DEPRESSION, POSTTRAUMATIC STRESS DISORDER AND EXPOSURE TO VIOLENCE AMONG VENDA AND NORTHERN SOTHO ADOLESCENTS

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Dissertation submitted in accordance with the requirements for the degree

Magister Artium

in the Faculty of Humanities

Department of Psychology

UNIVERSITY OF THE FREE STATE

Bloemfontein, South Africa

April 2004

Supervisor: Professor D A Louw

Depression and exposure to violence among Venda and Northern Sotho adolescents

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Abstract

The seriousness of children's exposure to violence is acknowledged world-wide. This is markedly apparent in South Africa, where violence is a pervasive form of trauma. Unfortunately very little research has been done on the correlation between children's exposure to violence and the development of psychological problems such as depression. In the present study a total of 186 Venda and 151 Northern Sotho adolescents were used in a questionnaire survey to determine this relationship. Two measuring instruments were used: The Children's Depression Inventory and the Child Exposure to Violence Form. When comparing gender, no significant differences were found in terms of overall exposure to violence between males and females. For depression, the total group of girls had a remarkably higher prevalence of depression. Regarding ethnic comparison, no significant differences were found in terms of overall exposure to violence or for witnessed events. However, although the Venda adolescents had been victims significantly more often, Venda and Northern Sotho females had a similar prevalence of depression, but Northern Sotho boys had a higher depression rate than Venda boys. The correlation between victimization and total group depression was relatively low for the Northern Sotho group, and non-existent for the Venda group. A significant correlation was found between total exposure to violence and depression for the overall group. The shortcomings of the study are discussed and recommendations made.

Samevatting

Die erns van kinders se blootstelling aan geweld word wêreldwyd erken. Dit is veral waar in Suid-Afrika waar geweld 'n algemene vorm van trauma is. Ongelukkig is baie min navorsing gedoen oor die korrelasie tussen kinders se blootstelling aan geweld en die ontwikkeling van sielkundige probleme soos depressie. In die huidige studie is 'n totaal van 186 Venda en 151 Noord-Sotho adolessente gebruik om die verband te bepaal. Twee meetinstrumente is gebruik: die Children's Depression Inventory (CDI) en die Child Exposure to Violence Form (CEVF). Wat geslag betref, is geen betekenisvolle verskille gevind tussen manlike en vroulike respondente in terme van die algehele blootstelling aan geweld nie. Ten opsigte van depressie het die totale groep vroulike adolessente 'n betekenisvolle hoër prevalensie van depressie getoon. Ten opsigte van etnisiteit is geen betekenisvolle verskille ten opsigte van algehele blootstelling aan geweld gevind nie. Die Venda adolessente was egter meer dikwels geviktimiseer. Die vroulike adolessente van die Venda's en die Noord-Sotho's het 'n soortgelyke prevalensie van depressie gehad. Noord-Sotho manlike adolessente het egter meer depressie as hulle Venda eweknieë getoon. Die korrelasie tussen viktimisering en depressie van die totale groep was relatief laag vir die Noord-Sotho groep en afwesig by die Venda groep. 'n Betekenisvolle korrelasie is gevind tussen die totale blootstelling aan geweld en depressie vir die totale groep. Die tekortkominge van die studie is bespreek en aanbevelings gemaak.

DEPRESSION AND EXPOSURE TO VIOLENCE AMONG VENDA AND NORTHERN SOTHO ADOLESCENTS

Introduction

Children throughout the world are subjected to a multitude of traumatic experiences. Varying from natural disasters, accidents and war, to political, community and familial violence, such exposure can pose a severe threat to a child's well-being.

Carson, Butcher and Mineka (2000) found that children's vulnerability to the damaging effects of stressors was greater than that of adults. Severe stress triggered by a traumatic event has been related to increased chances of children developing psychological problems such as depression and post-traumatic stress disorder (Goenjian et al., 2001; Jaffe, Wilson, Wolfe & Zak, 1986; Shannon, Lonigan, Finch & Taylor, 1994).

Exposure of children to violence occurs in all societies. The seriousness of the problem is illustrated by the estimation of the World Health Organization (WHO) that one in a number of children ranging from 5 000 to one in 10 000 worldwide, below the age of five years, die yearly from physical violence. Every year children suffering from abuse, ranging from one in 1,000 to one in 180, are brought into medical facilities or referred to child welfare services (http://www.who.int/). In the United States of America (USA), Myers and Sanders and Thompson (2000) determined that 85% of their sample of African American adolescents had been victims of at least one act of interpersonal violence, and 91% had witnessed a violent event. Further

research in the USA, for example Schwab-Stone et al. (1999) found that 39% of teenagers in their study had witnessed someone being shot at within the previous year and one in 12 American high school students are threatened or injured with a weapon every year (http://ncjrs.org/html/ojjdp/nationalreport99/chapter2.pdf). In Finland and Korea 5 – 10% of children experience physical violence. Australia shows figures of 85 – 90% for domestic violence cases where children were present (http://www.community.nsw.gov.au/). Brazilian statistics reported that 653 children had died in a violent manner in the city of Rio de Janeiro during a six-month period in the nineties (www.oneworld.org/sejup/children.htm). A study in Nairobi, Kenya, found that 69% of adolescents had witnessed violence within their communities (Seedat, Nyamai, Njenga, Vythilingum & Stein, in press).

In South Africa violence is an especially widespread form of trauma. Apart from the high levels of poverty, disease and the effects of historical oppression, violence is a powerful contributor to the debased quality of life for many youth. It seems that exposure to community violence in particular has almost become the order of the day. In the Western Cape Ensink, Robertson, Zissis and Leger (1997) found that 95% of the Xhosa-speaking children used in the study had witnessed violence, while 56% of the children had been victims of violence themselves. In Khayelitsha, in the Western Cape, a study found that 61% of the youth sample had been exposed to taxi violence alone, either as witnesses or victims (Zissis, Ensink & Robertson, 2000). A Cape Town survey found that 62.9% of the grade 10 adolescents used in the study had witnessed violence in the street, neighbourhood, or school, and 31.6% had been mugged or robbed (Seedat, van Nood, Vythilingum, Stein & Kaminer, 2000). Moreover, 58% of another sample of adolescents from 18 high schools in Cape Town

reported that they had witnessed violence in the city (Seedat et al., in press). Alarmingly, 52% of learners from two high schools in the Northwest Province reported witnessing a rape within their community, while 56.6% had witnessed a murder (Muller, 2001).

Considering these statistics, it is imperative to determine the psychological sequelae experienced by South African children exposed to such high degrees of violence. Although research in the area of community violence is, relatively speaking, still in its infancy, it is disconcerting that basic data are lacking in respect of many aspects of children's mental health in South Africa. Additionally, relatively little cross-cultural research has been done concerning the epidemiology of mental disorders in different ethnic groups, in particular the black ethnic groups in South Africa. One vital area that has largely remained unexplored is the examination of the psychological effects of exposure to violence on South African adolescents. The intention of this study is therefore not only to determine the prevalence of depression among Venda and Northern Sotho adolescents, but also to ascertain whether there is a correlation between experiences of violence and the development of depression in these groups.

Effects of exposure to violence

Exposure to violence has been shown in many studies to be correlated with psychological distress (Govender & Killian, 2001; Martinez & Richters, 1993; Osofsky, Wewers, Hann & Fick, 1993; Zissis, Ensink & Robertson, 2000). Depression, in particular, has been significantly linked to exposure to violence (Fitzpatrick, 1993; Freeman, Mokros & Poznanski, 1993; Gorman-Smith & Tolan,

1998; Martin, Sigda & Kupersmidt, 1998; Overstreet et al., 1999; Singer, Anglin, Song & Lunghofer, 1995).

One of the significant areas of research regarding exposure to violence concerns whether certain variables have a greater outcome of psychological distress than others. Factors that have been identified as potential mediators or moderators of the impact of violence include the following:

As far as the victim versus witness variable is concerned, when ascertaining whether there are differential psychological distress responses between witnesses and victims of violence, conflicting results between studies have been found. Certain studies have found that witnessing violence may be as traumatic as direct victimization (Fitzpatrick & Boldizar, 1993; Jaffe, Wolfe, Wilson & Zak, 1986; Singer et al., 1995). On the other hand, Fitzpatrick (1993) found differential psychological responses between witnesses and victims of violent events, in that victims of violence reported more depressive symptoms after exposure to violence than witnesses, for whom no positive correlation was found between depression and the witnessing of violence. In terms of the additive effect of violent events, individuals who are both witnesses and victims of violence have been found to express greater distress reactions than individuals who are only victims. For example, a study compared abused children who were also witnesses to interpersonal violence within their homes with adolescents who were victims of abuse, but who were not witnesses to domestic violence. Those who were both victims and witnesses of domestic violence were at a significantly higher risk of developing depression, separation anxiety, PTSD, and oppositional defiant behaviour (Pelcovitz, Kaplan, DeRosa, Mandel & Salzinger, 2000).

Alternatively, Saigh (1991) compared the psychological distress correlated with four forms of exposure to violence: direct experience of violence, observation, verbal mediation, and a combination of all three. The associated PTSD symptoms did not differ between the different forms. Once again, it is not known how this comparison is related to depression. Further study is required to determine whether the different forms of exposure to violence have differential effects on the prevalence of depression.

In terms of the frequency of exposure to violence, certain authors have made a distinction between acute exposure and chronic exposure. Acute exposure to violence has been described as a severe one-time incident of exposure to trauma while chronic exposure to violence has been referred to as repetitive exposure to significant violence (cf. Pynoos et al., 1987; Martinez & Richters, 1993). Recently, chronic community violence in particular has been addressed, along with the consequences of ongoing exposure to violence among youth (Cooley-Quille, 2001; Farrell & Bruce, 1997; Martinez & Richters, 1993; Miller et al., 1999; Zissis et al, 2000). In determining whether there are different characteristics of distress for individuals exposed to varying frequencies of violent events, an assortment of results have been obtained. Cooley-Quille, Turner and Beidel (1995) found an association between high levels of community violence and externalizing behaviours, although no correlations were found for psychological disorders and internalizing behaviour. Differing frequencies of exposure had no differential effect on DSM-III-R diagnoses. However, Cooley-Quille (2001) found that adolescents exposed to high levels of community violence had more symptoms of anxiety, internalizing behaviour, fears, and negative life

occurrences than those with low exposure. Depression and externalizing behaviour, however, did not seem to differ between the high-exposure and low-exposure youths. Furthermore, Fitzpatrick (1993) found that witnesses to chronic violence (relatively high levels of exposure) did not show any increase in depressive symptoms. Instead, they showed a negative correlation with exposure to violence, in terms of which the more they were exposed to violence as witnesses, the fewer depressive symptoms were reported. Despite conflicting research regarding the role of different forms of exposure to violence and the psychological effects of repetitive exposure, in certain circumstances the frequency of exposure may have an additive effect on the distress experienced.

Regarding one's proximity to a violent occurrence, Pynoos et al. (1987) found that one's physical location in relation to a violent event can affect the number of distress symptoms. For example, in a school shooting, the children who were further away from the event experienced fewer distress symptoms (e.g., being in a classroom next door to where the shooting occurred, as opposed to being outside in the schoolyard). Goguen (2003) also reported that children's close proximity to community violence raises their risk of developing psychological distress.

Familial factors can influence whether a child develops depression after being exposed to a violent event. Higher maternal education has been correlated with lower levels of exposure to violence, internalising symptoms, and intrusive thinking among children (Kliewer, Oskin, Johnson & Lepore, 1998). Young children living without their mothers in their homes report more depressive symptoms after exposure to violence than children living with their mothers (Fitzpatrick, 1993). Overstreet et al.

(1999) found that, in comparison with smaller families, a large family size was correlated with fewer depressive symptoms, after exposure to violence. Gorman-Smith and Tolan (1998) found that low family cohesion was related to an increase in depressive symptoms among youth exposed to violence. In a study by Martinez and Richters (1993), it was found that youth who were victims or witnesses of violent events involving family members and those familiar to them were more inclined to report symptoms of distress and depression than incidents in the case of involving strangers. Additionally, youth who were exposed to violence within their homes experienced a greater degree of distress after exposure to violence than those from non-violent homes.

Age, according to certain studies, appears to play a significant role in the link between psychological distress and exposure to violence. Schwab-Stone et al. (1999) found that younger adolescents who were exposed to violence tended to internalise their symptoms more than their older counterparts. Fitzpatrick (1993) found that younger children reported more depressive symptoms than older children after exposure to violence. However, it is important to note that not all research has found differences in respect of age and related distress after exposure to violence (Mazza & Reynolds, 1999; Pynoos et al., 1987; Singer et al., 1995).

In terms of certain studies, gender differences appear to exist concerning not only one's chances of being exposed to violence, but also the likelihood of developing psychological distress after exposure. Boys tend to be exposed to higher overall levels of violence compared to girls, although they experience lower levels of depressive symptoms (Berton & Stabb, 1996; Seedat et al., 2000; Singer et al., 1995).

The explanation for the latter tendency probably lies in different approaches to coping. Govender and Killian (2001) found that boys used a more problem-focused coping style that helped to buffer them from the negative effects of stress. Girls, on the other hand, were prone to a more emotion-focused coping style that was not only less effective, but also seemed to fuel the emotional part of trauma.

Differences have been found between different ethnic groups concerning depression (Mghir & Raskin, 1999; Lei Yu & Seligman, 2002). However, this finding could be attributed to the different levels of exposure to trauma and other stress variables, rather than to actual ethnic vulnerabilities. For example, ethnic minority males in the USA have been associated with higher levels of exposure to violence than various other ethnic groups (Berton & Stabb, 1996; http://ncjrs.org/html/ojjdp/nationalreport99/chapter2.pdf). Therefore it seems that they would be at a higher risk of developing depression since the two variables have been significantly correlated. However, not all research corroborates the existence of ethnic differences in respect of the prevalence of depression in relation to exposure to violence (Singer et al., 1995; Cooley-Quille, 1995; Scwab-Stone et al., 1999). Owing to the possible contaminating influence of unknown variables, as well as the fact that relatively little research has been done in this field, it is presently difficult to ascertain whether ethnicity plays a significant role as a risk factor in relation to the development of depression.

It seems that if an individual's base level of stress is already high, this can increase a youth's vulnerability to psychological distress after exposure to trauma (Myers & Thompson, 2000). Furthermore, as the number of adverse childhood experiences

increases, the likelihood of an individual developing depression in adulthood also increases (Anda et al., 2002).

Comorbidity

Various mental disorders can co-occur in conjunction with depression, while behavioural and adjustment problems are also often associated with depression in children.

Concurrent mental disorders that have been correlated with depression include PTSD, substance-related disorders, panic disorder, obsessive-compulsive disorder, anorexia nervosa, bulimia nervosa, borderline personality disorder (American Psychiatric Association, 2000; Singer et al., 1995). Having a pre-existing psychological condition can predispose a child towards developing further mental illness (Strober, Lambert, Schmidt & Morrel, 1993). Mazza and Reynolds (1999) found that PTSD acted as a mediator for depression. In their study, children who had been exposed to violence and who were experiencing PTSD were at a significantly higher risk of depression.

As far as the relation between depression and behavioural and adjustment problems is concerned, children's performance at school may diminish, while lower participation in extracurricular activities, suicidal ideation, anger, and violent and risk-taking behaviour have also been reported (Flannery et al., 2001; Riley et al., 1998; Vermeiren et al., 2003).

Apart from depression, exposure to violence also correlates with certain mental disorders, as well as behavioural and adjustment problems. Examples include general psychological distress and anxiety, separation anxiety disorder, oppositional defiant disorder and PTSD, scholastic problems, anger and violent behaviour, dissociation, antisocial behaviour, interpersonal problems, suicidal behaviour and physical health problems (Delaney-Black et al., 2002; Farrell & Bruce, 1997; Giaconia et al., 1995; Govender & Killian, 2001; Jaffe et al., 1986; Miller et al., 1999; Pelcovitz et al., 2000; Schwab-Stone et al., 1999; Slovak & Singer, 2001; Vermeiren et al., 2003).

METHOD

Participants. A total of 186 Venda and 151 Northern Sotho adolescents participated in the study. They were all learners from two high schools of the Southpansburg district in the Limpopo Province. The age of the students who were in Grades 9 to 12, ranged from 15 to 18. As far as gender is concerned, 91 Venda and 70 Northern Sotho girls, and 89 Venda and 66 Northern Sotho boys participated.

Measuring instruments. To achieve the mentioned aims of this study, the following questionnaires were used:

- *Children's Depression Inventory* (CDI) (Kovacs, 1992). Specifically created for use with children and adolescents, the CDI consists of 27 items that are each rated on a three-point scale. The possible raw score ranges between 0 and 54. The inventory is indicative of depressive symptoms and includes five subscales concerning negative mood, interpersonal problems, feelings of ineffectiveness,

anhedonia and negative self-esteem. As the CDI was developed for a first-grade reading level, it was expected that the participants would not experience any difficulty in reading and interpreting the items. Research in the USA has shown the CDI to be acceptable in respect of its reliability and validity (Fitzpatrick, 1993; Kliewer et al., 1998). As no South African data are available in this regard, the alpha coefficient for Venda and Northern Sotho adolescents was calculated.

- *Child's Exposure to Violence Form (CEVF)* (Amaya-Jackson, 1995). Exposure to violence was assessed using a somewhat altered version of the CEVF. Two questions on the nature of sexual acts were eliminated and replaced with two new questions, bringing the total number of items to the original 34. The additional items concerned whether the individual had participated in or seen a riot in his or her community. (Incidents of rioting had recently occurred in the rural region where the study took place.) This topic is not covered by the CEVF. The indications are that the questionnaire has adequate psychometric properties (Fehon, Grilo & Lipschitz, 2001; Lipschitz, Grilo, Fehon, McGlashan & Southwick, 2000).

For further analysis the questions on violent incidents were grouped into two categories, namely witnessed events and events of victimization. However, not all of the 34 items were included into this categorization, owing to the fact that some of them did not fit into the defined topics. In the statistical analysis, correlation coefficients were calculated between each category and the CDI scores.

The two questionnaires administered were published in English. The principals of both schools reassured the researchers that the participants were capable of understanding written English, given that English was one of the primary languages of instruction at both schools. However, it should be taken into account that the participants did not complete the questionnaire in their mother tongue. The extent to which this variable played a role in the results is unknown.

Procedure. Permission to conduct the study was received from the Department of Education. The two schools were selected on the basis of their large size and their ethnicities (language groups). One of the chosen schools was composed primarily of Venda learners and the other school was comprised mainly of Northern Sotho learners. Prior to the selection, the headmasters of all of the schools in the district were requested to provide information on certain variables until the two schools with the largest homogenous mutually exclusive ethnic populations of Venda and Northern Sotho learners were found.

The high school learners completed the questionnaires in their classrooms. Prior to the administration of the forms, the researcher, with the assistance of a teacher, gave a brief description of the purpose of the study, as well as an explanation of the questionnaires' formats in order to ensure that the tests would be properly filled out. The participants were assured that their responses would be strictly confidential and would only be used for research purposes.

Statistical analysis. To measure the participants' levels of depression, the following five subscales of the CDI were used: Subscale A: negative mood; Subscale B:

interpersonal problems; Subscale C: ineffectiveness; Subscale D: anhedonia and Subscale E: negative self-esteem. These five subscales together give a total score of 54. Regarding the exposure to violence a total score was used. For the purposes of all analyses, only raw scores were used.

In keeping with the goals of this study, the first aspect to be investigated was whether the two language groups differed regarding the various depression subscales. For this purpose, the Hotelling T^2-test was used. To determine whether there was indeed a positive relationship between the participants' levels of depression and their exposure to violence, the Pearson product-moment correlation coefficient (r) was computed with the SAS software programme (SAS Institute, 1985).

The third aim of this study was to determine whether the relationships between the two mentioned variables differed for the two language groups. This was achieved by computing the Fisher's r-to-Z transformation. The original correlation coefficients are thus transformed according to Fisher's r-to-z transformation before the test statistic value can be computed.

In order to be able to comment on the practical importance of statistically significant results which may have been obtained in this study, the practical significance of the results will also be investigated. As a guideline to practical significance, effect sizes will be computed. In the computation of the practical significance of the Hotelling T^2-value, the mean vectors are compared, and the effect size (f) is computed as follows (Steyn, 1999): $f = T/\sqrt{N}$.

In order to interpret these effect sizes, the following guidelines may be used: 0.1 = small effect; 0.25 = medium effect; 0.4 = large effect.

If a statistically significant T^2-value is obtained which also has a considerable practical significance, the analysis must be followed up with *post hoc t*-tests. The adjusted effect sizes of these tests may be determined as follows: $\delta_a = \mu_1 - \mu_2 / \sqrt{p\sigma^2_1 + q\sigma^2_2}$, where *p* and *q* indicate the proportion of participants from the two respective populations. The guidelines for interpretation which may be used here are as follows: 0.2 = small effect; 0.5 = medium effect; 0.8 = large effect (the absolute value of δ is given, as negative values can be obtained when $\mu_1 < \mu_2$).

The second aim of this study is to investigate the linear relationship between the mentioned variables, and in this instance Cohen (Steyn, 1999) suggests that the correlation coefficient, viz. *p*, be used as effect size, and the guidelines which he suggests are as follows: $p = 0.1$: small effect; $p = 0.3$: medium effect; $p = 0.5$: large effect.

Only when statistically significant results (on the 1% or 5% level of significance) were found, were the corresponding effect sizes computed.

Results

The following tables, Tables 1a and 1b, show the distribution of exposure of the Venda and Northern Sotho adolescents to different types of violent events, as well as the distribution of exposure between boys and girls.

Table 1a: Numbers and percentages of adolescents exposed to violence (witnesses, victims and total)

Witness to at least one act of violence	**Northern Sotho**				**Venda**				**Total**			
	Girls		**Boys**		**Girls**		**Boys**		**Girls**		**Boys**	
	N	**%o**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
Yes	68	87,2	68	93,2	91	98,9	82	87,2	159	**93,5**	150	**89,8**
No	10	12,8	5	6,8	1	1,1	12	12,8	11	6,5	17	10,2
Column total	78	100,0	73	100,0	92	100,0	94	100,0	170	100,0	167	100,0
Victim of at least one act of violence	**Northern Sotho**				**Venda**				**Total**			
	Girls		**Boys**		**Girls**		**Boys**		**Girls**		**Boys**	
	N	**%o**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
Yes	45	57,7	48	65,8	71	77,2	73	77,7	116	**68,2**	121	**72,5**
No	33	42,3	25	34,2	21	22,8	21	22,3	54	31,8	46	27,5
Column total	78	100,0	73	100,0	92	100,0	94	100,0	170	100,0	167	100,0
Exposed to at least one act of violence	**Northern Sotho**				**Venda**				**Total**			
	Girls		**Boys**		**Girls**		**Boys**		**Girls**		**Boys**	
	N	**%o**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
Yes	72	**92,3**	68	**93,2**	92	**100,0**	88	**93,6**	164	**96,5**	156	**93,4**
No	6	7,7	5	6,8	0	0,0	6	6,4	6	3,5	11	6,6
Column total	78	100,0	73	100,0	92	100,0	94	100,0	170	100,0	167	100,0

According to the preceding table, both language groups are exposed to incredibly high rates of violence. Particularly bothersome is the overall exposure of the Venda girls, all of whom had been either witnesses or victims of a violent event. In comparison with other South African averages, the results from this sample are quite similar in respect of their extreme levels. For example, in a study by Ensink et al. (1997), 95% of their Xhosa sample from Khayelitsha had witnessed a violent event, and 56% had been victims of a violent event. These results are very similar to those obtained for

our total group, of whom 95% had witnessed a violent event, and 68% had been victims of violence. However, the participants in our study had experienced a higher degree of victimization. A combined international and local study revealed comparatively lower levels of witnessed violence than in the case of our sample. In the combined study, 69% of the Kenyan respondents and 58% of the South African adolescents from the Western Cape had witnessed violence (Seedat et al., in press). When these results are compared to the prevalence of violence in the USA, there seem to be equal levels of exposure to violence. For example, Myers and Thompson had a sample in which 91% of the participants had witnessed violence and 85% had been victims of violence. Their rate of victimization, however, was almost 20% higher than for the present sample.

Table 1b: Exposure to violence: language and gender

Exposure to violence	**N. Sotho total**		**N. Sotho girls**		**N. Sotho boys**		**Venda total**		**Venda girls**		**Venda boys**	
	Yes	**No**	**Yes**	**No**	**Yes**	**No**	**Yes**	**No**	**Yes**	**No**	**Yes**	**No**
Witnessed												
beating	**57,1**	42,9	**53,1**	46,9	**61,3**	38,7	**78,6**	21,4	**78,9**	21,1	**78,4**	21,6
stabbing	36,9	63,1	36,7	63,3	37,3	62,7	49,6	50,4	**58,0**	42,0	41,7	58,3
shooting	**54,6**	45,4	44,3	55,7	**65,5**	34,5	39,5	60,5	38,9	61,1	40,0	60,0
home violence	42,4	57,6	46,9	53,1	37,7	62,3	47,3	52,7	**52,8**	47,2	41,9	58,1
dead body	25,8	74,2	21,3	78,7	30,5	69,5	37,1	62,9	34,3	65,7	40,0	60,0
gun pulled	39,5	60,5	37,5	62,5	41,7	58,3	33,3	66,7	21,7	78,3	44,0	56,0
home shooting/stabbing	30,9	69,1	30,0	70,0	31,7	68,3	25,0	75,0	23,0	77,0	27,0	73,0
knife pulled	**59,7**	40,3	**63,1**	36,9	**56,2**	43,8	**54,4**	45,6	**56,9**	43,1	**52,0**	48,0
murder	43,1	56,9	38,7	61,3	47,5	52,5	35,2	64,8	31,2	68,8	39,7	60,3

suicide	44,4	55,6	41,2	58,8	48,2	51,8	44,9	55,1	**51,4**	48,6	38,4	61,6
sexual assault	39,4	60,6	36,4	63,6	42,6	57,4	39,9	60,1	43,9	56,1	36,1	63,9
riot	39,5	60,5	37,1	62,9	42,1	57,9	37,9	62,1	39,1	60,9	36,6	63,4
Victimization												
robbed	29,7	70,3	26,7	73,3	32,8	67,2	27,6	72,4	29,7	70,3	25,4	74,6
beaten up (threat)	41,1	58,9	43,3	56,7	38,7	61,3	**60,8**	39,2	**60,8**	39,2	**60,8**	39,2
beaten up	38,4	61,6	33,3	66,7	43,5	56,5	**55,1**	44,9	**53,6**	46,4	**56,4**	43,6
Threatened with murder	24,8	75,2	18,5	81,5	31,3	68,7	29,7	70,3	28,6	71,4	31,0	69,0

Note: Majority in bold.

The types and number of violent events that the participants in the study were exposed to are disconcerting. An especially alarming finding is that the majority of the total sample had witnessed violent events such as someone being beaten up or an individual pulling a knife on another person. Concerning subgroups, the majority of Venda girls had seen a stabbing, most of the Northern Sotho adolescents had witnessed a person being shot and more than half of the Venda girls had witnessed someone kill themselves or attempt to kill themselves. Another notable finding relates to victimization: a relatively high number (58%) of the Venda group had been beaten up. Percentages of exposure regarding the types of violent events in other South African studies vary across samples, although a common factor is that exposure is high. For example, 62% of the adolescents from the Western Cape had been robbed or mugged (Seedat et al., 2000) and 61% of the adolescents in Khayelitsha had been exposed to taxi violence either as witnesses or as victims.

The average scores concerning witnessed violent events, direct victimization and total exposure to violence were also calculated by means of the *t*-test for two independent groups. The results appear in Tables 2, 3 and 4.

Table 2: Means and standard deviations of the two ethnic groups

Exposure to violence	Northern Sotho (151)		Venda (n=186)		*t*	*p*	*d*
	X	s	X	s			
Witnessed	6,91	5,05	6,71	4,88	0,364	0,7161	
Victimization	1,75	1,97	2,39	2,18	-2,784	0,0057*	-0,30
Total	18,42	12,22	18,43	11,37	-0,005	0,9961	

* $p \leq 0,01$

From Table 2, it is clear that there is a significant difference (at the 1% level) between the average victimization scores of the two ethnic groups. The effect size of –0.30 indicates that the difference is of a practical value. It is therefore evident that Venda adolescents were victims of violence to a higher degree than the Northern Sotho adolescents. However, there were no significant differences in the scores for witnessed violence, or the total scores of the two groups. Overall, the two ethnic groups in our sample are exposed to the same degree of violence, which is consistent with the findings of some international studies (Singer et al., 1995; Cooley et al., 1995).

The average scores for exposure to violence for the Northern Sotho girls and boys are as follows.

Table 3: Means and standard deviations of girls and boys (Northern Sotho)

Exposure to violence	Girls (n = 78)		Boys (n = 73)		*t*	*p*	*d*
	X	S	X	S			
Witnessed	6,51	4,83	7,33	5,28	-0,992	0,3230	
Victimization	1,55	1,93	1,97	2,01	-1,314	0,1907	
Total	16,96	11,94	19,99	12,40	-1,526	0,1291	

No significant differences occurred in the average scores for witnessed violence, or the victimization or total scores of the Northern Sotho girls and boys. This finding is consistent with those of the already mentioned South African study and studies in the USA (Fehon et al; 2001, Mazza & Reynolds, 1999; Seedat et al., in press).

The Venda average scores for exposure to violence are also shown, in Table 4 below.

Table 4: Means and standard deviations of girls and boys (Venda)

Exposure to violence	Girls (n = 92)		Boys (n = 94)		*t*	*P*	*D*
	X	s	X	S			
Witnessed	6,42	3,76	6,99	5,77	-0,789	0,4307	
Victimization	2,30	2,24	2,48	2,13	-0,544	0,5871	
Total	18,05	9,74	18,80	12,81	-0,445	0,6569	

Similar to the results for the Northern Sotho adolescents, there were no significant differences between the Venda boys and girls concerning their average scores for witnessed violence or their, victimization or total scores.

When scoring the CDI, in order to calculate the clinical significance for depression, different raw score cut points are applicable to the girls and the boys, in order to indicate the presence of depression. For girls, the total raw score threshold on the CDI is 19, and for boys it is 24. These values are then translated into T-scores. In the graph below, the percentages of girls and boys with clinically significant depression symptoms are given for the total group (Venda and Northern Sotho).

Table 5: Prevalence of depression according to gender

Presence of Depression	Girls		Boys	
	N	%	N	%
Yes	47	29,2	14	9,0
No	114	70,8	141	91,0
Total	161	100,0	155	100,0

According to Table 5, approximately three times as many girls suffer from depression, in comparison to boys. With regard to the prevalence of depression as established in other studies, it has commonly been found that girls experience notably higher rates of depression than boys (Seedat et al., 2000; Singer et al., 1995). In fact, it has even been found in the USA that girls outnumber boys 2:1 in respect of depression (http://www.med.umich.edu/depression/caph.htm). This finding is quite similar to the results of the present study. However, in this case, there is an even larger gap between the gender groups. As discussed earlier in the literature review, these gender differences in respect of the prevalence of depression could be ascribed to different coping styles; but further exploration of the topic is required (Govender & Killian, 2001).

In Canada and the United States, the prevalence of depression ranges from 1.2 – 8.8% among adolescents (Naidoo, 2002). In South Africa, the prevalence of depression for adolescents in two studies carried out in the Western Cape was 6-7% (Ensink et al., 1997; Ward, Fisher, Zissis, Muller & Lombard, 2001). It is clear from the results of the present study, as shown in Tables 5 and 6, that the female participants, in particular, are experiencing a significantly higher degree of depression than has been found in the rest of South Africa. In the two other South African studies the prevalence of depression for the genders was not differentiated, with the result that it is not possible to directly compare the prevalence of depression among girls between all three studies.

The following table provides an overall summary of the prevalence of depression, differentiated in terms of gender and ethnicity.

Table 6: Presence of depression according to ethnic group and gender

	Northern Sotho				**Venda**			
Presence of depression	**Girls**		**Boys**		**Girls**		**Boys**	
	N	**%**	**N**	**%**	**N**		**N**	**%**
Yes	20	**28,6**	8	**12,1**	27	**29,7**	6	**6,7**
No	50	71,4	58	87,9	64	70,3	83	93,3
Total	70	100,0	66	100,0	91	100,0	89	100,0

As displayed in Table 6, the prevalence of depression among Northern Sotho and Venda girls is very similar. However, nearly twice as many Northern Sotho boys are

suffering from depression in comparison to the Venda boys. As discussed previously in the literature review of this present study, differences in prevalence have been found for psychological distress between ethnic groups within the same country (Mghir & Raskin, 1999; Crouch, Hanson, Saunders, Kilpatrick & Resnick, 2000; Perilla, Norris & Lavizzo, 2002). However, it is not known why Venda and Northern Sotho girls' level of depression is very close to being the same, whereas for the boys, there is a greater variance in prevalence between the two ethnic groups.

In order to achieve the first goal of the study, the vector means of the depression scores (subscales and total scores) for the two language groups and the two genders in each of the two language groups were compared in the table below. To evaluate this comparison, the Hotelling T^2 -test was used and the evaluation was carried out by means of the BMDP P3D programme, (Dixon, 1985).

Table 7: The means and standard deviations of the depression CDI subscales of both language groups

Depression	**Northern Sotho**			**Venda**		
	N	**X**	**s**	**N**	**X**	**S**
Depression: Subscale A: Negative Mood	126	3,82	2,10	156	3,76	2,00
Depression: Subscale B: Interpersonal Problems	82	2,78	1,49	101	2,30	1,57
Depression: Subscale C: Ineffectiveness	118	2,89	1,46	150	2,61	1,30
Depression: Subscale D: Anhedonia	131	5,48	2,54	174	5,48	2,93
Depression: Subscale E: Negative Self-Esteem	112	2,46	1,43	148	2,36	1,25
Depression: Total score	136	15,01	6,84	180	13,96	6,83

A T^2 -value of 8.83 was computed for the information in Table 7, leading to an estimated F-value of 1.45 for 6 and 330 degrees of freedom. However, this value was not significant on at least the 5 % significance level (p=0.1948). Consequently, for the deduction, there are no significant differences in the mean depression scores for the Northern Sotho and Venda individuals.

For the Northern Sotho group, a gender comparison was carried out for the scores on the depression subscales (Table 8).

Table 8: The means and standard deviations of the depression subscales of Northern Sotho boys and girls

Depression	**Girls**			**Boys**		
	N	**X**	**s**	**N**	**X**	**s**
Depression: Scale A	63	3,71	2,20	63	3,92	2,00
Depression: Scale B	48	2,88	1,49	34	2,65	1,50
Depression: Scale C	58	2,88	1,58	60	2,90	1,35
Depression: Scale D	68	5,69	2,63	63	5,25	2,44
Depression: Scale E	61	2,57	1,24	51	2,31	1,63
Depression: Total	70	15,46	7,02	66	14,53	6,67

A T^2 -value of 3.87 was computed for the information in Table 8, leading to an F-value of 0.62 for 6 and 144 degrees of freedom. However, this value was not significant on at least the 5 % significance level (p=0.7110). Consequently, the deduction can be made that there are no significant differences between the mean depression scores for Northern Sotho boys and girls.

A gender comparison was also carried for the Venda group (see Table 9).

Table 9: Means and standard deviations of the depression subscales for Venda boys and girls

Depression	Girls			Boys		
	N	X	s	N	X	s
Depression: Scale A	83	3,87	2,09	73	3,63	1,90
Depression: Scale B	50	2,56	1,78	51	2,04	1,30
Depression: Scale C	79	2,72	1,29	71	2,48	1,31
Depression: Scale D	90	5,69	2,99	84	5,26	2,87
Depression: Scale E	72	2,43	1,33	76	2,29	1,17
Depression: Total	91	14,85	7,20	89	13,04	6,35

A T^2 -value of 4.86 was computed for the information in Table 9, leading to an estimated F-value of 0.79 for 6 and 179 degrees of freedom. However, this value was not significant on at least the 5 % significance level (p=0.5802). Consequently, the deduction can be made that there are no significant differences between the mean depression scores for the Venda boys and girls.

As indicated in the following group of tables, the question of whether a significant positive relationship exists between individuals' depression and their exposure to violence (witnessed, victimization and total) was investigated. In order to conduct this investigation, Pearson's product moment correlation coefficient was computed. In the first instance, the relationship between these variables was computed for the total group. After this, it was computed separately for the two language groups as well as the two genders in each language group. The results obtained are displayed in Tables

10, 11, 12 and 13. Fisher's *r*-to-*z* transformation was used to determine where there were differences in this regard between the various language and gender groups.

Table 10: Correlation coefficients between depression and exposure to violence (witnessed and victimization) for the total group as well as the individual language groups

Depression	**Witnessed**				**Victimization**			
	Total group	***N. Sotho***	***Venda***	***Z***	***Total***	***N. Sotho***	***Venda***	***z***
Depression: Scale A	0,20**	0,29**	0,11	1,60	0,08	0,10	0,07	-0,17
Depression: Scale B	0,33**	0,48**	0,20*	**2,11***	0,16*	0,27*	0,12	-0,76
Depression: Scale C	0,11	0,21*	0,02	1,53	0,04	0,10	0,01	-0,48
Depression: Scale D	0,21**	0,29**	0,16*	1,17	0,06	0,14	0,01	-0,69
Depression: Scale E	0,08	0,09	0,07	0,16	0,11	0,24**	0,03	-1,07
Depression: Total	0,26**	0,38**	0,16*	**2,10***	0,14	0,24**	0,09	-0,91

** $\rho \leq 0{,}01$ (critical *z*-value – two-tailed = 2,58)

* $\rho \leq 0{,}05$ (critical *z*-value – two-tailed = 1,96)

From Table 10, it seems that there are significant relationships (on the 1% significance level) between three of the five subscales (scales A, B and D), as well as the total depression scores and the witnessing of violence for the total group. For the Northern Sotho group there were also significant relationships between four of the five depression subscales (scales A, B, C and D) as well as the total score and the witnessing of violence. On the five percent significance level there were also significant relationships between two of the subscales (scales B and D), as well as the total depression score and the witnessing of violence for the Venda adolescents.

Furthermore, it seems from Table 10 that there were significant differences (on the 5% level) in the correlations between the two language groups regarding subscale B and the total depression score and the witnessing of violence. This relationship was often higher for the Northern Sotho than for the Venda speakers.

It is also evident that the only significant relationship (on the 5% level) exists on sub-scale B between victimization and the total group. For the Northern Sotho group, subscale B, subscale E, as well as the total depression score displayed significant relationships with victimization. No significant relationships between the victimization and depression scores were found for the Venda group.

As discussed earlier in the present article, international studies have found that victimization and witnessed violence can have a differential effect on the corresponding distress experienced for those exposed. In the case of the present study, it seems that victimization has a weaker overall association with depression than witnessed events, for both groups.

Table 11: Correlation coefficients between depression and exposure to violence (total) for the language and total groups

Depression	**Total: Exposure to violence**			
	Total group	***N. Sotho***	***Venda***	***z***
Depression: Scale A	0,20**	0,28**	0,12	1,42
Depression: Scale B	0,31**	0,43**	0,21*	1,63

Depression: Scale C	0,15*	0,23*	0,08	1,22
Depression: Scale D	0,20**	0,31**	0,12	1,69
Depression: Scale E	0,16**	0,20*	0,13	0,57
Depression: Total	0,29**	0,43**	0,18*	2,44*

** $\rho \leq 0,01$ (critical *z*-value – two-tailed = 2,58)

* $\rho \leq 0,05$ (critical *z*-value – two-tailed = 1,96)

No significant differences between the two language groups were found for the correlations in Table 11. However, significant relationships exist for both the total group (Venda and Northern Sotho) and the Northern Sotho speakers alone, between exposure to violence (total) and all the depression subscales and the total depression score. Furthermore, the significant correlation that was found for the total group was mainly owing to the strong relationships that applied to the Northern Sotho respondents. At the 1% level, for the Venda, there were no significant correlations between these variables. The effect sizes for the statistically significant correlation coefficients were, however, small to medium.

Furthermore, it seems that there were significant differences on the 5% level regarding the correlation of the depression scores and exposure to violence (total score) for the two language groups. The relationship was higher for the Northern Sotho than for the Venda-speaking respondents.

To summarise, Subscale A (negative mood), Subscale B (interpersonal problems), Subscale C (ineffectiveness), Subscale D (anhedonia) and Subscale E (negative self-esteem) and the total score on the CDI were all significantly correlated with the total exposure to violence for the Northern Sotho participants and the total sample, but no

significant correlations with these variables were found for the Venda in particular. This suggests that despite the two groups being exposed to similar overall levels of violence and despite there being no significant overall differences between the two groups in respect of the prevalence of depression, the strengths of the correlations between the two variables of total violence and depression are different for the groups.

The same correlation analysis as the one used above is computed in the following tables for the boys and girls in the separate language groups. Also included are the witnessed and victimization variables. The results of the Northern Sotho and Venda respondents are displayed in Tables 12 and 13 respectively.

Table 12: Correlation coefficients between depression and exposure to violence (witnessed, victimization and total) for the Northern Sotho boys and girls

Depression	**Witnessed**			**Victimization**			**Total**		
	Girls	***Boys***	***z***	***Girls***	***Boys***	***z***	***Girls***	***Boys***	***z***
Depression: Scale A	0,39**	0,18	1,25	0,19	-0,01	1,10	0,39**	0,14	1,47
Depression: Scale B	0,37**	0,65**	-1,67	0,30*	0,27	0,14	0,39**	0,56**	-0,95
Depression: Scale C	0,22	0,20	0,11	0,19	-0,01	1,10	0,28*	0,17	0,62
Depression: Scale D	0,27*	0,33**	-0,37	0,23	0,03	1,14	0,35**	0,30*	0,31
Depression: Scale E	0,01	0,16	-0,77	0,20	0,30*	-0,55	0,16	0,26	-0,54
Depression: Total	0,44**	0,36**	0,54	0,35**	0,13	1,33	0,51**	0,36**	1,06

** $\rho \leq 0,01$ (critical *z*-value – two-tailed = 2,58)

* $\rho \leq 0,05$ (critical *z*-value – two-tailed = 1,96)

For the Northern Sotho girls, there is a significant relationship (on the 1% level) between the witnessing of violence, victimization and the total exposure to violence and the total depression scores, as well as the subscale B score. In addition, significant relationships were found between the depression subscales A and D and the witnessing of violence.

A significant relationship on the 1% level was found for the total depression score and the witnessing of violence and the total exposure to violence for the Northern Sotho boys. There were also significant relationships between depression subscales B and D and the witnessing of violence for these boys. The relationship between the subscale E and victimization was also significant. According to the computed *z*-value, no significant differences were found between the correlations for the two genders.

Table 13: Correlation coefficients between depression and exposure to violence (witnessed and victimization) for the Venda boys and girls

Depression	**Witnessed**			**Victimization**			**Total**		
	Girls	***Boys***	***z***	***Girls***	***Boys***	***z***	***Girls***	***Boys***	***z***
Depression: Scale A	0,13	0,12	0,06	0,03	0,13	-0,62	0,11	0,14	-0,19
Depression: Scale B	0,13	0,33*	-1,03	0,24	-0,04	1,39	0,23	0,23	0,00
Depression: Scale C	0,10	-0,02	0,73	0,11	-0,09	1,22	0,22	-0,03	1,55
Depression: Scale D	0,19	0,16	0,20	0,02	0,01	0,06	0,13	0,13	0,00
Depression: Scale E	0,14	0,04	0,60	0,20	-0,16	**2,18***	0,31**	0,01	1,86
Depression: Total	0,21*	0,16	0,34	0,15	0,05	0,66	0,26*	0,14	0,82

** $\rho \leq 0,01$ (critical *z*-value – two-tailed = 2,58)

* $\rho \leq 0,05$ (critical *z*-value – two-tailed = 1,96)

The total depression score of the Venda girls showed a significant relationship (on the 1% level) with the witnessing of violence as well as the total exposure to violence. There was also a significant relationship on the 1% level between Subscale E and the total exposure to violence.

For the Venda boys, the only significant relationship on the 1% level was between the total depression score and the total exposure to violence. On the 5% significance level, a significant relationship was found between Subscale B and the witnessing of violence.

Although no significant relationship was found between Subscale E and victimization for the boys and girls, the computed z-value indicated that these two coefficients differ statistically from one another to a significant degree.

CONCLUSION

In the comparison with regard to gender, no significant differences were found in terms of overall exposure to violence between males and females. With regard to depression, the total group of girls had a remarkably higher prevalence of depression. Regarding ethnic comparison, no significant differences were found in terms of overall exposure to violence, or for witnessed events. However, as far as victimization was concerned, the Venda had been victims significantly more often. In terms of depression, Venda and Northern Sotho females had a similar prevalence of depression, but Northern Sotho and Venda boys differed significantly. The correlation between victimization and total group depression was relatively low for the Northern

Sotho group, and non-existent for the Venda group. A significant correlation was found between total exposure to violence and depression for the overall group. This was mostly owing to the strength of the Northern Sotho depression and exposure-to-violence correlations.

A valuable aspect of the study is that the violence exposure events were broken down into two categories, namely witnessed violence and direct victimization, which were then compared in terms of their relative correlations to depressive symptoms. This provided a more detailed picture of the nature of the predictor variables. In addition, the sample size was quite large, which adds to the potential generalizability of the findings. Another notable element of the study was that it compared the prevalence of depression between specific language groups, as opposed to using a heterogeneous sample, in which possible differences between groups may be overlooked. However, the aforementioned does not imply that the findings should not be interpreted with caution.

The possible limitation concerns language. The tests administered for the study were in English, which may not be a language spoken regularly among the Venda and Northern Sotho participants. Despite English being a language of instruction in both schools, it is possible that in certain cases misinterpretation of the questions occurred, owing to the words being misunderstood. It could be hypothesized that if the questionnaires had been translated into the participants' home languages, the results may have provided a more accurate picture.

The CDI was developed to assess the depression symptoms of children between the ages of 12 and 17. Due to practical reasons the present sample, however, also included 18-year-old participants. In historically black schools (learners of 18 years and even older are often in the same grades as much younger learners.) This is a variable future researchers in this and related fields should take into account.

It is important that the findings regarding the exposure to violence should be interpreted against the fact that only the incidence of violent events was measured --- not the degree of intensity of the specific event. Therefore violent events of different degrees of intensity were reported, ranging from children hitting each other to serious assault with severe injuries. In addition, the relatively high prevalence should be interpreted with care. For example, 51% of the Venda girls had witnessed someone kill themselves or attempt to kill themselves. This does not necessarily mean that they had all witnessed separate events. It is possible that they had witnessed the same incident, or a few incidents of this nature, in a group context.

Another lacuna of this study is its lack of generalizability to adolescents from other geographic regions. There are possibly significant differences in the levels of violence experienced between rural regions, such as the one where this study was conducted, and urban areas in South Africa. Previous research has indicated that urban settings often have a greater incidence of violence than sub-urban and rural environments (Singer et al., 1995). Further investigation in this regard is therefore required in South Africa. Additionally, other language groups in South Africa may have different intervening variables from those that are applicable to this Venda and Northern Sotho sample from the Limpopo Province. For example, if one compares white language

groups to black language groups, there may be different rates of exposure and prevalence of depression. This could perhaps be related to different socio-economic statuses, different socio-political experiences, and many other differing degrees of intervening stressors between the groups. Such differences may also be found when comparing other black language groups, for example in cases where there are political differences and conflict between groups in certain regions of South Africa. Thus, there may not be significant differences between the two language groups in this particular study, but there may nevertheless be differences between other language groups in South Africa.

It should also be taken into account that the study relies exclusively on self-reported data, which may not be entirely accurate, owing to the presence of a possible self-report bias. Multiple-measurement for depression would have made the prevalence results more reliable, such as the inclusion of a clinical assessment from a trained clinician to determine the presence of depression.

In the light of the prevalence of depression in the study, the widespread nature of violence occurring in South Africa, and the correlation between exposure to violence and depression, it is clear why adolescents' exposure to violence and mental health are very serious concerns. It seems that, when conducting future research in this regard, it would be advisable to evaluate other intervening variables that may provide greater insight into the relationship between depression and exposure to violence. It is furthermore recommended that researchers should differentiate between the different types of violent events (e.g. community violence versus domestic violence; physical abuse versus psychological abuse). The correlation between depression and a specific

event should identify which variables increase the risk of depression. Correlations with demographic variables such as economic status, the number of people in one's home, and parental education could also be valuable in this regard.

A possible point of departure for intervention in respect of/to the mental health situation in South Africa would be to find out how to enhance the pre-existing strengths and resources that communities already have, which have contributed to the resilience of certain people in the face of adversity. Children could be taught effective coping and problem-solving techniques in the schools, to help to empower them against the stressors surrounding them. Moreover, all levels of society must play an active role in trying to address the current strife going on in South Africa, from the micro- to the macro-level of society. Teachers, parents, health care workers and children need to be educated in how to identify individuals who may be suffering from depression. This would assist in getting proper help to those who need it, before depression seriously affects all levels of a child's functioning. Moreover, awareness must be created in respect of how violence can adversely affect those who are exposed to it. Where finances are often lacking and hiring professional mental health care workers is not a viable option, communities need to be encouraged and taught how to create support groups within their neighbourhoods, and especially in their schools, to help support those who are most vulnerable.

REFERENCES

Amaya-Jackson, L. (1995). *Child's Exposure to Violence Form*. Durham, NC: Center for Child and Family Health, Duke University.

American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders* (4th ed., text revision). Washington, DC: Author.

Anda, R.F., Whitfield, C.L., Felitti, V.J., Chapman, D., Edwards, V.J., Dube, S.R. & Williamson, D.F. (2002). Adverse Childhood Experiences, Alcoholic Parents, and Later Risk of Alcoholism and Depression. *Psychiatric Services, 53,* 1001-1009.

Berton, M.W. & Stabb, S. D. (1996). Exposure to violence and post-traumatic stress disorder in urban adolescents. *Adolescence, 31,* 489-498.

Carson, R.C., Butcher, J.N. & Mineka, S. (2000). *Abnormal psychology and modern life* (11th ed.). Boston: Allyn and Bacon.

Cooley, M., Turner, S.M. & Beidel, D.C. (1995). Assessing Community Violence: The Children's Report of Exposure to Violence. *Journal of the American Academy of Child and Adolescent Psychiatry, 34(2),* 201-208.

Cooley-Quille, M. (2001). Emotional and behavioural impact of exposure to community violence in inner-city adolescents. *Journal of clinical child psychology, 30,* 199-207.

Cooley-Quille, M.R., Turner, S.M. & Beidel, D.C. (1995). Emotional Impact of Children's Exposure to Community Violence: A preliminary Study. *Journal of the American Academy of Child and Adolescent Psychiatry, 34 (10),* 1362-1368.

Crouch, J., Hanson, R., Saunders, B., Kilpatrick, D. & Resnick, H. (2000). Income, Race/Ethnicity, and exposure to violence in youth: Results from the national survey of adolescents. *Journal of community psychology, 28,* 625-641.

Delaney-Black, V., Covington, C., Ondersma, S.J., Nordstrom-Klee, B., Templin, T., Ager, J., Janisse, J. & Sokol, R.J. (2002). Violence exposure, trauma, and IQ and/or reading deficits among urban children. *Archives of Pediatric and Adolescent Medicine, 156*, 280-285.

Dixon, W.J. (1985). *Biomedical computer programs*. Berkeley, CA: University of California Press.

Ensink, K., Robertson, A.B., Zissis, C. & Leger, P. (1997). Post-traumatic stress disorder in children exposed to violence. *South African Medical Journal, 11,* 1526-1530.

Farrel, A.D. & Bruce, S. E. (1997). Impact of exposure to community violence on violent behavior and emotional distress among urban adolescents. *Journal of Clinical Child Psychology, 26(1),* 2-14.

Fehon, D., Grilo, C. & Lipschitz, D. (2001). Gender differences in violence exposure and violence risk among adolescent inpatients. *The Journal of Nervous and Mental Disease, 189,* 532 -540.

Fitzpatrick, K.M. & Boldizer, J.P. (1993). The prevalence and consequences of exposure to violence among African-American Youth. *Journal of the American Academy of Child and Adolescent Psychiatry, 32 (2), 424-430*.

Flannery, D.J., Singer, M. L. & Wester, K. (2001). Violence exposure, psychological trauma, and suicide risk in a community sample of dangerously violent adolescents. *Journal of the American Academy of Child Psychiatry*, *40*, 435-442.

Freeman, L.N., Mokros, H. Poznanski, E.O. (1993). Violent events reported by normal urban school-aged children: Characteristics and depression correlates. *Journal of the American Academy of Child and Adolescent Psychiatry*, *32(2),* 419-423.

Giaconia, R.M., Reinherz, H.Z., Silverman, A.B., Pakiz, B., Frost, A.K. & Cohen, E. (1995). Traumas and Posttraumatic stress disorder in a community population of older adolescents. *Journal of the American Academy of Child and Adolescent Psychiatry, 34,* 1369-1380.

Goenjian, A.K., Steinberg, M.L., Fairbanks, L.A., Alverez, M.L., Goenjian, H.A. & Pynoos, R.S. (2001). Post-traumatic stress and depressive reactions among Nicaraguan adolescents after Hurricane Mitch. *American Journal of Psychiatry, 158,* 788-794.

Goguen, C. (2003). *The Effects of Community Violence on Children and Adolescents.*A National Center for PTSD Fact Sheet. Retrieved from http://www.ncptsd.org/facts/specific _child_com_viol.html; September 16, 2003.

Gorman-Smith, D. & Tolan, P. (1998). The role of exposure to community violence and developmental problems among inner-city youth. *Development and Psychopathology*, *10,* 101-116.

Govender, K. & Killian, B.J. (2001). The Psychological effects of chronic violence on children living in South African townships. *South African Journal of Psychology, 31,* 1-11.

Howell, D.C. (2002). *Statistical methods for psychology* (5th ed.). Johannesburg: Duxbury.

Huysamen, G.K. (1994). *Metodologie vir die sosiale en gedragswetenskappe*. Halfweghuis: Southern.

Jaffe, P., Wolfe, D., Wilson, S. & Zak, L. (1986). Similarities in behavioural and social maladjustment among child victims and witnesses to family violence. *American Journal of Orthopsychiatry, 56,* 142-146.

Kliewer, W., Oskin, D., Johnson, P. & Lepore, S. (1998). The Role of Social and Cognitive Processes in Children's Adjustment to Community Violence. *Journal of Consulting and Clinical Psychology*, *66(1),* 199-209.

Kovacs, M. (1992). *Children's Depression Inventory*. Toronto: Multi-health systems.

Lei Yu, D. & Seligman, M.E.P. (2002). Preventing Depressive Symptoms in Chinese Children. *Prevention & Treatment, 5.* Retrieved from http://journals.apa.org/ prevention/volume5/pre0050009a.html on September 22, 2003.

Lipschitz, D., Grilo, C., Fehon, D., McGlashan, T. & Southwick, S. (2000). Gender differences in the associations between posttraumatic stress symptoms and problematic substance use in psychiatric inpatient adolescents. *Journal of Nervous and Mental Disease, 188,* 349-356.

Martin, S. L., Sigda, K. B. & Kupersmidt, J. B. (1998). Family and neighborhood violence: predictors of depressive symptomatology among incarcerated youth. *The Prison Journal, 78*, *(4),* 423-438.

Martinez, P. & Richters J.E. (1993). The NIMH Community Violence Project: II. Children's distress symptoms associated with violence exposure. *Psychiatry, 56*, 22-35.

Mazza, J.J. & Reynolds, W.M. (1999). Exposure to violence in younger inner-city adolescents: Relationships with suicidal ideation, depression, and PTSD symptomatology. *Journal of Abnormal Child Psychology, 27*, 203-213.

Mghir, R. & Raskin, A. (1999). The psychological effects of the war in Afghanistan on young Afghan refugees from different ethnic backgrounds. *International Journal of Social Psychiatry, 45*, 29-40.

Miller, L.S., Wasserman, G.A., Neugebauer, R., Gorman-Smith, D. & Kamboukos, D. (1999). Witnessed community violence and anti-social behaviour in high-risk, urban boys. *Journal of Clinical Child Psychology*, *28(*1), 2-11.

Muller, Y. (2001). *Adolescents' experience of violent episodes.* Unpublished master's thesis, Department of Psychology, University of Potchefstroom, Potchefstroom.

Myers, M.A., & Sanders Thompson V.L. (2000). The impact of violence exposure on African American youth in context. *Youth & Society*, *32(*2), 253-267.

Naidoo, K. (2002). *Literature Review for Depression in Adolescents.* Alberta Mental Health Board. Retrieved from http://www.amhb.ab.ca/chmh/resources/page. cfm?pg=Depression on November 24, 2003.

Osofsky, J.D., Wewers, S., Hann, D.M. & Fick, A.C. (1993). Chronic community violence: What is happening to our children? *Psychiatry*, *56*, 36-45.

Overstreet, S., Dempsey, M., Graham, D. & Moely, B. (1999). Availability of family support as a moderator of exposure to community violence. *Journal of Clinical Psychology*, *28(*2), 151-159.

Pelcovitz, D., Kaplan, S.J., DeRosa, R.R., Mandel, F.S. & Salzinger, S. (2000). Psychiatric disorders in adolescents exposed to domestic violence and physical abuse. *American Journal of Orthopsychiatry, 70*, 360-368.

Perilla, J., Norris, F. & Lavizzo, E. (2002). Ethnicity, Culture, and Disaster Response: Identifying and explaining ethnic differences in PTSD six months after Hurricane Andrew. *Journal of Social and Clinical Psychology, 21,* 20-45.

Pynoos, R., Frederick, C., Nader, K., Arroyo, W., Eth, S., Nunez, W., Steinbert, A. & Fairbanks, L. (1987). Life threat and posttraumatic stress in school age children. *Archives of General Psychiatry, 44,* 1057-1063.

Reinherz, R.M., Giaconia, R.M., Carmola Hauf, A.M., Wasserman, M.S. & Paradis, A.D. (2000). General and specific childhood risk factors for depression and drug disorders by early adulthood. *Journal of the American Academy of Child and Adolescent Psychiatry, 39*, 223-231.

Riley, A.W., Ensminger, M.E., Green, B. & Kang, M. (1998). Social role functioning by adolescents with psychiatric disorders. *Journal of the American Academy of Child and Adolescent Psychiatry, 36,* 620-628.

SAS Institute. (1985). *SAS user's guide: Statistics version.* (5th ed.). Cary, NC: Author.

Saigh, P. (2001). The development of posttraumatic stress disorder following four different types of traumatization. *Behavioural Research Therapy, 29(*3), 213-216.

Schwab-Stone, M., Chuansheng, C., Greenberger, E., Silver, D., Lichtman, J. & Voyce, C. (1999). No safe haven II. The Effects of Violence Exposure on Urban Youth. *Journal of the American Academy of Child and Adolescent Psychiatry, 38*(4), 359-367.

Seedat, S., van Nood, E., Vythilingum, B., Stein, D.J. & Kaminer, D. (2000). School survey of exposure to violence and posttraumatic stress symptoms in adolescents. *South African Journal of Child and Adolescent Mental Health, 12,* 38-44.

Seedat, S., Nyamai, C., Njenga, F., Vythilingum, B. & Stein, D.J. (in press). Trauma exposure and posttraumatic stress symptoms in adolescents: A schools survey in Cape Town (South Africa) and Nairobi (Kenya). *British Journal of Psychiatry.*

Shannon, M.P., Lonigan, J., Finch, A. & Taylor, C.M. (1994). Children exposed to disaster: I. Epidemiology of post-traumatic symptoms and symptom profiles. *Journal of the American Academy of Child and Adolescent Psychiatry*, *33(*1), 80-93.

Singer, M.I., Anglin, T.M., Song, L.Y. & Lunghofer, L. (1995). Adolescents' exposure to violence and associated symptoms of psychological trauma. *Journal of the American Medical Association, 273,* 477-482.

Slovak, K. & Singer, M. (2000). Gun violence exposure and trauma among rural youth. *Violence and Victims, 16,* 389-400.

Steyn, H.S. (1999). *Praktiese beduidendheid: Die gebruik van effekgroottes*. Potchefstroom : Publikasiebeheerkomitee, PU vir CHO.

Strober, M., Lambert, C., Schmidt, S. & Morrel, W. (1993). The course of major depressive disorder in adolescents: I. Recovery and risk of manic switching in a follow-up of psychotic and nonpsychotic subtypes. *Journal of American Academy of Child and Adolescent Psychiatry, 32,* 34-42.

Vermeiren, R., Schwab-Stone, M., Deboutte, D., Leckman, P.E. & Ruchkin, V. (2003). Violence exposure and substance use in adolescents: Findings from three countries. *Pediatrics,* 3, 41- 58.

Ward, C., Flisher, A., Zissis, C., Muller, M. & Lombard, C. (2001). Exposure to violence and its relationship to psychopathology in adolescents. *Injury Prevention, 7,* 297-301.

Zissis, C., Ensink, K. & Robertson, B. (2000). A community study of taxi violence and distress symptoms among youth. *Southern African Journal of child and adolescent mental health, 12,* 151-161.

Posttraumatic stress disorder and exposure to violence among Venda and Northern Sotho adolescents

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POSTTRAUMATIC STRESS DISORDER AND EXPOSURE TO VIOLENCE AMONG VENDA AND NORTHERN SOTHO ADOLESCENTS

Abstract

The epidemiology of PTSD among adolescents in South Africa has not received the necessary research attention. In this study two research questions were posed. Firstly, to what extent do violence variables lead to PTSD in South African adolescents? Secondly, what is the prevalence of PTSD among Venda and Northern Sotho adolescents? A total of 186 Venda and 151 Northern Sotho adolescents were incorporated in the present study, in order to determine this relationship. Two measuring instruments were used: The Child PTSD Checklist and the Child Exposure to Violence Form.

Almost half of the participants met the criteria of PTSD. A strong correlation between exposure to violence and the likelihood of developing PTSD was found. Regarding ethnicity, there seem to be no significant differences for the prevalence of PTSD or overall exposure to violence. However, Venda youth appear to be subjected to a higher rate of victimization than the Northern Sotho adolescents. Concerning the relationship between victimization and witnessed violence, there was a limited relationship between victimization on the one hand, and PTSD subscales and total PTSD scores, on the other, for the Venda adolescents. No gender differences regarding the prevalence of PTSD and exposure to violence were found.

The shortcomings of the study are discussed and recommendations made.

Samevatting

Die epidemiologie van PTSV onder adolessente in Suid-Afrika ontvang nie die nodige navorsingsaandag nie. In hierdie studie is twee navorsingsvrae gestel. Eerstens, tot watter mate lei geweldsfaktore tot PTSV by Suid-Afrikaanse adolessente? Tweedens, wat is die prevalensie van PTSV by Venda en Noord-Sotho adolessente? In die huidige studie is 'n totaal van 186 Venda en 151 Noord-Sotho adolessente as deelnemers gebruik. Twee meetinstrumente is gebruik: Die Child PTSD Checklist en die Child Exposure to Violence Form.

Ongeveer die helfte van die adolessente het aan die kriteria van PTSV voldoen. 'n Sterk verband tussen blootstelling aan geweld en die moontlikheid om PTSV te ontwikkel, is gevind. Geen betekenisvolle etniese verskille is ten opsigte van die prevalensie van PTSV of blootstelling aan geweld gevind nie. Venda adolesssente het egter 'n hoër viktimisasiekoers as die Noord-Sotho adolessente getoon. Wat die verband tussen viktimisasie en aanskou van geweld betref, was daar 'n beperkte verband tussen viktimisasie aan die een kant, en PTSV subskale en totale PTSV telling vir die Venda adolessente. Geen geslagsveskille ten opsigte van die prevalensie van PTSV en blootstelling aan geweld is gevind nie.

Die tekortkominge van die studie word bespreek en aanbevelings gemaak.

Introduction

It is a grave phenomenon that many children worldwide are exposed to stress variables that can have detrimental effects on their psychological well-being. Many authors such as Baker (1991), Chih-Hao and Jing-Houng (1997) and Poelmans (2001) have pointed out that a strong correlation exists between stressors and mental health. In a significant number of cases, a severe stressor can predispose children and adolescents to the development of post-traumatic stress disorder (PTSD) (Giaconia, Reinherz, Silverman, Pakiz, Frost & Cohen, 1995; Goenjian et al., 2001; Shannon, Lonigan, Finch & Taylor, 1994). This disorder occurs in individuals who have been exposed to a traumatic event and is characterised by the persistent re-experiencing of the specific event, avoidance of stimuli associated with the trauma, and increased arousal such as irritability, concentration problems and an exaggerated startle response (American Psychiatric Association, 2000).

As a result of various stressors, exposure to violence being a powerful contributor, South Africa is viewed as one of the most stressful societies in the world. Such conditions have led to a relatively high prevalence of PTSD among South African youth. Findings in this regard vary between 5 % and 22 % (Blignaut, 1995; Ensink et al., 1997; Peltzer, 1999; Seedat, Van Noord, Vythilingum, Stein & Kaminer, 2000; Seedat, Nyamai, Njenga, Vythilingum & Stein, in press). The corresponding international figures usually range from 2% to 6% (Mash & Wolfe, 2002; Giaconia, Reinherz, Silverman et al., 1995).

Unfortunately, the epidemiology of PTSD among adolescents in South Africa has not received the research attention in all areas that it deserves. In this study two related areas were investigated. Firstly, to what extent do violence variables lead to PTSD in individuals living in the unique South African context? Despite such variables being identified in studies especially those carried out in first-world countries, the psycho-political history of South Africa is such that the results are not always relevant or applicable. Secondly, what is the prevalence of PTSD among two specific ethnic groups in South Africa and do these groups display any differences in this regard?

Exposure to violence and PTSD

Apart from the possibility of developing PTSD after exposure to traumas such as accidents and natural disasters, children can develop PTSD after exposure to violence such as war, violent crime in

the community and physical or sexual abuse. Studies have found exposure to violence to be a strong predictor of PTSD in young victims, witnesses and those who have heard about violent events (Duckworth, Hale, Clair & Adams, 2000; Mazza & Reynolds, 1999; Singer, Anglin, Song & Lunghofer, 1995; Slovak & Singer, 2001). When compared with other environmental stressors, such as neighbourhood disadvantage and discrimination, exposure to violence has the strongest correlation with PTSD symptoms (Myers & Thompson, 2000).

Within the scheme of exposure to violence, it has been suggested that certain characteristics of exposure can influence the impact and the nature of distress experienced by children. For example, one's proximity to a violent event appears to be related to the severity of one's traumatic distress. Pynoos et al. (1987) examined the psychological effects of a sniper's attack at an elementary school. They found that children who were situated closer to the line of fire experienced a higher intensity of PTSD symptoms.

A child's relationship with a victim can also affect the magnitude of the distress reaction suffered. In relation to the abovementioned study, children who knew the injured victims well had significantly more severe PTSD symptoms than those less acquainted (Pynoos et al., 1987). Martinez and Richters (1993) found supporting evidence that children who were exposed to violence involving their friends or relatives developed a greater degree of distress than in the case of violent events involving strangers.

When comparing the psychological distress experienced by victims and witnesses of violent events, there are contradictory findings as to whether there are differential responses. For example, in certain cases witnesses and direct victims have been found to exhibit similar stress reactions (Fitzpatrick & Boldizar, 1993; Saigh, 1991). In a notable study, Jaffe, Wolfe, Wilson and Zak (1986) compared boys who were victims of abuse with boys who were witnesses to violence between their parents. The young male witnesses of inter-parental violence had adjustment problems comparable to those experienced by actual victims of abuse. On the other hand, other researchers have determined that distress responses do differ between witnesses and victims of violence. In a study by Fitzpatrick (1993), victims of violence reported more depressive symptoms than witnesses. Furthermore, no significant relationship was found between witnessing violence and depression. Duckworth et al. (2000) also found differences between stress responses of direct victims and witnesses of violent events. When compared to witnessed violence, direct victimization was the most predictive variable

for behavioural problems. In the light of the limited and conflicting evidence, it is uncertain at this time whether victims and witnesses of violence differ in their PTSD symptoms after exposure to violence.

Examining the psychological consequences for people who have had combined experiences of exposure to violence, there are once again conflicting findings. For example, Pelcovitz, Kaplan, De Rose, Mandel and Salzinger (2001) found a difference between children who were abused, and those who were abused but who were also witnesses of inter-parental violence. Those who were experiencing both forms of exposure, namely being a witness as well as a victim, had a higher risk of developing psychological disorders, such as depression and PTSD, than those who were only victims of abuse. However, Saigh (1991) compared the distress of those who had been both a witness and a victim of a violent event to that of those who had either been a witness or a victim. No differences in psychological sequelae were found.

Exposure to high frequencies of violence, such as chronic community violence, could be hypothesized to trigger more adverse psychological responses than low frequencies of exposure, suggesting an additive effect on the distress experienced. There is, however, opposing evidence in this regard. Cooley-Quille, Turner and Beidel (1995) investigated the emotional and behavioural consequences of high exposure and low exposure to violence. More symptoms of anxiety, fear, internalizing behaviour and negative life experiences were found for those exposed to high levels of violence than those with low exposure. Yet Cooley-Quille et al. (2001) did not find different frequencies of exposure to have differing impacts on the DSM-III-R diagnoses.

The nature of the actual violent act or event has been found to impact on the intensity of the distress. Certain researchers have found that sexual assault compared with other violent traumatic events has the strongest association with the development of PTSD (Breslau, Davis, Andreski & Peterson, 1991; Giaconia et al., 1995; Norris, 1994; Seedat et al., 2000). This finding, however, has not always been supported (Melton, 2003). With regard to non-sexual violence, owing to inconsistency across studies, it is unclear whether certain types of violent events have a significantly greater effect on distress than others.

Several researchers have attempted to determine which variables may predispose, aggravate or buffer the psychological effects of violent trauma. The following are notable examples of such research:

Regarding the variable of ethnicity presently under investigation, differences in the prevalence levels of PTSD have been found between ethnicities by certain researchers (Mghir & Raskin, 1999; Shannon et al., 1994). It has been suggested that these differences can be attributed, at least in part, to differential exposure to traumatic events. For example, in the United States minority males are exposed to higher levels of violence than white males (http://ncjrs.org/html/ojjdp/nationalreport99/chapter2). It is important to note that higher exposure to violence has been attributed to lower-income urban neighbourhoods, where in certain cases there are large minority populations (Berton & Stabb, 1996). It seems likely, when taking into account results from on-going research indicating that exposure to violence increases one's risk of PTSD, that since these individuals experience more violence, their prevalence of PTSD would be higher than that of those from less exposed ethnic groups. However, there is conflicting evidence as to whether this hypothesis is true. Not all studies have found differences in the prevalence of PTSD between ethnicities after exposure to violence (Mazza & Reynolds, 1999; Pynoos et al., 1987; Singer et al., 1995). Nevertheless, even when variables such as socio-economic standing and exposure to trauma are taken into account, differences in PTSD and anxiety symptoms are still believed to remain between ethnic groups (Crouch, Hanson, Saunders, Kilpatrick & Resnick, 2000; Neal & Turner, 1991; Perilla, Norris & Lavizzo, 2002).

Concerning the role of gender in relation to emotional distress experienced after exposure to violence, several studies have reported differences between males and females. On average girls appear to respond with more PTSD symptoms and general psychological distress than boys, although boys are exposed to higher overall degrees of violence. These differences have been corroborated by several international studies (Berton & Stabb, 1996; Fitzpatrick & Boldizar, 1993; Singer et al., 1995). The same pattern has been found in South Africa. Govender and Killian (2001) in Kwazulu-Natal found gender differences between the coping styles of males and females, as well as between their symptoms of distress. In this study boys had experienced more negative life events such as violence than the girls, yet they were experiencing fewer stress symptoms. This could be ascribed to the finding that the boys used a more problem-focused type of coping, which appears to be more effective than the emotion-focused approach used by girls. A survey from the Western Cape also found that girls responded with more PTSD symptoms than boys (Seedat et al., 2000). However, a more recent study by Seedat et al. (in press) did not find any significant differences between males and females in respect of partial or full PTSD among Kenyan and South African adolescents.

In terms of age, younger children were more likely to receive a diagnosis of PTSD, according to a study by Shannon et al. (1994), and also tended to experience more internalizing symptoms according to Schwab-Stone et al. (1999), while Fitzpatrick (1993) found them to have higher levels of depression than older children. However, age differences in respect of psychological distress after exposure to violence have not consistently been corroborated across studies (Fitzpatrick & Boldizar, 1993; Pynoos et al., 1987).

Familial factors can influence a person's chances of experiencing distress after a traumatic event. Variables such as a family history of mental illness and the divorce or separation of parents can increase the likelihood of PTSD developing in individuals (Breslau et al., 1991; Davidson, Hughes, Blazer & George, 1991). Parental distress, familial violence and low parental education have been correlated with greater distress for a child after exposure to violence, as well as a lack of social support (Kliewer, Oskin, Johnson & Lepore, 1998; Martinez & Richters, 1993).

It is widely accepted that the accumulation of stressors can cause definite elevated levels of strain on a child's ability to cope. For example, Myers and Thompson (2000) concluded that when a child is already experiencing high levels of environmental stress, he or she is more likely to develop PTSD symptoms than a child exposed to lower levels of stress. Kliewer et al. (1998) came to the same conclusion.

Although there are trends concerning the impact of certain variables, it remains clear that more in-depth research is needed to separate the pertinent from the inconsequential.

Comorbidity

Various psychological and physical syndromes and symptoms are associated with PTSD. Psychological disorders that can be concurrently present with PTSD include generalized anxiety disorder, panic disorder, major depressive disorder, obsessive-compulsive disorder, substance-related disorders, social and specific phobias, agoraphobia, bipolar disorder and conduct disorder (APA, 2000). Suicidal ideation seems to be a symptom associated with PTSD after exposure to violence (Mazza & Reynolds, 1999). Physical ailments such as gastrointestinal disorders, atherosclerotic heart disease and endocrine abnormalities are more common in individuals with PTSD than those without

PTSD (Friedman & Schnurr, 1996). In the educational and behavioural realms, PTSD has been correlated with diminished performance in school, as well as with interpersonal problems (Davidson et al., 1991; Giaconia et al., 1995).

METHODS

*Participants***.** Data were collected from two high schools in the Limpopo Province, South Africa. A total of 337 learners participated in the study. There were 180 adolescents with Venda as their home language and 150 with Northern Sotho. The age of the participants ranged from 15 to 18 years and they were in Grades 9 to 12. Regarding gender, there was a breakdown of 91 Venda females, 89 Venda males, 70 Northern Sotho females and 66 Northern Sotho males.

Measuring instruments. The following measuring instruments were used:

- *Child PTSD Checklist* (Amaya-Jackson, McCarthy, Newman & Cherney, 1995): This measuring instrument is used to determine the nature and intensity of PTSD symptoms in children and adolescents. The checklist comprises of 28 questions in which the participants are asked to rate, for each item, the degree to which the symptoms have been present in the past month on a 4-point Likhert scale, ranging from "not at all"(0) to "sometimes"(1), "most of the time"(2) and "all of the time"(3). In order for a symptom to be classified as present, the participant must have selected "most of the time" or "all of the time" on an item. For the purposes of the present study, the questions were grouped into three categories: Cluster B (Re-experiencing), Cluster C (Avoidance) and Cluster D (Hyperarousal). In order for the respondent to be be classified as having PTSD, he or she must have at least one symptom in Cluster B, three symptoms or more in Cluster C and two or more symptoms in Cluster D. In addition, the checklist has an open-ended question requiring the participants to write down three experiences from their past that they felt were frightening and to describe their associated feelings. Lipschitz, Grilo, Fehon, McGlashan & Southwick (2000) used a 1998 version of the form and found that it had acceptable psychometric properties. To add to the information reflected in this checklist concerning the South African situation, the psychometric characteristics for the present populations were also calculated. See Table 1.

Table 1: Reliability of the Child PTSD Checklist by means of Cronbach alpha

Scale/Total	Total group	Northern Sotho	Venda
PTSD - Cluster B	0,65	0,68	0,62
PTSD – Cluster C	0,60	0,66	0,53
PTSD – Cluster D	0,50	0,53	0,47
PTSD – Total	0,82	0,84	0,79

Coefficients for the respective subscales (clusters) were relatively low for both of the language groups as well as the total group. Regarding the PTSD total, acceptable reliability indexes were obtained for both of the two language groups as well as the collective (total) group.

- *Child's Exposure to Violence Form* (CEVF) (Amaya-Jackson, 1995). This questionnaire, containing 34 items in total, was used to assess the participants' exposure to community violence. The form was modified so that the questions were separated into two categories of witnessed and victimization events. For one of the statistical analyses, a separate correlation was done between depression and these two categories, in which not all questions from the original form were included into the groupings. In addition, two questions regarding sexual assault were removed and replaced with two new questions on whether the learners had seen or participated in a riot in their community. The reason for this alteration was that this topic was not covered by the CEVF and riots were occurring in the Limpopo province at the time of the study. Concerning the psychometric properties of the CEVF, Fehon, Grilo and Lipschitz (2001), after using a 1998 version of the form, determined that these properties were adequate.

Data on age, gender and home language were available as this information had to be filled in on the questionnaires.

English was confirmed by the headmasters of both schools to be one of the primary languages of instruction. As no Venda or Northern Sotho translations were available, the questionnaires were administered in English, the original language in which they had been authored.

*Procedure***.** After approval was granted by the Department of Education to conduct the study, the largest Venda-speaking high school and the largest Northern-Sotho-speaking high school of the Southpansberg district in the Limpopo Province were approached to participate in the study.

Data were collected on-site at the two high schools. The two questionnaires were administered to the learners by the researcher and with the assistance of the classroom teachers. The students were given a brief summary concerning the purpose of the study and guidance on how to fill in the forms correctly. The learners were assured that their responses would be kept confidential.

Statistical Analysis. Single scores were obtained, both in respect of PTSD as well as the participants' exposure to violence. In order to determine whether there were any significant differences between the mean PTSD scores for the two language groups, the *t*-test for independent samples was used, as computed with the aid of the SAS software programme (SAS Institute, 1985).

To determine whether there was indeed a positive relationship between the participants' PTSD scores and exposure to violence, the Pearson product-moment correlations coefficient (*r*) was computed with the SAS software programme (SAS Institute, 1985).

The third aim of this study was to determine whether the relationships between the two mentioned variables differed for the two language groups. This was achieved by computing the Fisher's *r* to Z transformation. In this case the null hypothesis states that the difference between two population correlations is equal to null, and this, according to Howell (2002), can be investigated in terms of the following statistic:

$$Z = \frac{r'_1 - r'_2}{\sqrt{\frac{1}{N_1 - 3} + \frac{1}{N_2 - 3}}}$$

where r'_1 and r'_2 are the *z*-values for the two correlations r_1 and r_2 respectively. The original correlation coefficients are thus transformed according to Fisher's *r* to *z* transformation before the test statistic can be computed.

In order to be able to comment on the practical import of statistically significant results which may have been found in this study, an investigation will also be conducted concerning the practical significance of the results. As a guideline to determine practical significance, effect sizes will be computed. In the computation of the practical significance of the *t*-test results, the effect size δ_a will be computed as follows (Steyn, 1999): $\delta_a = \mu_1 - \mu_2 / \sqrt{p\sigma^2_1 + q\sigma^2_2}$ where *p* and *q* indicate the proportion of participants from the two respective populations. The guidelines for interpretation which may be used here are as follows: 0.2 = small effect; 0.5 = medium effect; 0.8 = large effect (the absolute value of δ is given, as negative values can be obtained when $\mu_1 < \mu_2$).

The second aim of this study was to investigate the linear relationship between the mentioned variables, and in this instance Cohen (in Steyn, 1999) suggests that the correlation coefficient, viz. *p*, should be used as the effect size, and the guidelines which he suggests are as follows: 0.1 = small effect; 0.3 = medium effect; 0.5 = large effect.

Only when statistically significant results (on the 1% or 5% level of significance) were found, were the corresponding effect sizes computed.

RESULTS AND DISCUSSION

Before proceeding with the investigation on the stated research hypothesis, the descriptive statistics regarding exposure to violence for the total group will be displayed in Table 2a and Table 2b.

Table 2a: Percentages of exposure to separate violent incidents: language and gender

Exposure to violence	N. Sotho total		N. Sotho girls		N. Sotho boys		Venda total		Venda girls		Venda boys	
	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
Witnessed												
beating	**57,1**	42,9	**53,1**	46,9	**61,3**	38,7	**78,6**	21,4	**78,9**	21,1	**78,4**	21,6
Stabbing	36,9	63,1	36,7	63,3	37,3	62,7	49,6	50,4	**58,0**	42,0	41,7	58,3
Shooting	**54,6**	45,4	44,3	55,7	**65,5**	34,5	39,5	60,5	38,9	61,1	40,0	60,0
home violence	42,4	57,6	46,9	53,1	37,7	62,3	47,3	52,7	**52,8**	47,2	41,9	58,1
dead body	25,8	74,2	21,3	78,7	30,5	69,5	37,1	62,9	34,3	65,7	40,0	60,0
gun pulled	39,5	60,5	37,5	62,5	41,7	58,3	33,3	66,7	21,7	78,3	44,0	56,0
home shooting/stabbing	30,9	69,1	30,0	70,0	31,7	68,3	25,0	75,0	23,0	77,0	27,0	73,0
knife pulled	**59,7**	40,3	**63,1**	36,9	**56,2**	43,8	**54,4**	45,6	**56,9**	43,1	**52,0**	48,0
murder	43,1	56,9	38,7	61,3	47,5	52,5	35,2	64,8	31,2	68,8	39,7	60,3
suicide	44,4	55,6	41,2	58,8	48,2	51,8	44,9	55,1	**51,4**	48,6	38,4	61,6
sexual assault	39,4	60,6	36,4	63,6	42,6	57,4	39,9	60,1	43,9	56,1	36,1	63,9
riot	39,5	60,5	37,1	62,9	42,1	57,9	37,9	62,1	39,1	60,9	36,6	63,4
Victimization												
robbed	29,7	70,3	26,7	73,3	32,8	67,2	27,6	72,4	29,7	70,3	25,4	74,6
beaten up (threat)	41,1	58,9	43,3	56,7	38,7	61,3	**60,8**	39,2	**60,8**	39,2	**60,8**	39,2
beaten up	38,4	61,6	33,3	66,7	43,5	56,5	**55,1**	44,9	**53,6**	46,4	**56,4**	43,6
threat to be killed	24,8	75,2	18,5	81,5	31,3	68,7	29,7	70,3	28,6	71,4	31,0	69,0

Note: Majority in bold.

In terms of the different types of witnessed events, it is extremely alarming that over half of the Northern Sotho boys and girls had seen a person being shot; that the majority of the total sample had seen somebody threaten another person with a knife; and that 51.4% of the Venda girls had witnessed someone kill or attempt to kill themselves. Regarding victimization, it is disheartening that more than 50% of the the Venda adolescents, both boys and girls, have been beaten up. When comparing these incidents with other South African studies, one finds that there are certain similarities in percentages. For example, in two high schools in the Northwest province, 55% of the learners had observed a suicide (versus 41.2%-51.4% in the present study), and 30% had witnessed a sexual assault (versus 39%-44%) (Muller, 2001). A notable difference, however, was found in the case of physical assault. The adolescents from the present study have experienced twice as many incidents of physical assault victimization than those in the Northwest province sample. As far as being robbed is concerned, the the experiences of the present sample are similar to those of adolescents from a community in the Western Cape. In both studies approximately one third of the adolescents have been victims (Seedat et al., 2000).

Table 2b: Numbers and percentages of adolescents exposed as witnesses and victims and their total exposure to violence

Witness of at least one act of violence	**Northern Sotho**				**Venda**				**Total**			
	Girls		**Boys**		**Girls**		**Boys**		**Girls**		**Boys**	
	N	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
Yes	68	87,2	68	93,2	91	98,9	82	87,2	159	93,5	150	89,8
No	10	12,8	5	6,8	1	1,1	12	12,8	11	6,5	17	10,2
Column total	78	100,0	73	100,0	92	100,0	94	100,0	170	100,0	167	100,0
Victim of at least one act of violence	**Northern Sotho**				**Venda**				**Total**			
	Girls		**Boys**		**Girls**		**Boys**		**Girls**		**Boys**	
	N	**%o**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
Yes	45	57,7	48	65,8	71	77,2	73	77,7	116	68,2	121	72,5
No	33	42,3	25	34,2	21	22,8	21	22,3	54	31,8	46	27,5
Column total	78	100,0	73	100,0	92	100,0	94	100,0	170	100,0	167	100,0
Exposed to at least one act of violence	**Northern Sotho**				**Venda**				**Total**			
	Girls		**Boys**		**Girls**		**Boys**		**Girls**		**Boys**	
	N	**%o**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
Yes	72	92,3	68	93,2	92	100,0	88	93,6	164	96,5	156	93,4
No	6	7,7	5	6,8	0	0,0	6	6,4	6	3,5	11	6,6
Column total	78	100,0	73	100,0	92	100,0	94	100,0	170	100,0	167	100,0

As is evident above, the total group is exposed to incredibly high levels of violence. The respective percentages of the boys' and girls' exposure to violence are very similar, yet the girls in the present study did have a slightly higher percentage for overall exposure (96.5% vs. 93.4%). Although this is not a significant difference, it is of interest in the light of the fact that boys are often exposed to more violence than girls locally as well as internationally (Berton & Stabb, 1996; Govender & Killian, 2001).

Between ethnic groups there are a few notable differences. At least one violent event had been witnessed by 98.9% of the Venda girls, while 77.2% had been victims of violence and 100% had been exposed to an act of violence. In comparison, the corresponding percentages for the Northern Sotho girls are 87.2%, 57.7% and 92.3% respectively, which are markedly lower than for the Venda. In addition, with regard to victimization, notably more Venda boys and girls have been victims of violence compared to their Northern Sotho counterparts.

Below the numbers and percentages of girls and boys from the total group who have met the criteria for PTSD are displayed.

Table 3: Boys and girls who comply with the cut-off for PTSD (Cluster B = one symptom at least, Cluster C = at least 3 symptoms, Cluster D = two symptoms or more)

PTSD presence	Girls		Boys	
	N	%	N	%
Yes	73	42,9	71	42,5
No	97	57,1	96	57,5
Column total	170	100,0	167	100,0

It is shocking that nearly half of the adolescents have PTSD. It is clear that 144 out of the 337, that is 42.7% of the adolescents, have PTSD. This figure is immensely higher than those recorded in the findings of other South African and international studies, in comparison with which the present study indicates at least 20% more individuals suffering from PTSD than in many other groups. A notable exception is that of a study carried out in Detroit city in the USA among African American youth. Alarmingly and very similarly to those in the present study, 49.1% of the adolescents in this particular case had a PTSD diagnosis (Myers & Thompson, 2000).

In the light of the fact that the adolescents are exposed to extreme levels of violence, it is not surprising that they are experiencing an incredible amount of distress. However, it is not clear why, in relation to other South African adolescents who are experiencing comparably high levels of violence, the present study's adolescents are experiencing such a significantly higher prevalence of PTSD. Furthermore, an equivalent study (see Article 1) has been conducted with this same group of adolescents to determine the prevalence of depression and exposure to violence, and the findings were not nearly as extreme. The prevalence of depression for these same adolescents is comparable with other international findings. It is also a little higher than, yet similar to, the degree of prevalence recorded in South African research. Finally, Peltzer (1999) conducted a similar study, also in a rural area of the Limpopo Province and also with Northern Sotho adolescent participants, but the prevalence found for PTSD amounted to 8.4%. However, it is possible that part of the reason for the differences regarding prevalence may have something to do with some unique aspect of the particular district in which the adolescents are living, which may be a different district from the one discussed in Peltzer (1999). Taking into consideration all of the above-mentioned findings, it is evident that for the purpose of the current study, a deeper investigation is required into the circumstances that these particular Venda and Northern Sotho adolescents are experiencing.

In the following table the ethnic groups and genders were divided up in order to indicate their distribution in respect of PTSD.

Table 4: PTSD by ethnic group and gender

PTSD present	Northern Sotho				Venda			
	Girls		Boys		Girls		Boys	
	N	%	N	%	N	%	N	%
Yes	37	47,4	32	43,8	36	39,1	39	41,5
No	41	52,6	41	56,2	56	60,9	55	58,5
Column total	78	100,0	73	100,0	92	100,0	94	100,0

The above table indicates that 69 (45.7%) of the 151 Northern Sotho adolescents and 75 (40.3%) of the 186 Venda adolescents have PTSD symptoms. There are no real proportional differences between the two genders within each language group. As mentioned in the literature review, there is a study in South Africa which supports this finding (Seedat et al., in press). Similarily, no differences in the prevalence of PTSD were found between the Northern Sotho and Venda youth. Once again, as has been previously discussed in this article, there are international studies that have also not found any differences between ethnic groups in respect of PTSD (Mazza & Reynolds, 1999; Pynoos et al., 1987; Singer et al., 1995).

In order to investigate the first objective, the vector means of the PTSD scores, subscales (Clusters A, B, & C) and total scores, were compared for the two language groups as well as the two genders in each language group. The Hotelling T^2 test for independent groups was used and the computation was done by means of the BMDP P3D programme (Dixon, 1985). The results are displayed in Table 5.

Table 5: Means and standard deviations of the PTSD variables for the language groups

Post-traumatic stress	Northern Sotho			Venda		
	N	X	s	N	X	s
PTSD – Cluster B: Re-experiencing	151	9,08	5,15	186	8,85	4,82
PTSD – Cluster C: Avoidance	151	10,94	5,40	186	10,55	4,77
PTSD – Cluster D: Hyperarousal	151	6,27	3,68	186	6,23	3,54
PTSD – Total score	151	26,29	12,50	186	25,63	11,13

For the information in Table 4, a T^2 value of 0.72 was computed. This estimates an F-value of 0.24 for 3 and 333 degrees of freedom. This value, however, is not significant on at least the 5 % significance level (p=0.8679). Therefore it can be concluded that there were no significant differences in the mean PTSD scores for re-experiencing symptoms (Cluster B), avoidance symptoms (Cluster C), hyperarousal symptoms (Cluster D) and total scores for Northern Sotho- and Venda-speaking adolescents.

The following table compares the scores of the PTSD subscales and total scores for the Northern Sotho gender groups.

Table 6: Means and standard deviations of the PTSD variables for the Northern Sotho boys and girls

Post-traumatic stress	Girls			Boys		
	N	X	s	N	X	s
PTSD – Cluster B	78	8,76	5,16	73	9,42	5,15
PTSD – Cluster C	78	10,47	5,43	73	11,44	5,35
PTSD – Cluster D	78	6,26	3,68	73	6,29	3,71
PTSD – Total	78	25,49	12,57	73	27,15	12,45

For the information in Table 5, a T^2 value of 1.98 was computed. This estimates an F-value of 0.65 for 3 and 147 degrees of freedom. This value, however, is not significant on at least the 5 % significance level (p=0.5825). Consequently it can be concluded that no significant differences in the mean PTSD scores exist for Northern Sotho boys and girls.

The PTSD variables in respect of gender are examined in Table 7 for the Venda.

Table 7: Means and standard deviations for the PTSD variables for the Venda boys and girls

Post-traumatic Stress	Girls			Boys		
	N	X	s	N	X	s
PTSD – Cluster B	92	9,13	4,30	94	8,58	5,29
PTSD – Cluster C	92	11,62	4,54	94	9,50	4,79
PTSD – Cluster D	92	6,32	3,46	94	6,15	3,64
PTSD – Total	92	27,07	10,39	94	24,23	11,69

For the information in Table 6, a T^2 value of 14.77 was computed. This estimates an F-value of 4.87 for 3 and 182 degrees of freedom. This value is significant on the 1 % level (p=0.0028). The analysis was succeeded by a post-hoc *t*-test, according to which significant differences exist between the mean Cluster C scores for Venda boys and girls. According to Table 7, in comparison with the boys, the girls obtained higher mean scores in Cluster C (Avoidance).

Secondly, the question of whether a significant positive relationship exists between individuals' PTSD and their exposure to violence (witnessed, victimization and total) was investigated. For this objective the Pearson product moment correlation coefficient was computed. The relationships between these variables were firstly computed for the total group and then separately for the two

language groups as well as for the two genders in each language group. The results of these computations will be displayed in the following tables. Fisher's *r*-to-*z* transformation was used to determine whether any differences exist between these relationships for the various language and gender groups.

Table 8: Correlation coefficients between PTSD and exposure to violence (witnessed and victimization) for the total as well as separate language groups

	Witnessed violence				**Victimization**			
	Total group	***N. Sotho***	***Venda***	***z***	***Total***	***N. Sotho***	***Venda***	***z***
PTSD – Cluster B	0,39**	0,45**	0,33**	1,30	0,20**	0,28**	0,15*	1,26
PTSD – Cluster C	0,29**	0,44**	0,14	**3,04****	0,14*	0,21**	0,09	1,13
PTSD – Cluster D	0,29**	0,36**	0,24**	1,21	0,13*	0,22**	0,08	1,32
PTSD – Total	0,38**	0,48**	0,28**	**2,16***	0,19**	0,27**	0,13	1,34

** $\rho \leq 0{,}01$ (critical *z*-value – two-tailed = 2,58)

* $\rho \leq 0{,}05$ (critical *z*-value – two-tailed = 1,96)

It is clear from Table 8 that for the total group, significant relationships (on the 1 % level) exist between all of the clusters of PTSD as well as the PTSD total scores and the witnessing of violence. The finding that there is a significant relationship for the total group of Venda and Northern Sotho adolescents, between witnessed violent events and PTSD, is consistent with previous studies (Pynoos et al., 1987; Fitzpatrick & Boldizar, 1993; Singer et al., 1995). For the Northern Sotho group significant relationships between PTSD (clusters and total) and the witnessing of violence were also found. Significant relationships for two of the PTSD clusters and the PTSD total, in respect of the witnessing of violence, were found for the Vendas. Furthermore, it seems from Table 8 that significant differences in the correlations between the two language groups regarding Cluster C (avoidance) and the total PTSD score and the witnessing of violence. Often this relationship was higher for Northern Sotho than for Venda speakers.

For the total group (as shown in Table 8) all the PTSD clusters as well as the total score displayed a significant relationship with victimization, which is once again consistent with previous research findings (Singer et al., 1995; Myers & Thompson, 2000). For the Northern Sotho group, significant relationships to victimization were found for all the PTSD clusters and the PTSD total. For the Vendas, except for Cluster B, no significant relationships to victimization were found. However, no significant differences exist between the two language groups for these relationships.

The strongest relationship between PTSD symptoms and victimization occurs in the case of the Northern Sotho group. For the Venda group no significant relationship exists between exposure to violence and victimization, except for one PTSD subscale (Cluster B: re-experiencing). As discussed earlier, differences have been found between the psychological sequelae of victimization and witnessed violent events (Duckworth et al., 2000).

Table 8 (continued): Correlation coefficients between PTSD and exposure to violence (total) for the total as well as the separate language groups

	Total: Exposure to violence			
	Total group	***N. Sotho***	***Venda***	***z***
PTSD – Cluster B	0,47**	0,56**	0,39**	**2,03***
PTSD – Cluster C	0,30**	0,44**	0,16*	**2,85****
PTSD – Cluster D	0,31**	0,41**	0,22**	1,94
PTSD – Total	0,42**	0,54**	0,31**	**2,60****

** $\rho \leq 0,01$ (critical *z*-value – two-tailed = 2,58)

* $\rho \leq 0,05$ (critical *z*-value – two-tailed = 1,96)

According to Table 8, significant relationships exist (for the total group as well as the two language groups separately) between exposure to violence (total exposure) and all the PTSD clusters and the PTSD total score. All of these statistically significant correlation coefficients had a medium to large effect size. In other words, re-experincing, avoidance and hyperarousal symptoms and the PTSD total score are correlated with total exposure to violence for Venda and Northern Sotho adolescents.

In addition it seems from Table 8 that significant differences in the correlations between the two language groups exist regarding clusters B and C as well as the total PTSD score and exposure to violence (total score). This relationship to exposure to violence was stronger for the Northern Sotho individuals than the Venda youth.

The same correlations, as computed above, were repeated for boys and girls in the separate language groups. The results for the Northern Sotho and Venda adolescents are displayed in Tables 9 and 10 respectively.

Table 9: Correlation coefficients between PTSD and exposure to violence (witnessed, victimization and total) for the Northern Sotho boys and girls

Post-traumatic stress	**Witnessed violence**			**Victimization**			**Total**		
	Girls	***Boys***	***z***	***Girls***	***Boys***	***z***	***Girls***	***Boys***	***z***
PTSD – Cluster B	0,44**	0,46**	-0,15	0,34**	0,21	0,86	0,57**	0,53**	0,35

PTSD – Cluster C	0,40**	0,48**	-0,60	0,28*	0,14	0,90	0,46**	0,41**	0,37
PTSD – Cluster D	0,30**	0,42**	-0,84	0,27*	0,17	0,64	0,40**	0,43**	-0,22
PTSD – Total	0,44**	0,52**	-0,63	0,34**	0,20	0,92	0,56**	0,52**	0,35

** $\rho \leq 0,01$ (critical *z*-value – two-tailed = 2,58)
* $\rho \leq 0,05$ (critical *z*-value – two-tailed = 1,96)

The PTSD clusters and the total scores for the Northern Sotho girls had significant relationships to the witnessing of violence, victimization, as well as the total exposure to violence. All the coefficients are positives with medium to large effect sizes. The positive relationships imply that the more the subjects are exposed to violence, the more likely they are to develop PTSD symptoms.

Significant relationships exist for the Northern Sotho boys between PTSD clusters and total scores and the witnessing of violence and the total exposure to violence. In contrast to what was found in the case of the girls, no significant relationships between PTSD and victimization were found for the boys. The statistically significant coefficients are all positive with large effect sizes. The positive relationships imply that the more the subjects are exposed to violence (witnessed and total) the more likely they are to display PTSD symptoms.

According to the computed *z*-values no significant differences between the mentioned relationships exist for the two genders.

Table 10: Correlation coefficients between PTSD and exposure to violence (witnessed, victimization and total) for the Venda boys and girls

Post-traumatic stress	**Witnessed violence**			**Victimization**			**Total**		
	Girls	***Boys***	***z***	***Girls***	***Boys***	***z***	***Girls***	***Boys***	***z***
PTSD – Cluster B	0,13	0,45**	**-2,39***	-0,02	0,30**	**-1,96***	0,20	0,51**	**-2,43***
PTSD – Cluster C	-0,06	0,30**	-1,69	-0,02	0,22*	-1,38	-0,06	0,33**	-1,91
PTSD – Cluster D	0,25*	0,23*	0,14	0,08	0,08	0,00	0,17	0,26*	-0,64
PTSD – Total	0,11	0,40**	**-2,12***	0,01	0,25*	-1,66	0,11	0,45**	**-2,53***

** $\rho \leq 0,01$ (critical z-value – two-tailed = 2,58)
* $\rho \leq 0,05$ (critical z-value – two-tailed = 1,96)

A significant relationship (on the 5% level) was found between the witnessing of violence and PTSD Cluster D for Venda girls. This coefficient is positive with a medium effect size. None of the remaining clusters (of the total for PTSD) had any significant relationships to exposure to violence (for girls).

Significant relationships were found for Venda boys between PTSD clusters B and C and a total PTSD score, and witnessing of violence, victimization and the total exposure to violence. The

coefficients had medium to large effect sizes and are all positive. Again, this implies that the more violence the subjects witness or experience, the more likely they are to display PTSD symptoms.

According to the computed z-values, significant differences exist between boys and girls concerning the following variables:

* PTSD Cluster B and the witnessing of violence
* PTSD total and the witnessing of violence
* PTSD Cluster B and victimization
* PTSD Cluster B and total exposure to violence
* PTSD total and the total exposure to violence

CONCLUSION

Perhaps the most distressing of the present findings is that almost half of the participants had PTSD. Furthermore, the results point to the very serious reality that the more one is exposed to violence, the higher one's chances are of developing PTSD. This is extremely disconcerting considering the high levels of violence across South Africa. Regarding ethnicity, there seem to be no significant differences for the prevalence of PTSD or overall exposure to violence. However, Venda youth appear to be exposed to a higher rate of victimization than the Northern Sotho adolescents. Concerning the relationship between victimization and witnessed violence, there is a limited relationship between victimization and PTSD subscales and the total PTSD score for the Venda adolescents. No gender differences regarding the prevalence of PTSD and exposure to violence were found. However, some gender differences occurred for the relationship between exposure to violence and certain PTSD symptoms.

There are certain aspects of the study that could have an effect on the reliability of the results, and these shall be discussed as follows.

Language is one aspect that may have affected the reliability of the results of the questionnaires. Despite the fact that the principals of both schools reassured the researchers that their learners were at the recommended English comprehension level, there is a possibility that their knowledge of the English language was overestimated. This could be inferred on the basis of the fact that the majority

of the learners from both schools did not have English as their first language. This may have led to language comprehension problems when reading the items on both questionnaires.

The Child's Exposure to Violence Form was altered for the study and certain questions were eliminated in the comparison of witnessed and victimization events to depressive symptomatology. Adding new questions to the form and eliminating others may have affected its reliability, as well as this study's comparability to other studies using this questionnaire. Furthermore with regard to the questionnaire, it is suggested that for future research the questions should be refined in order to be more precise in defining the nature and severity of a violent incident. For example, in a case where a person has alledgedly been beaten up, the concept "beaten up" could imply a number of settings ranging from a small child's altercation to a severe criminal assault. In addition, when interpreting the answers to the questions, one must be cautious not to jump to conclusions regarding the exact details of events when a great deal of information is missing. For example, in the case of the Venda girls, a majority of the girls had witnessed a suicide situation; but perhaps this incident occurred in front of a large group of girls in the community. No definite conclusions can be reached. Ideally, the questionnaire could be given as an interview during which the exact details of each violent event could be recorded accurately. Alternatively, the questions could at least be formulated with greater detail in respect of the circumstances of the violent events (variables such as proximity to witnessed violent events and relationships to the victims and perpetrators could be added).

There are several factors that have affected the generalizability of the study. First of all, the age span that was used in the study only encompassed middle and late adolescence, while learners in their early adolescence were not included. Despite adolescense being quite a broad age range, generalizability to early adolescents is impeded. In addition, since middle and late adolescence were not separated so as to comprise independent variables in the study, one is not able to see whether there were significant differences between these two age groups in relation to exposure to violence and depression. Secondly, the study took place in two remote rural areas of the Limpopo province. It is a possibility that there are different rates of violence and varying types of stressors between rural and urban districts. For example, in the USA urban areas have been found to have a higher degree of exposure to violence than sub-urban regions (Berton & Stabb, 1996; Seedat et. al, 2000). Thus this study's generalizability to urban areas of South Africa is restricted. Thirdly, the two groups of participants in the study are relatively homogeneous populations; therefore, caution must be applied

when comparing this sample to more ethnically diversified populations, or to other homogeneous language group populations in South Africa.

During the study it became evident that certain aspects should be investigated further. For example, correlations between vicarious exposure to violence (e.g. hearing about violent events) and the prevalence of PTSD could be examined, taking into consideration the high incidence of violence that is prevalent in South Africa in particular. Even when one is not directly affected, such on-going exposure in one's community could greatly detract from one's emotional well-being and sense of security. In addition, differentiating in greater detail between community violence and domestic violence would help sharpen the focus for intervention purposes. This would assist in identifying where individuals are experiencing the majority of violence and which violent environments pose the greatest risk for children being adversely affected. Furthermore, a closer investigation into the different dimensions of domestic violence, for example an examination of the differential psychological effects between physical, sexual and psychological abuse and neglect, would provide a better understanding of the nature of abuse-related violence and its consequences. Moreover, the frequency of exposure could be included in the statistical analysis and independently correlated with depressive symptoms. This would allow one to see if there are differences between groups experiencing low exposure and those experiencing high exposure to violence groups in relation to the development of PTSD. A further examination could include a questionnaire focusing on life stressors and negative life events. Additional demographic variables such as family size and socio-economic status could have possible effects on PTSD symptoms experienced and exposure to violence, and it would thus be very important to examine these variables. Investigation into factors affecting resilience against exposure to violence, such as social support and the subjects' style of coping, could help to bring greater insight into the complex dynamics of mental illness, stressors and also those factors that provide individuals with the best chances of enjoying sound mental health.

Rural areas in South Africa require adequate funding to provide proper mental health care resources to their adolescents, especially areas with youth suffering from high degrees of clinical distress. Greater awareness must be cultivated among community leaders, local healers, teachers, parents, health care workers and children of the possible damaging effects of exposure to violence in relation to mental illness such as PTSD. The state of one's mental health affects all levels of an individual's functioning. Prevention of and protection against violence, detection and treatment of PTSD, as well

as support groups within schools, among other possible intervention efforts, could greatly help to improve the quality of life of many rural South African adolescents.

REFERENCES

Aisenberg, E. (2001). The effects of exposure to community violence upon Latina mothers and preshool children. *Hispanic Journal of Behavioral Sciences, 23*, 378-398.

Amaya-Jackson, L. (1995). *Child's Exposure to Violence Form*. Durham, NC: Center for Child and Family Health, Duke University.

Amaya-Jackson, L., McCarthy, L., Newman, E. & Cherney, M. (1995). *Child PTSD Checklist, Trauma Evaluation, Treatment & Research Program*. Durham, NC: Center for Child and Family Health, Duke University.

American Psychiatric Association (APA). (2000). *Diagnostic and statistical manual of mental disorders. TR.* (4th ed., text revision). Washington, DC: Author.

Baker, A.M. (1991). Psychological response of Palestinian children to environmental stress associated with military occupation. *Journal of Refugee Studies, 4*, 237-247.

Berton, M.W. & Stabb, S.D. (1996). Exposure to violence and post-traumatic stress disorder in urban adolescents. *Adolescence, 31*, 489-498.

Blignaut, S.C.W. (1996). *Post-traumatic stress disorder: an epidemiological study in the Rocklands community.* Unpublished master's thesis, University of the Orange Free State, Bloemfontein, South Africa.

Breslau, N., Davis, G.C., Andreski, P. & Peterson, E. (1991). Traumatic events and posttraumatic stress disorder in an urban population of young adults. *Archives of General Psychiatry, 48*, 216-222.

Chih-Hao, K. & Jing-Houng, K. (1997). A study of adolescent life stress, intervention of welfare services and psychological well-being for single-parent families in Taipei municipal city. *Journal of Education and Psychology, 20*, 243-270.

Cooley-Quille, M.R., Turner, S.M. & Beidel, D.C. (1995). Emotional Impact of Children's Exposure to Community Violence: A preliminary Study. *Journal of the American Academy of Child and Adolescent Psychiatry, 34*, 1362-1368.

Cooley-Quille, M., Boyd, R.C., Frantz, E. & Walsch, J. (2001). Emotional and behavioural impact of exposure to community violence in inner-city adolescents. *Journal of Clinical Child Psychology, 30*, 199-206.

Crouch, J., Hanson, R., Saunders, B., Kilpatrick, D. & Resnick, H. (2000). Income, Race/Ethnicity, and exposure to violence in youth: Results from the national survey of adolescents. *Journal of Community Psychology, 28*, 625-641.

Davidson, J.R., Hughes, D., Blazer, D.G. & George, L.K. (1991). Post-traumatic stress disorder in the community: An epidemiological study. *Psychological Medicine, 21*, 713-721.

Dixon, W.J. (1985). *Biomedical computer programs*. Berkeley, CA: University of California Press.

Duckworth, M.P., Hale, D.D., Clair, S.D. & Adams, H.E. (2000). Influence of interpersonal violence and community chaos on stress reactions in children. *Journal of Interpersonal Violence, 15,* 806-826.

Ensink, K., Robertson, A.B., Zissis, C. & Leger, P. (1997). Post-traumatic stress disorder in children exposed to violence. *South African Medical Journal, 11,* 1526-1530.

Fehon, D., Grilo, C. & Lipschitz, D. (2001). Gender differences in violence exposure and violence risk among adolescent inpatients. *The Journal of Nervous and Mental Disease, 189,* 532 -540.

Fitzpatrick, K.M. (1993). Exposure to Violence and Presence of Depression Among Low-Income, African-American Youth. *Journal of Consulting and Clinical Psychology, 61,* 528-531.

Fitzpatrick, K.M. Boldizar, J.P. (1993). The Prevalence and Consequences of Exposure to Violence Among African-American Youth. *Journal of the American Academy of Child and Adolescent Psychiatry, 32,* 424-430.

Friedman, M.J. & Schnurr, P. (1996). Trauma, PTSD and health. *NCP Clinical Quarterly, 6.* Retrieved from http://www.ncptsd.org/publications/cq/v6/n4/friedman.html on 18 November 2002.

Giaconia, R.M., Reinherz, H.Z., Silverman, A.B. Pakiz, B., Frost, A.K., & Cohen, E. (1995). Traumas and Posttraumatic stress disorder in a community population of older adolescents. *Journal of the American Academy of Child and Adolescent Psychiatry, 34,* 1369-1380.

Goenjian, A.K., Steinberg, M.L., Fairbanks, L.A., Alverez, M.L., Goenjian, H.A. & Pynoos, R.S. (2001). Post-traumatic stress and depressive reactions among Nicaraguan adolescents after Hurricane Mitch. *American Journal of Psychiatry, 158,* 788-794.

Govender, K. & Killian, B.J. (2001). The psychological effects of chronic violence on children living in South African townships. *South African Journal of Psychology, 31,* 1-11.

Howell, D.C. (2002). *Statistical methods for psychology* (5th ed.). Johannesburg : Duxbury.

Huysamen, G.K. (1994). *Metodologie vir die sosiale en gedragswetenskappe*. Halfweghuis: Southern.

Jaffe, P., Wolfe, D., Wilson, S. & Zak, L. (1986). Similarities in behavioural and social maladjustment among child victims and witnesses to family violence. *American Journal of Orthopsychiatry, 56,* 142-146.

Kliewer, W., Oskin, D., Johnson, P. & Lepore, S. (1998). The Role of Social and Cognitive Processes in Children's Adjustment to Community Violence. *Journal of Consulting and Clinical Psychology, 66,* 199-209.

Lipschitz, D., Grilo, C., Fehon, D., McGlashon, T. & Southwick, S. (2000). Gender differences in the associations between posttraumatic stress symptoms and problematic substance use in psychiatric inpatient adolescents. *Journal of Nervous and Mental Disease, 188,* 349-356.

Martinez, P., & Richters, J.E. (1993). The NIMH Community violence project: II. Children's distress symptoms associated with violence exposure. *Psychiatry, 56,* 22-35.

Mash, E.J. & Wolfe, D.A. (2002). *Abnormal child psychology* (2nd ed.). Belmont, CA: Wadsworth.

Mazza, J.J. & Reynolds, W.M. (1999). Exposure to violence in younger inner-city adolescents: Relationships with suicidal ideation, depression, and PTSD symptomatology. *Journal of Abnormal Child Psychology, 27,* 203-213.

Melton, G.B. (2003). Neglect: Why we should care and what we should do. Retrieved from http://www.clemson.edu/strongcommunities/pdfs/Neglect%20Fact%20Sheet.pdf on August 20, 2003.

Mghir, R. & Raskin, A. (1999). The psychological effects of the war in Afghanistan on young Afghan refugees from different ethnic backgrounds. *International Journal of Social Psychiatry, 45*, 29-40.

Muller, Y. (2001). Adolessente se ervaring van geweld en die fasilitering van nie-geweldadige coping strategieë. (Adolescents' experience of violence and the facilitation of non-violent coping strategies). Unpublished Master's thesis. University of the Northwest, Potchefstroom.

Myers, M.A. & Thompson, V.L. (2001). The impact of violence exposure on African American youth in context. *Youth & Society, 32,* 253-267.

Neal, A. & Turner, S. (1991). Anxiety disorders research with African Americans: Current status. *Psychological Bulletin, 109,* 400-410.

Pelcovitz, D., Kaplan, S.J., De Rose, R.R., Mandel, F.S. & Salzinger, S. (2001). Psychiatric disorders in adolescents exposed to domestic violence and physical abuse. *American Journal of Orthopsychiatry, 70,* 360-368.

Peltzer, K. (1999). Posttraumatic stress symptoms in a population of rural children in South Africa. *Psychological reports, 85,* 646-650.

Perilla, J., Norris, F. & Lavizzo, E. (2002). Ethnicity, Culture, and Disaster Response: Identifying and explaining ethnic differences in PTSD six months after Hurricane Andrew. (2002). *Journal of Social and Clinical Psychology, 21,* 20-45.

Poelmans, S. (2001). Work-family conflict as a mediator of the work stress – mental health relationship. Retrieved from http://netec.mcc.ac.uk/WoPEc/data/Papers?epgiesewpd-0443.html on September 17, 2003.

Pynoos, R., Frederick, C., Nader, K., Arroyo, W., Eth, S., Nunez, W., Steinbert, A. & Fairbanks, L. (1986). Life threat and posttraumatic stress in school age children. *Archives of General Psychiatry, 44,* 1057-1063.

Saigh, P.A. (1991). The development of posttraumatic stress disorder following four different types of traumatization. *Behaviour Research and Therapy, 29,* 213-216.

SAS Institute (1985). *SAS user's guide: Statistics version* (5th ed.). Cary, NC: Author.

Schwab-Stone, M., Chen, C., Greenberger, E., Silver, D., Lichtman, J., & Voyce, C. (1999). No safe haven II: The effects of violence exposure on urban youth. *Journal of the American Academy of Child and Adolescent Psychiatry, 38,* 359-367.

Seedat, S., Van Noord, E., Vythilingum, B., Stein, D.J. & Kaminer, D. (2000). School survey of exposure to violence and posttraumatic stress symptoms in adolescents. *South African Journal of Child and Adolescent Mental Health, 12,* 38-44.

Seedat, S., Nyamai, C., Njenga, F., Vythilingum, B. & Stein, D.J. (in press). Trauma exposure and posttraumatic stress symptoms in adolescents: A schools survey in Cape Town (South Africa) and Nairobi (Kenya). *British Journal of Psychiatry.*

Shannon, M.P., Lonigan, J., Finch, A. & Taylor, C.M. (1994). Children exposed to disaster: I. Epidemiology of post-traumatic symptoms and symptom profiles. *Journal of the American Academy of Child and Adolescent Psychiatry, 33,* 80-93.

Singer, M.I., Anglin, T.M., Song, L.Y. & Lunghofer, L. (1995). Adolescents' exposure to violence and associated symptoms of psychological trauma. *Journal of the American Medical Association, 273,* 477-482.

Slovak, K. & Singer, M. (2001). Gun violence exposure and trauma among rural youth. *Violence and Victims, 16,* 389-400.

Steyn, H.S. (1999). *Praktiese beduidendheid: Die gebruik van effekgroottes*. Potchefstroom: Publikasiebeheerkomitee, PU vir CHO.

Zissis, C., Ensink, K. & Robertson, B. (2000). A community study of taxi violence and distress symptoms among youth. *Southern African Journal of Child and Adolescent Mental Health, 12,* 151-161.

KEYWORDS

Depression
Posttraumatic Stress Disorder
Prevalence
Adolescents
Exposure to Violence
Witnessed Violence
Victimization
Ethnicity
Gender
Rural