$, $p = .030$). A smaller proportion of students with a high level of post-traumatic symptoms reported having received support from the family compared to moderate or non-symptomatic students (IES 35–75 = 75%, IES 20–34 = 92.6%, IES 0–19 = 94.7%), with the observed difference being significant ($\chi^2 = 15.048$, $df = 2$, $p = .001$). Similarly, a lower percentage of students with psychiatric disturbance (GHQ ≥ 9) reported support from the family compared to students with no psychiatric disturbance (79.5% vs. 95.5%, $\chi^2 = 14.912$, $df = 1$, $p < .001$).

Over three-quarters of the male students (79.5%, $n = 66$) and 82.4% ($n = 103$) of the female students felt that support from the family helped. A larger proportion of students with a higher exposure level received support from other relatives compared to students with a lower level of exposure (70.1% vs. 55.8%, $\chi^2 = 4.058$, $df = 1$, $p = .044$).

Most students reported receiving support from their friends (Table 5). Students reporting less support received from friends were younger (mean 15.4 vs. 16.2, $df = 1$, f=5.199, $p = .024$). Most students reported that support from their friends helped.

Over two-thirds of the students reported that they received support from student care (teachers and health professionals working in school) and over half reported that the support received from student care had helped (Table 5).

Table 4. Level of exposure, posttraumatic distress, psychiatric disturbance and substance use associations to crisis work within on week

	Received crisis support within one week			Perceived helpful		
	Yes	No		Yes	No	
	(*n* = 130)	(*n* = 100)	*p*	(*n* = 71)	(*n* = 48)	*p*
Level of exposure, % (*n*)						
Mild to significant	50.3 (82)	49.7 (81)	.003	60.0 (45)	40.0 (30)	.922
Severe to extreme	71.6 (48)	28.4 (19)		59.1 (26)	40.9 (18)	
Posttraumatic distress, % (*n*)						
IES 0-19	51.9 (68)	48.1 (63)	.322	62.9 (39)	37.1 (23)	.669
IES 20-34	61.1 (33)	38.9 (21)		53.3 (16)	46.7 (14)	
IES 35-75	62.8 (27)	37.2 (16)		57.7 (15)	42.3 (11)	
Psychiatric disturbance, % (*n*)						
GHQ ≤ 8	53.8 (84)	46.2 (72)	.268	58.4 (45)	41.6 (32)	.790
GHQ ≥ 9	61.6 (45)	38.4 (28)		61.0 (25)	39.0 (16)	
Substance use, % (*n*)						
No use	49.0 (51)	51.0 (53)	.089	63.6 (28)	36.4 (16)	.572
Once in a month or less	65.4 (51)	34.6 (27)		53.2 (25)	46.8 (22)	
Over one time in a month	56.5 (26)	43.5 (20)		61.5 (16)	38.5 (10)	

Table 5. Other psychosocial support

	Received		Perceived helpful	
	Yes	No	Yes	No
Family, % (*n*)	90.5 (209)	9.5 (22)	81.3 (169)	18.8 (39)
Other relatives, % (*n*)	60.0 (138)	40.0 (92)	62.2 (84)	37.8 (51)
Friends, % (*n*)	88.7 (204)	11.3 (26)	94.5 (190)	5.5 (11)
Student care, % (*n*)	68.3 (157)	31.7 (73)	55.9 (85)	44.1 (67)
Youth work, % (*n*)	67.4 (155)	32.6 (75)	71.4 (105)	28.6 (42)
Health care, % (*n*)	31.4 (72)	68.6 (157)	47.4 (24)	52.6 (30)

Two-thirds of the students received support through youth work (youth workers, parish workers, extra-curricular activities) and approximately two-thirds of the students reported that such support had helped. One-third of the students reported that they received support from professional health care providers (adolescent out-patient unit and youth clinic) and almost half reported that it had helped.

Regular therapy was started immediately after the incident by 6.1% (*n* = 14) of the students according to responses and 6.9% (*n* = 16) reported having started therapy during the following months. As a result of reported symptoms 13.4% of the sample were referred for professional support.

Discussion

Main findings and comparison with previous literature

Immediate crisis support was offered to over two-thirds of the students and it was more likely to be offered to female students. Not unexpectedly, it was more common for adolescents with more severe exposure to receive crisis support than those with less severe exposure. Similarly, after the 1995 Oklahoma City bombing, children's help-seeking was associated with greater sensory exposure, strong initial reactions, current post-traumatic stress and worry about safety (Pfefferbaum et al., 2003). Other studies report trauma frequency, female gender, level and type of exposure and high levels of trauma-related symptoms to be associated with treatment-seeking after a traumatic event (Broberg, Dyregrov, & Lilled, 2005; Gavrilovic et al., 2005).

In the present study, adolescents with psychiatric disturbance and post-traumatic distress at survey were more likely to be offered crisis support, possibly reflecting the same more severely traumatised group. A high level of exposure was found to increase the risk for both a high level of post-traumatic distress and psychiatric disturbance (Suomalainen et al., 2010). Over three-quarters of the students with a high level of exposure felt that immediate crisis support had helped. Yet, a smaller proportion (half) of the students with post-traumatic stress and psychiatric disturbance felt that immediate crisis support had helped or crisis work within one week had helped. It is possible that students who were more distressed at 4 months were not able to utilise the support offered and found it less helpful than less distressed students. It seems that these more distressed students are in need of further treatment.

Our finding that almost all students felt that psychosocial support from family and friends was important is consistent with a study reporting that children exposed to a natural disaster reported support and emotional coping assistance from friends and family to be important (Prinstein et al., 1996). On the other hand, students who suffered from symptoms reported less support was received from the family. Thus, it seems important to provide professional help and follow-up for those with a less supportive family network and for those with significant trauma-related symptoms.

Study limitations

The setting constitutes both a strength and a weakness in this study because it describes a dramatic and unique event. Furthermore, the crisis support in Jokela was carried out by multiple actors and the content of the support varied; an exact description of the crisis

support given is therefore not possible. A low response rate is also a limitation in this study and the results should not be generalised without caution. On the other hand, data used in this study are unique and there are no similar studies regarding this subject. This article focused on the adolescents' perceived effect of the crisis intervention they were offered. The strength of the study is the use of standardised measures (IES, GHQ), which are commonly used but which were originally designed for adults. The data in this study are based on self-report only.

Objective evidence about the effectiveness of crisis support is beyond the limits of the present study; yet the follow-up phase may provide information about the effects of different types of support. Further analyses on those who reported different types of support as being less helpful may give insight into vulnerability to trauma.

Conclusions

It is important to provide professional support for the students whose exposure to trauma is high or who suffer from trauma-related psychological symptoms and have a less supportive network. In a study of youths exposed to the suicide of a classmate, there was a need for crisis intervention at their school. However, early crisis intervention was not enough, and careful screening and follow-up was suggested (Poijula et al., 2001). Further, adolescents experience traumatic grief reactions in addition to depression and PTSD, which should all be assessed and considered in treatment approaches (Melhem et al., 2004). Proper follow-up and continuous screening after the incident provides important information about the needs of traumatised adolescents. There are no previous studies focusing on how adolescents experience crisis support, and therefore further studies on this subject are needed. It is also possible that crisis intervention may have impeded the recovery of some students. Therefore, further research and follow-up of the students will be needed to evaluate the effectiveness of the crisis interventions.

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