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Research report

Prevalence of post-traumatic stress disorder and depression in two groups of children one year after the January 2010 earthquake in Haiti

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ABSTRACT

Background: More than 500 studies were conducted in Haiti following the January 12 of 2010 earthquake, yet few of them assessed mental health of the population. To our knowledge, none targeted the effectiveness of various methods used to treat survivors, whether adults or children

Method: Our study aimed to assess one year after the disaster, the effect of a specific psycho-social support offered to relocated children in Port-au-Prince compared with a control group.

Results: The two groups were homogeneous in the intensity of the peritraumatic distress they experienced. We were unable to show a significant difference between both in the average scores for PTSD, nor for depression, nor in three out of the four sub-scales of the Child Behavior Check-List. In case children, 68% and 40.9%, respectively, and 50% and 20.5% of the control group, reported severe levels of the symptoms of PTSD and depression. These surprising results can be explained by the absence of equivalence in the two groups from a socio-demographic point of view and because subjects were not randomly selected in the recruitment process.

Conclusion: This study has not made it possible to indicate the effectiveness of a specific psycho-social support offered to children in the aftermath of the disaster. On the other hand, the sample illustrates the high prevalence (more than 50% for PTSD) of severe post-traumatic stress in this group of school-age children, one year after the earthquake.

These results indicate that serious attention should be paid to the mental health aspects in reconstruction program for the country.

1. Introduction

1.1. Natural disasters: PTSD and comorbidity in children in a developmental context

It has been proven through research stretching over several decades that children and adolescents can suffer from Post-traumatic stress disorder (American Psychiatric Association, 2013; Bremner and Vermetten, 2001; Giannopoulou et al., 2006). Traumatic exposure in children has become a major public health problem throughout the world, when the disastrous consequences are taken into account with respect to the subject studied, their family and their community (See, Fairbank et al., 2007 for review). Disparities emerge from epidemiological research into the prevalence of the condition in this age group. On the one hand, certain studies indicate a higher level of symptoms in girls; on the other hand, a second group claims the opposite result; a third series suggests that both genders react equally with respect to the symptoms they report. According to the review produced by Berriault et al. (2007) the seriousness of the effect on the lives of children exposed to trauma varies between 18% and 84%. Furthermore, the development of PTSD in lifetime is estimated at 1.3%. The literature tends to show that the disorder is more prevalent in children and adolescents who have been exposed to specific events affecting the whole community. These include terrorist attacks, hurricanes, earthquakes, fires, industrial disasters and armed conflicts. In a study performed on 80 boys and 79 girls assessed after

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a serial killing, 60% of them met the criteria for PTSD (Fairbank et al., 2007).

Children's dependence on others makes them more vulnerable in disaster situations (Lubit and Eth, 2003), affecting them in numerous ways. This results in post-traumatic psychiatric disturbances and neuro-physiological changes, which have repercussions on emotional development (Bremner and Vermetten, 2001). According to Anderson (2005), post-traumatic reactions can vary enormously, depending on age, stage of development and the variables inherent in the event (its origin, severity and duration). There is a marked difference between the symptomatology of PTSD, as defined in the DSM, and between the way it presents in children and in adults.

Studies identified by Lubit and Eth (2003) demonstrate that the scale of the damage caused by exposure to trauma in a child's life is governed by several parameters. These include the individual's temperament; in other words, the threshold of reactivity and the force of reaction contribute to his/her vulnerability to trauma. A child with a personal history of over-exposure to trauma is at greater risk when faced with new traumatic experiences (Macdonald et al., 2010). After a disaster, the majority of subjects directly exposed may present with significant psychiatric symptoms, sometimes corresponding to specific clinical entities. In similar cases, the most common post-traumatic symptoms will consist of reactions of fear, anhedonia, attention and learning deficits, the intensification of specific fears, excessive dependency and subsequent regressive behavior. Exposure to trauma may also produce several forms of anxiety, symptoms of depression and dissociation, as well as behavioral disorders. Other authors identify sleep disruption, nightmares, fears linked to the traumatic event and repetitive post-traumatic game-playing (Romano et al., 2008); and regression, especially excessively clinging to care-givers, separation anxiety and the loss of skills previously acquired. Other symptoms have frequently been reported such as disturbing thoughts, blunting of reactions and isolation, hyperactivity, depression, generalized anxiety (Giannopoulou, et al., 2006), panic attacks, difficulty in concentration, irritability, dysphoria, somatic complaints and substance abuse. Anxiety, depression and behavioral disorders may increase in the months following the incident. The manifestation of PTSD is often delayed, however (Goenjian, et al., 2005).

With respect to the psychological consequences of childhood exposure to an earthquake, studies have focused on the development of PTSD in subjects exposed to this type of event. Giannopoulou et al. (2006) report on epidemiological data collected from young survivors of earthquakes in Taiwan and Armenia and note a prevalence rate of post-traumatic symptoms between 21% and 70%. These authors recorded similar results with respect to the predictive value of variables such as the distance from the epicenter and the magnitude of the earthquake in the internal development of PTSD in the child. Hizli et al. (2009) obtained results that were rather more divergent, however. They proceeded to perform an epidemiological study that included children and adolescents aged 8 to 18 years who had survived the 1999 earthquake in Turkey and who had subsequently moved to the capital, Ankara. Contrary to previous research, the subjective perception of the earthquake proved to be the predictor of a high score on instruments measuring post-traumatic stress and depression. The quake's impact did not represent a predictive factor in the development of post-traumatic reactions.

At this stage, we shall also mention other relevant studies with focus on adolescent. Six and a half years after the earthquake that occurred at Spitak in Greece, in a sample of orphaned adolescents or who had not been orphaned, the prevalence of post-traumatic symptoms of depression and stress was considerable. While a significant difference was observed between the two groups with respect to depression, none was observed regarding the prevalence of the symptoms of PTSD. The authors concluded that this absence of difference could be explained by the similarity in terms of severity of the trauma, rather than by the loss of a parent during the earthquake (Goenjian et al., 2009).

Various data on the effect of exposure to earthquake of great magnitude on suicidal ideation in adolescent have been reported in the literature ultimately. For example, one month after the powerful earthquake that struck Sichuan, China in May 2008, in a population of 3324 students from secondary school, 623 revealed experiences of suicidal ideation before the quake. In this group, 57.4% had reported a decrease in their suicidal ideation in the aftermath of the event (Yu et al., 2010). Nevertheless, the prevalence of depression and suicidal ideation was in the range of 20% and 10% in the global population of 3324 adolescents recruited from a town close to the epicenter, Chengdu (Lau et al., 2010). In the sample, the interruption of schooling and exposure to horrifying bulletin in the press related to the event represented risk factors for symptoms of PTSD and depression, while a good level of perceived social support and the sense of security fed by the educator or friends were protective factors. With regard to suicidal ideation, in addition to the interruption of schooling, being female, presence of PTSD, a superior academic performance were included among risk factors; however, perceived social support, exposure to pathetic news from the media, not to mention the sense of security generates by teachers following the event represented protective factors. Furthermore, concerning the effects of the same earthquake occurred in China in 2008 in a group of secondary school students in the range of 15 and 18 years old exposed in the area of Wenchuan, the results from a longitudinal study have demonstrated that depression was a major risk factor for suicidal ideation whose prevalence at 6–12–18 months after the disaster was 35.6% 35.6% - 30.7% (Ran et al., 2014), respectively.

Despite researchers have started to pay more attention to the effects of exposure to earthquake and other natural disaster on suicidal behaviors in adults and adolescents, studies on subjects including younger children are very rare (Kolves et al., 2013).

Ultimately, what emerges from numerous observations based in the previous studies is the importance of introducing structured and effective mental health programs that will benefit the victims, especially those groups at greatest risk in disaster situations.

Schnyder (2005) produced an inventory of various therapeutic approaches for dealing with PTSD. He divided them into three major categories depending on the aim of the treatment and the amount of time spent on it. 1) Early intervention, also known as 'psychosocial, psychological, psychiatric or psychotherapeutic intervention' is designed to prevent the development of post-traumatic stress in the individual exposed to the trauma, taking his/her needs into special consideration (Vermeiren, 2006). 2) Short-term psychotherapy in States of Acute Stress (SAS). 3) Long-term psychotherapy is indicated in cases of chronic PTSD.

Consequently, our study falls within the context of the previous discussion. Jean-Jacques (2011) reviewed over 500 studies performed in Haiti after the earthquake that struck on January 12 of 2010 which resulted in a death toll of more than 222,000. Very few of these studies paid lot attention to mental health of the population who had been exposed to the event. To our knowledge, none dealt with the effectiveness of the various ways in which the victims, adults or children, were treated. We therefore wonder about the repercussions one year thereafter of a specific psycho-social support for post-traumatic reactions in children exposed to the disaster. We hypothesized that children who attended a leisure centre where they benefitted from psycho-social support would have reported fewer post-traumatic stress symptoms than their peers who never received any psychological support. Clearly, the pathological scores ought to be lower on CPTS-RI, CDI and CBCL scales than among the control group. Furthermore, we assumed interaction between peritraumatic distress and the severity of post-traumatic stress, symptoms of depression and the global index of psycho-pathology on CBCL. Finally, correlation could be expected between the amount of

schooling month lost due to the earthquake and the CDI scores, social competence scales and CBCL behavioral disorders.

2. Method

2.1. Population

2.1.1. Case group

The participants ($N=58$) were recruited from the makeshift camp known as the "Champs de Mars" in Port-au-Prince, one of the cities most severely hit by the earthquake located from less than 20 km to the epicenter. All those in the group, aged between seven and 13, were sent to the "Plas Timoun" leisure centre in the "Champs de Mars". In addition to creative and play activities offered at the site, the children attended a remedial workshop run by the counselors of the Psychotrauma Centre. Children were excluded from the study who had not experienced the earthquake or who did appear to have major behavioral disorders such as hyperactivity, agitation, indicators of verbal and physical aggression, signs of dementia or inability to understand the country's two official languages. Fourteen subjects were excluded from our final analyses due to missing data in questionnaires or due to the absence of consent form from their parents, yielded a final sample of 44 participants: 23 boys and 21 girls.

2.1.2. Control group

The control group subjects ($N=52$), aged from 7 to 13 were recruited from four private primary and secondary schools, as well as from different camps in the capital, Port-au-Prince (Place Sainte-Anne, Sapotille, Champs de Mars). These schools and certain refugee camps were preferred to others, based on the proximity of the epicenter and the level of destruction of the inhabited area. Two schools attended by 12 of the subjects had been completely destroyed by the quakes. The children at the time of the evaluation were taught in corrugated iron shelters. Seventeen of the children were at school in Pétion-Ville, a suburb of Port-au-Prince. Twenty-three were recruited from camps in the Port-au-Prince city centre. The majority was subjected to the same inclusion and non-inclusion criteria as those of the subject groups. What distinguished them from the former group is the fact that they had had no psycho-social support since the earthquake of January 12 2010. Four children were eliminated from the study, because their parents were not able to complete the CBCL or did not consent to participate in the investigation with their children. Four subjects were not retained due to age and gender criteria. Finally, 44 children (23 boys and 21 girls) were retained for final analyses because they represented the criteria of matching, gender and age with their peers in the first group.

2.2. Measures

Ute Sodeman's Psycho-social Assessment Questionnaire for Children. The questionnaire, created in 2007, is a hetero-administered tool. It is used mainly in psycho-social intervention in the humanitarian organization known as "Trauma Aid – Germany" for children who have been exposed to natural or man-made disasters.

2.2.1. List of traumatic events

An inventory of 16 potentially traumatic events was provided to the participants.

Peritraumatic Distress Inventory for Child: The Peritraumatic Distress Inventory for Child (PDI-C) consists of 13 items, recorded on a scale of the Likert type and divided into five points. The score varies between 0 and 65. A high score indicates a serious level of peritraumatic distress (Bui et al., 2010).

The Child Post-Traumatic Stress - Reaction Index (CPTS-RI): this is the most frequently used self-administered questionnaire for the evaluation of PTSD in children aged between 6 and 17 years. The scores are classified into PTSD symptoms that can be mild (12 and 24), moderate (25–39), severe (40–59) and very severe (above 60) (Thabet and Vostanis, 1999; Drake and Gorp, 2001). The cut-off score for our study was higher than or equal to 40.

2.2.2. The children's depression inventory (CDI)

This scale is an adaptation of the Beck Depression Inventory (BDI 1977). It currently represents one of the most widely used tools for assessing depression. It is designed for use with children aged between seven and 17 and the total score reflects the severity of the depressive mood. A score of more than 15 implies severe depressive episodes. For the purposes of our work, the cut-off score was fixed above 19, translating into severe depressive symptomatology (Birmes et al., 2009).

2.2.3. The child behavior check-list CBCL (4–16)

The CBCL is often used in research and clinical practice on a worldwide. It is a self-administered questionnaire completed by parents or caregivers. It is divided into two major parts. The scale of social competence is sub-divided into activity sub-scales and social functioning marked from 0 to 12; performance at school is marked from 0 to 6. A high score on the social competence scale is synonymous with successful adaptation.

2.3. Procedure

Our research protocol was received favorably by those responsible for the program and the Psychotrauma Centre, which gave us access to the subjects' files. The questionnaires were administered by B.A. level students in Psychology to groups or individually. All instruments had previously been translated into Creole, the mother-tongue of the participants, by specialists in social communication with back translation into French performed by a linguistics student.

2.4. Statistical analyses

Univariate and Bivariate analyses were performed using Statistical Package for the Social Sciences (SPSS) version 19. The significance threshold was set to $p=0.05$. The confidence interval was fixed at 95%.

3. Results

3.1. Socio-demographic variables

The two groups differed from each other regarding the places in which the children lived ($x2=24.47$, df$=1$, $p<0.01$). The average age was similar for all subjects (case subjects: average age $=10$, SD$=1.51$; average age of control subjects$=10.16$, SD$=1.65$; $t=0.47$, df$=86$, $p=0.63$) as was gender in the two groups. We performed *t student* and chi2 test to compare scores of both groups (Table A1).

Giving the absence of significant difference in the CPTS-RI, CDI and CBCL, we then proceeded to regroup the subjects on the basis of the cut-off scores. PTSD was considered to be severe when the CPTS-RI average was ≥ 40; thus, 59.1% of the global population presented a severe degree of PTSD symptoms. In the case group ($N=44$), 68% ($n=30$) i.e. more than half had scores ≥ 40 compared to 50% ($n=22$) i.e. half of the control group ($N=44$), however results from univariate analysis did not allow us to conclude that an association existed between a specific group and prevalence of PTSD ($x2=3.00$, df $=1$, $p=0.64$). In the CDI, a cut-off score above 19 was established to determine the presence or absence of depression, association analysis shown that depression symptoms prevalence was higher in the Case-Group (40.9% $n=18$) in comparison with the other group (20.5% n$=9$) ($x2=4.32$, df$=1$, $p=0.03$). Finally, 30% of the whole population ($N=88$) displayed

signs of severe depression symptomatology. In the case of the CBCL's behavioral problems scales, we adopted the cut-off score of 41 as an index of the child psycho-pathological risk. The mean score for all children was greater than 41 (case subjects average =51.41, SD=25.74; control group average =44.59, SD=25.69).

Our hypothesis related to relationship existed between variables in the study were examined using Pearson Correlation matrices. Table A2 shows the interactions between variables in the total population (Appendix A).

For the whole population, peritraumatic distress correlated with the total score of CPTS-RI, Re-Experience and Avoidance (r=0.44, 0.43 and 0.24); CBCL schooling maintained a negative link with the amount of time during which schooling was interrupted and the CPTS-RI-Re-Experience ($r=-31$ and $r=-24$, $p<0.05$). Symptoms of depression and the degree of parental satisfaction were correlated ($r=-25$, $p<0.05$). In the case subjects, there was a strong correlation between the amount of time that schooling was interrupted and the occurence of depression (r,=0.69, $p<0.01$). In controls, an association was observed between age and depression ($r=-34$, $p<0.05$).

Associations between some variables depending on the group differed slightly from those found in the general population. Thus, a negative correlation was noticed between age and depression ($r=-34$, $p<0.05$) in control subjects. For case subjects, a stronger correlation was observed between the period of interrupted schooling and the depressive mood (r,=0.69, $p<0.01$).

4. Discussion

One year after the Haiti's January 12th of 2010 earthquake, to our knowledge, this study was the first to examine impact of a specific type of psycho-social support, the prevalence of PTSD, depression and the overall level of psychopathology in two groups of children. We compared a group of school-age children who had survived the most devastating disaster in the country's history, and had received psycho-social support, with a control group composed by children who had survived the earthquake but had never benefited from psychological support. Both groups were homogeneous regarding peritraumatic distress (PDI-C) or, in other words, the degree of fear experienced during and after the quake was the same in all participants. Contrary to our main hypothesis, according to which the Plas Timoun subjects would report fewer post-traumatic symptoms, depression and other psychopathological episodes than their counterparts who had not been monitored, no significant difference was observed in the average scores obtained for symptoms of PTSD and for the three subscales (Re-Experience, Avoidance and Hyper-Activity) measured by the CPTS-RI, nor between the social, schooling and behavioral problems scales of the CBCL and depression symptom (CDI). On the other hand, interruption in the schooling of controls following the earthquake was shorter, and their parents expressed greater satisfaction with their condition of life in comparison with the case subjects. The latter were only distinguished by their average participation in various activities (sport, games and clubs, etc.) in comparison with their opposite numbers. Despite the absence of significant difference between the two groups in the CPTS-RI and CDI scores in the t test, we noted that, considering the presence of PTSD and manifestations of depression based on the clinical cut-off scores, the rate of PTSD and severe depression was relatively higher in the case subjects than in their counterparts, again the opposite of what had been postulated at the outset. Consequently, we are not capable of issuing a definitive pronouncement concerning the impact of the psycho-social support offered at Plas Timoun. In fact, the children who attended this leisure centre and who benefited from the nine sessions of a therapeutic workshop at the Psychotrauma Centre did no better than their peers who were not monitored. Like in other previous studies including young and adult participants exposed to earthquake in Armenia and Italy displaced (Dell'Osso et al., 2013) or non relocated (Armenian et al., 2002), the prevalence of symptoms of PTSD and depression in school-age children assessed is high 13 months after the disaster. Sixty-eight per cent reported severe PTSD symptoms and 40% presented severe manifestations of depression, against 50% and 20% of their counterparts in the control group. The results are inconclusive on the CBCL Behavioral problems scale. The averages of both groups exceeded the cut-off score of 41. These unexpected observations should be viewed with caution. Two possible explanations based on previous studies might possibly be taken into account.

First, prevalence of traumatic exposition after the 2010 earthquake would seem to have interfered with the psycho-social support provided at the Plas Timoun children recruited from a camp of relocated survivors, where they were prey to recurring outbreaks of violence. This hypothesis matches with data reported by Thabet and Vostanis (1999) in school-age children from the Gaza Strip, an area of murderous conflict in Palestine, who showed a significantly strong association between number of traumatic events and the CPTS-RI scores of young Gazans. Similarly, Armenian et al. (2002) reported in a case-control study among survivors of the 1988 earthquake in Armenia aged from 16 years and above that 52% of the participants met criteria for depression, and 73.4% exhibited comorbid PTSD two years later. Violent conflict and precarious economical conditions may have been a risk factor for this important prevalence morbidity in all study groups, in which no significant difference was noted between age group.

The probable influence of socio-demographic factors may also explain our results, such as the precarious material living condition of Plas Timoun children, 82.9% of them were still living in temporary shelters in tents, compared to 27.3% of controls. The study children were unable to return to school for about five months, while their comrades generally returned two months after the disaster. The precariousness of their living conditions was also translated through an assessment of the level of parental satisfaction with the available social resources and the stress factors for the child. Thabet and Vostanis (1999) observed a greater prevalence of PTSD in the children of northern Gaza living in refugee's camps. They concluded that this prevalence could be linked to the adversity inherent in living in a refugee camp, such as being moved on elsewhere, interruptions in schooling and the break-up of friendships, among other things. Recently, Dell'Osso et al. (2013) reported in relocated survivors (n=1488) of the 2009 earthquake in Italy, that gender and proximity to the epicenter was associated with PTSD after earthquake exposure. Their results also suggested that age may be a moderating factor in this association such that younger age increased the risk for PTSD in non-exposed subjects, and among women. Our results are also in line with the findings concerning secondary school student exposed to Sichuan Earthquake in China where the interruption of schooling and exposure to horrifying content in the press related to the event represented risk factors for symptoms of PTSD and depression one month aftermath (Ran et al., 2014).

Furthermore, the positive correlation observed between the intensity of peritraumatic distress and the severity of post-traumatic symptoms confirms the results of recent studies in children who have been the victims of road traffic accidents, for example. Bui et al. (2010) found a positive correlation between PDI-C and CPTS-RI. PDI-C was also a robust predictive factor for the subsequent development of PTSD in children, according to the conclusions of their study. The predictive value of PDI-C was not confirmed in our study.

4.1. Study limitations

The main limitation of this work lies in the absence of prospective data. We have no data concerning the psychological state of children who attended the Plas Timoun leisure centre,

before, during and after the intervention. Having said that, we are not aware of any subsequent development of post-traumatic symptoms experienced by children in the aftermath of the disaster and right up until they were assessed one year later. A second limitation to be stressed is the absence of equivalence between the groups from a socio-demographic point of view. In fact, the majority of cases were relocated children, whereas most of the controls had a permanent home, their parents were more satisfied with their living conditions and they were out of school for a shorter time after the earthquake in comparison with their peers. Finally, our results could also be explained by the absence of random assignment in the recruitment of the subjects.

4.2. Clinical implications

This research has made it possible to highlight the significant prevalence of severe post-traumatic reactions in school age children who take part in our study one year after the devastating earthquake occurred in Haiti. Those who were able to benefit psychological assistance six months after the disaster were in no better mental health condition than those who did not receive assistance at all. Furthermore, depression symptomatology were more intense in the case group than in the control group who returned to school more quickly. From a socio-demographic point of view, the two groups were not equivalent. The assessment of peritraumatic distress by mental health professionals a few hours and or a few days after the event would have made it possible to detect which children were more likely to develop PTSD. This assessment would enable us to assess impact of various treatment methods offered to traumatized people, which is very frequent nowadays in the country. The study has also highlighted the relevance to adapt therapeutic intervention to socio-demographic context. As in the study conducted among high-school students in Sichuan (Lau et al., 2010, we noted a close relationship between interruption in a child's schooling and a depressive humor. Note that this variable, as well as re-experience symptoms, behavioral problems and parents satisfaction with the child's living conditions maintain significant links with school performance.

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Conflict of interest

The authors report no conflict of interest.

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Appendix A

See Tables A1 and A2.

Table A1
Comparison of the Average Scores for both Groups at Different Scales.

Variables	CASE Group M (SD)	CONTROL Group M (SD)	*t* test, df, *p*
PDI-C	27.2 (7.66)	27.8 (10.17)	−31, (86), $p=0.75$
Total CPTS-RI	42.3 (12.49)	39.2 (12.86)	1.28, (86), $p=0.20$
CPTS-RI- Reexperience	13.7 (6.10)	11.8 (6.35)	1.38, (86), $p=0.16$
CPTS-RI-Avoidance	11.2 (4.04)	10.9 (4.28)	0.41, (86), $p=0.68$
CPTS-RI-Hyper-Activity	10.3 (3.90)	10.3 (3.39)	−.029, (86), $p=0.97$
CDI	17.6 (4.81)	15.9 (5.45)	1.55, (86), $p=0.12$
CBCL	51.4 (25, 74)	44.5 (25.69)	1.24, (86)=$p=0.21$
CBCL-Activities	4 (2.26)	2.7 (1.92)	**2.92, (86), $p<005$**
CBCL- Social	8.5 (2.30)	7.6 (2.67)	1.83, (86), $p=0.07$
CBCL - Schoolwork	2.4 (1.35)	2.9 (1.16)	−1.89, (86), $p=0.61$
Parental satisfaction with the resources available for the child	10 (5.09)	15.5 (5.50)	**−4.84, (86), $p<001$**
Schooling interrupted	5.3 (4.34)	2.7 (2.79)	**2.75, (86), $p<0.05$**

Table A2
Correlation Matrices of Continuous Variables.

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	Age		0.14	.049	−.004	−0.06	.063	−.205	−.047	−190	−080	.003	−028	−.123	0.89	−.053
2	Sex			−.030	.119	.004	.022	.073	−143	−088	−.049	−.035	−030	.046	.066	−.022
3	Schooling interruption (a)				0.09	.126	.068	.197	−.011	.469**	.302*	.032	−021	−.312*	−.314*	−093
4	PDI-C (b)					444**	434**	.246*	.167	−.027	.009	032	.003	−.030	−.095	.009
5	CPTS-RI total (c)						828**	705**	632**	.178	.119	.180	.014	−.125	−.172	.065
6	CPTS-RI-reexperience							399**	302**	.115	.116	.080	−.050	−.247*	−.175	−.064
7	CPTS-RI-avoidance								383**	.064	.057	.074	.074	.066	−.094	.104
8	CPTS-RI-hyper-arousal								1	−.053	−.022	.152	.010	.046	.089	100
9	CDI (d)										448**	.033	.001	−.336**	−.259*	−.085
10	CBCL-behavioral problems											.099	−.140	−.228*	−.143	−.103
11	CBCL-activity												327**	−.018	−.162	.716**
12	CBCLsocial													.170	.031	829**
13	CBCLschool														351**	401**
14	Parental satisfaction (e)															.042
15	CBCL social ability															

a) Total month of schooling interruption after the quake; b) Peritraumatic Distress Inventoy-Child; c) Total Score of Child Postraumatic Symptoms Reaction -Index; d) Child Depression Inventory; e) Level of parents satisfaction with social resources available and stress factors for the child.

** $p<0.1$.

* $p<0.5$.

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