

**The health-sustaining and stress-reducing roles of fortitude and the subjective experience of safety in adolescent's exposure to violence in lower socio-economic areas in South Africa**

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*The aim of this study is to investigate the relationship between exposure to violence and trauma-related symptoms, and to explore the health-sustaining and stress-reducing roles of fortitude and subjective sense of safety in adolescents. Data was collected from a sample comprising 498 adolescents in grade 8-12 (mean age-15.10 years) attending school in low socio-economic areas with high levels of violence. The adolescents completed an adapted version of the Harvard Trauma Scale, the Fortitude Questionnaire (FORQ), and the Safety Index. The results suggest a significant positive relationship between all the violence subscales and the trauma-related symptoms. In addition, moderated regression analyses indicated direct effects for fortitude on trauma-health sustaining and moderating effects for fortitude in respect to the impact of witnessing stranger violence. Furthermore, moderated regression analyses showed direct effects for sense of safety but no significant moderating effects.*

The impact of violence continues to reverberate in the lives of many South Africans. As can be seen in the previous article, adolescents report a high rate of exposure to violence nationally and internationally (Bell & Jenkins, 1993; Ensink, Robertson, Zissis & Ledger, 1997; Moses, 1999; Van der Merwe, 2001). Furthermore, adolescents who are exposed to violence report experiencing being a victim of or witness to violence that is perpetuated by someone known to them as well as being a victim of and witness to violence perpetuated by a stranger (Campbell, 2004).

Exposure to violence and its possible psychological ramifications has become a concern for mental health workers as a result of the high prevalence rate of exposure reported by children and adolescents (Ensink, Robertson, Zissis & Ledger, 1997; Ward, Flisher, Zissis, Muller & Lombard, 2001). Studies that have researched the impact of exposure to violence on children or adolescent's residing in low socio-economic areas have indeed found the experiencing of psychological symptoms such as posttraumatic stress disorder (PTSD) (Ensink et al., 1997; Peltzer, 1999; Ward et al., 2001). Regarding PTSD, 21% of the sample of 60 Xhosa speaking children living in Khayelitsha of the Western Cape, who were directly exposed to violence, met the criteria for PTSD (Ensink et al., 1997). The most common symptoms that the participants reported were intrusive recollections of the event, intense distress at reminders of the event, avoidance of thoughts and activities associated with the violent event, irritability and concentration difficulties. In addition, 8,4% of the sample population of 148 children (age 6-16 years) residing in a rural community of Dikgale in the Northern Province of South Africa, and who have been exposed to violence, met the criteria for PTSD (Peltzer, 1999). These children reported direct exposure or vicariously experiencing traumatic events such as witnessing someone being killed or seriously injured, sexual abuse or molestation, or that of being kidnapped. Furthermore, Ward et al. (2001), who investigated a sample of 104 adolescents attending private schools in the Western Cape, found that 5.8% of the participants who had been exposed to violence met the criteria for PTSD (Ward et al., 2001). The types of exposure to violence that were explored was that of witnessing or being a victim of violence perpetrated by someone known to the child or in the home, and witnessing or being a victim of violence perpetrated by a stranger.

International studies have too found that children or adolescents who are exposed to violence report PTSD. Fitzpatrick and Boldizar (1993), who investigated a sample of low-income African-American youth between 7-18 years and have being exposed to violence, found that 27.1% met the diagnostic criteria for PTSD. Similarly, Berman et al., (1996) reported that 34, 5% of the 96 high school participants in an urban setting who were exposed to violence, met the criteria for PTSD. However, sources of variation in post-traumatic effects were identified in children's responses to acute

traumatic events. It appears that it is chronic exposure to violence that produces an enduring risk to child or adolescent developmental adjustments (Richters, 1994; Osofsky, 1997). According to Osofsky (1995), post-traumatic effects in children exposed to community violence may vary according to the quality of care provided at a familial level, the availability of social support structures and the nature of the violence exposure.

An exploration of the studies that have investigated children and adolescent's exposure to violence indicates that not all the participants succumb to psychological distress such as PTSD. It appears that some individuals tend to cope even in adverse conditions of living in low socio-economic areas where violence could be rife. The question would be: What is it that allows certain individuals to remain well and able to cope despite exposure to high levels of community violence? In order to understand the phenomenon, a possible approach is to explore research, which have investigated protective factors that could buffer or strengthen children or adolescent's psychological response to violence.

### **THE ORIGINS OF PSYCHOLOGICAL STRENGTHS**

To understand how certain individuals manage stress and remain well, Antonovsky (1979) emphasized that the focus should be on the origins of health or wellness and introduced the concept of "salutogenesis", from the Latin "salus" (health) and the Greek "genesis" (origins). Salutogenesis focuses on positive health (i.e. not simply the absence of disease) and is primarily concerned with the maintenance and enhancement of wellness. To think salutogenically, would be to search for factors that could contribute towards coping, positive health and wellness.

According to Antonovsky (1979) the crucial concept in understanding how people manage stress and stay well is the sense of coherence. Sense of coherence is a dispositional orientation that is presumed to engender, sustain, and enhance health. The concept of sense of coherence forms the core construct of salutogenesis and consists of three elements, namely, comprehensibility, manageability and meaningfulness. Comprehensibility refers to the extent to which a person perceives stimuli as clear, ordered, structured and consistent. These stimuli can be expected to be

explicable, orderable and predictable. Manageability refers to the extent to which one perceives the events in his or her life as experiences that are bearable, or can be coped with or as challenges that can be met. Meaningfulness represents the motivational element and refers to the extent to which a person feels that life makes emotional, rather than cognitive sense. Antonovsky (1987) sees the sense of coherence as developing over the lifespan from infancy to early adulthood. In the development of this disposition, child-rearing patterns, social-role complexes, idiosyncratic factors and chance are regarded as important influences.

Strumpfer (1995) argued that Antonovsky's concept of salutogenesis should be replaced by the more holistic and broader explanatory construct of fortigenesis, referring to the origins of psychological strength (Latin "fortis"= strong). In developing the argument for fortigenesis, Strumpfer (1995) indicated that reference to 'strength' appeared in many of Antonovsky's writing where he began asking the question, 'Where's the strength?' (Antonovsky, 1979, p. 7). According to Strumpfer (1995), the construct of fortigenesis reflects a particular philosophy of life where the focus is on understanding why and how some people find the strength to withstand and overcome stressors, whereas others do not, is also likely to lead to ways of increasing the numbers of those who do.

Pretorius (1998) indicated that a possible answer to the question of "where's the strength" lies in the construct of fortitude and defined it as 'the strength to manage stress and stay well and this strength derives from an appraisal of the self, the family and support from others' (p. 23). According to Pretorius (1998), our countless experiences with the world allow us to develop general beliefs about ourselves, and our world. People's evaluations of themselves, their abilities, support resources and their family environment influences their emotions and behaviour during interactions with the environment. Those who perceive themselves, their support and their environment negatively will have serious doubts about their ability to deal with stressful encounters and could consequently, succumb to possible psychological effects of a stressor. Those who perceive themselves, their support and their environment positively will have a greater belief in their ability to manage stressful encounters. A number of studies have tried to identify variables that could influence the relationship of

negative environmental conditions and physical and psychological well-being viz., social support (Pretorius, 1996), self-esteem (Kreger, 1995) and appraisal of problem solving and stress-depression (Pretorius & Diedricks, 1994).

The possible role that fortitude and subjective sense of safety could play on the sequelae of adolescent's after the exposure to violence is that of a health-sustaining (direct effect) and stress reducing (buffering effect) function. The direct effect postulates that an individual with high levels of fortitude will result in an increase in physical and psychological well-being, irrespective of the level of stress. The buffering hypothesis suggests that at low levels of fortitude, the relationship between stress and psychological well-being should be strong and direct (that is, high stress levels are associated with low levels of psychological well-being), and as fortitude increases the relationship should weaken (Pretorius, 1998). Empirical support has been found for the presumed role that fortitude could play in helping people to maintain positive psychological health or well-being. In a study comprising of 460 undergraduate psychology students at the University of the Western Cape, South Africa, respondents with high levels of fortitude reported significantly higher levels of life satisfaction, positive effect and subjective well-being than respondents with low levels of fortitude. Furthermore, a stress-resistant group (high levels of stress and high levels of well-being) reported experiencing high levels of fortitude compared to a stress-troubled group (high levels of stress and low levels of well-being) (Pretorius, 1998). In addition, Heyns et al. (2003) reported that a negative correlation occurred between burnout and psychofortigenic factors such as fortitude in a sample comprising 221 nursing staff at institutions where patients with Alzheimer's disease were hospitalised. It was found that burnout amongst nurses were neutralised by fortitude, enabling the nurses to evaluate their own strengths to handle stress and to meet the demands of the situation.

The aim of the present study is to investigate the relationship between violence exposure and trauma-related symptoms such as PTSD in adolescents residing in low socio-economic areas on the Cape Flats of the Western Cape. Furthermore, the present study will extend the exploration of the health-sustaining and stress-reducing roles of fortitude and the subjective sense of safety in

adolescent's after the exposure to violence. The findings will add to our body of knowledge regarding the exposure to violence and its relationship to trauma-related symptoms among adolescents and to stimulate research regarding the possible role that psychofortigenic factors could play in contributing to the well-being of individuals.

## Method

### Participants

The sample consisted of 498 children in grades 8 to 12 attending secondary school in two lower socio-economic areas in the Western Cape. The specific areas were Manenberg and Hanover Park in what is known as the Cape Flats. These are economically disadvantaged neighbourhoods established by the apartheid regime after forcibly removing people from their homes and relocating them to areas now known as the Cape Flats (Kinnes, 1995). These neighbourhoods are characterised by a high density of inhabitants, high-rise low cost housing developments and high unemployment. A description of the sample is presented in Table 1.

Table 1

### Description of sample

Demographic		N	%
Gender:	Male	243	48.8
	Female	255	51.2
Age:	14	148	30.2
	15	258	52.7
	16	18	3.7
	17	21	4.3
	18	45	9.2
	Mean		15.1
	SD		1.15
Language:	English	143	28.8
	Afrikaans	349	70.2
	African	5	1.0

(table continues)

Table 1 (continued)

## Description of sample

Demographic			
Grade:	8	143	28.7
	9	240	48.2
	10	45	9.0
	11	19	3.8
	12	51	10.2
	Area:	Manenberg	438
Hanover Park		60	12
Status of parents:	Married	278	55.8
	Divorced	53	10.6
	Separated	63	12.6
	Single	67	13.5
	Deceased	21	4.2
	Living together	16	3.2
Number of people in house:	Mean	6.3	
	SD	2.48	

The sample was relatively evenly divided between boys and girls. The mean age of the sample was 15.10 ( $SD = 1.15$ ) and the majority of participants were in grade 9. The home language of the majority of the sample was Afrikaans (70.1%) and slightly more than half of the sample had parents who were married. The mean household size for the sample was 6.30 ( $SD = 2.48$ ; Minimum = 2, Maximum 20).

Measure

All the measures used, namely the Harvard Trauma Scale, the Fortitude Questionnaire and the Safety Index were translated into Afrikaans to accommodate the Afrikaans-speaking participants, and back-translated into English to assess for accuracy.

Exposure to violence was assessed using the Harvard Trauma Scale (Mollica, Caspi-Yavin, Bollini, Truong, Tor, & Lavelle, 1992). This scale was originally developed to assess the traumatic experiences of Indochinese refugees in the United States and focuses on both the assessment of traumatic experiences as well as the assessment of trauma symptoms. This scale was subsequently adapted for use in South Africa by focusing on violent events that is most likely to occur in South Africa (Ward, et al., 2001). The first section of the Harvard Trauma Scale consists of 49 questions focusing on a variety of violent events. In addition to the content changes, the adapted version of this first section also differed from the original in terms of format. The original version allowed for four response categories, namely “experienced”, “witnessed”, “heard” or “no”. The revised version only provided a “yes” or “no” option, but different types of questions were included that allowed for the assessment of different types of exposure to violence, i.e. as witness or victim. The revised format thus allows for the calculation of a total exposure score as well as separate scores for different categories of exposure (i.e. witnessing stranger violence, victim of stranger violence, witnessing known violence, victim of known violence). In addition, the questionnaire also provided opportunity to indicate whether the violent event was experienced within the last 12 months and the number of times the event occurred.

The second part of the Harvard Trauma Scale consists of thirty symptom questions. The first sixteen questions were derived from the DSM-III criteria for post-traumatic stress disorder and the remaining fourteen questions describe additional symptoms that may result from traumatic events but are not required for diagnosis. This section of the scale provided four response options ranging from “not at all” to “extremely”. A total score reflecting the severity of trauma-related symptoms are obtained by summing the responses to the 30 questions.

Fortitude was measured using the Fortitude Questionnaire (FORQ: Pretorius, 1998). This instrument was designed to measure the strength to manage stress and stay well. It consists of 20 items that uses a four-point scale ranging from “does not apply” to “applies very strongly”. These twenty items measure three domains, namely self-appraisals, family-appraisals and support-

appraisals. The sum of the three domains represents fortitude. In the initial validation study the author reported reliability coefficients ranging from 0.74 to 0.85. The content validity of the FORQ was assured through the process of item selection, while both exploratory as well as confirmatory factor analyses supported the three-factor structure of the FORQ. The FORQ also correlated with measures of psychological distress as well as with measures of self-esteem, social support and family environment. In sum, the FORQ demonstrated adequate reliability and validity. Additional support for the reliability and validity of the FORQ comes from several published and unpublished sources. Heyns, Venter, Esterhuyse, Bam, and Odendaal (2003) reported reliability coefficients of 0.86 for an Afrikaans sample and 0.88 for an English sample. Wissing, Wissing, Du Toit, and Temane (2002) reported reliability coefficients of 0.88 for a mainly white sample and 0.77 for a mainly black sample. In addition, the authors used structural equation modeling to confirm the factor structure of the FORQ in both samples. The psychometric properties of the FORQ have also been confirmed by a number of unpublished doctoral and masters thesis.

The Safety Index was constructed to measure adolescent's subjective sense of safety and consists of four questions about feelings of safety at school, home, away from home and with one's family (Ward et al., 2001). The responses to the questions were made on a four-point scale ranging from "always" to "not at all". The authors do not report any reliability data for this measure.

### Procedure

The study was conducted at Senior Secondary Schools in Manenberg. Adolescents attending these schools came from the areas of Manenberg and Hanover Park on the Cape Flats, which is known for high-levels of community violence. The sample was not randomly selected but was a convenient sample obtained with the assistance of local school authorities. Questionnaires were administered class-by-class over a period of two weeks. The duration of the administration of the questionnaires was approximately one hour and forty-five minutes. Adolescents were given a 10-minute interval. The language preference of each class determined whether questionnaires were administered in English or Afrikaans. The nature and aims of the research were described to each

class, as was the content and completion requirements of the questionnaire. All questions were read aloud, and adolescents were given time after the reading of each item to respond in the space provided on their questionnaires. Adolescents were requested to wait until the reading of an item, before responding, and encouraged to ask questions when an item or aspect of a question was not understood. The confidentiality of participant's responses was protected as was practically possible.

### Analysis

To examine the direct and moderating effects of fortitude and subjective sense of safety, moderated regression analyses (Arnold, 1972; Cohen & Cohen, 1975) were performed. In moderated regression analyses the psychological outcome (in this instance, trauma symptomatology) is used as the dependent variable in a two-step regression analyses. The scores of the adverse condition (exposure to violence) and the presumed moderating variable (fortitude and sense of safety respectively) are entered together in the regression equation in Step 1, while an interaction term (the product of fortitude or safety and the various violence subscales) is entered in Step 2. To avoid the problem of multicollinearity, the deviation scores (score minus mean) of the adverse condition and the presumed moderating variable are used in the calculation of the product term (Baron & Kenny, 1986; Dunlap & Kemery, 1987). A significant effect for fortitude (or safety) in Step 1 indicates a direct effect for fortitude, i.e. a health-sustaining effect. A significant effect for the product term in Step 2 indicates that fortitude (or safety) has a moderating effect.

### Results

The means, standard deviations and reliability coefficients (Alpha coefficient) for the scales (and subscales) used are reported in Table 2.

Table 2

Means, Standard deviations and reliability coefficients of Measures

Scale	N items	Mean	SD	Alpha
Total Violence	49	13.47	7.91	0.91
Victim of known violence	16	2.80	2.47	0.76
Witness to known violence	18	5.30	3.47	0.81
Victim of stranger violence	9	1.42	1.77	0.75
Witness to stranger violence	6	3.96	1.40	0.60
Traumatic Symptoms	30	54.01	18.45	0.94
Fortitude	20	55.26	9.15	0.76
Safety Index	4	13.17	2.47	0.61

The reliability of all the scales is generally satisfactory with the exception of the “Witness to stranger violence” subscale and the Safety Index which, although acceptable, is below the accepted convention for satisfactory reliability. This is largely due to the low number of items in these two scales and conclusions and results based on these two scales should be viewed with some caution.

The intercorrelations between the various scales are reported in Table 3.

Table 3

Intercorrelations between violence subscales, subjective sense of safety, fortitude and trauma symptomatology

	Violence	Victim known	Witness known	Victim stranger	Witness stranger	Fortitude	Safety	Trauma symptoms
Violence	1	.87**	.93**	.85**	.73**	-.24**	-.26**	.60**
Victim known		1	.72**	.74**	.46**	-.21**	-.23**	.56**
Witness known			1	.68**	.66**	-.22**	-.23**	.54**
Victim stranger				1	.52**	-.24**	-.29**	.55**
Witness stranger					1	-.16**	-.14**	.36**
Fortitude						1	.17**	-.24**
Safety							1	-.29**
Trauma symptoms								1

\*\* p < 0.01

Table 3 indicates that there is a significant positive relationship between all of the violent subscales and the trauma-related symptoms. This implies that an increase in exposure to violence is significantly associated with an increase in trauma-related symptoms. Fortitude and sense of safety, on the other hand, is significantly negatively related to trauma-related symptoms, indicating that higher levels of fortitude and sense of safety are associated with lower levels of trauma-related symptoms.

The results of the moderated regression analyses are indicated in Tables 4 (fortitude) and 5 (sense of safety).

Table 4

Moderated regression analyses with fortitude and violence as predictor variables and trauma symptoms as dependent variable

Predictor	df	t	Cum R <sup>2</sup>	Beta
Total Violence	1,484	15.52**	.36	.58
Fortitude	1,484	-2.92**	.37	-.11
----- <sup>a</sup>				
Fortitude X Violence	1,483	-0.79	.37	-.03
Victim known	1,488	14.50**	.33	.54
Fortitude	1,488	-3.64**	.34	-.14
----- <sup>a</sup>				
Fortitude X Victim known	1,483	0.03	.34	.01
Witness known	1,489	13.07**	.29	.51
Fortitude	1,489	-3.48**	.30	-.14
----- <sup>a</sup>				
Fortitude X Witness known	1,488	-1.89	.30	-.07
Victim Stranger	1,488	13.74**	.31	.53
Fortitude	1,488	-3.10**	.32	-.12
----- <sup>a</sup>				
Fortitude X Victim Stranger	1,487	-0.10	.32	-0.01

(table continues)

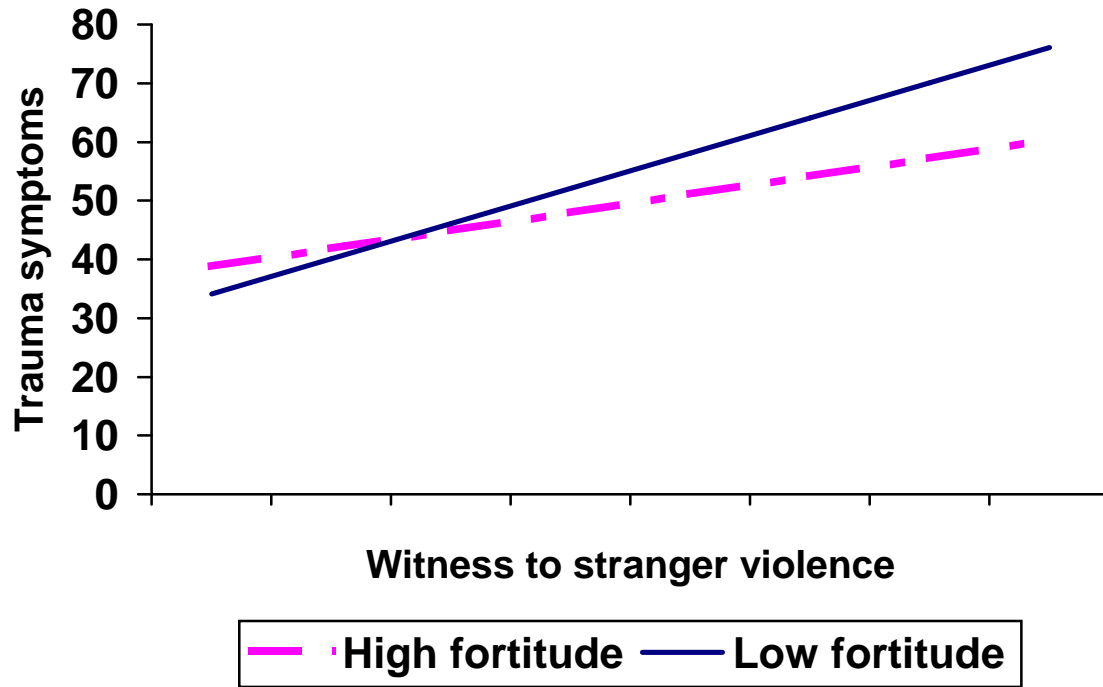
Table 4 (continued)

Predictor	df	t	Cum R <sup>2</sup>	Beta
Witness Stranger	1,489	7.91**	.13	.33
Fortitude	1,489	-4.57**	.17	-.19
----- <sup>a</sup>				
Fortitude X Witness stranger	1,488	-2.76**	.18	-.11

<sup>a</sup> Represents different steps in regression analyses

\*\* p < 0.01

The moderated regression analyses in Table 4 indicate a significant direct effect for fortitude on trauma-related symptoms when considered together with all the violence subscales. This would imply a health-sustaining role for fortitude in respect of trauma-related symptoms. In addition, the product-term of fortitude and witness to stranger violence was also significant. This would imply a stress-buffering role for fortitude in respect of the impact of witness to stranger violence on trauma-related symptoms. The exact nature of the interaction/moderating effect can be established by comparing the regression lines of those low on fortitude with those high on fortitude. Following the procedure suggested by Cohen and Cohen (1975), two different regression lines were computed – one for those high in fortitude (at or above the 75<sup>th</sup> percentile, N=138) and one for those low in fortitude (at or below the 25<sup>th</sup> percentile, N=125). The graph for those high and low in fortitude, in respect of the relationship between witness to stranger violence and trauma-related symptoms, are shown in Figure 1.



**Figure 1: Regression of trauma symptoms on witness to stranger violence for high and low fortitude**

The regression line for those low in fortitude was much steeper (slope = 6.00) than the regression line of those high in fortitude (slope = 3.08). This indicates that an increase in exposure to stranger violence is more strongly associated with an increase in trauma symptoms for those low in fortitude than for those high in fortitude.

The moderated regression analyses in respect of sense of safety are reported in Table 5.

Table 5

Moderated regression analyses with sense of safety and violence as predictor variables and trauma symptoms as dependent variable

Predictor	df	t	Cum R <sup>2</sup>	Beta
Total Violence	1,489	15.15**	.36	.56
Safety	1,489	-4.01**	.38	-.15
----- <sup>a</sup>				
Safety X Violence	1,488	0.01	.38	-.00
Victim known	1,493	13.84**	.31	.52
Safety	1,493	-4.65**	.34	-.18
----- <sup>a</sup>				
Safety X Victim known	1,492	0.02	.34	.02
Witness known	1,494	12.96**	.29	.49
Safety	1,494	-4.71**	.32	-.18
----- <sup>a</sup>				
Safety X Witness known	1,493	-0.90	.32	-.04
Victim Stranger	1,493	13.10**	.30	.51
Safety	1,493	-3.80**	.32	-.15
----- <sup>a</sup>				
Safety X Victim Stranger	1,492	-0.90	.32	-0.04
Witness Stranger	1,494	8.05**	.13	.33
Safety	1,494	-6.06**	.19	-.25
----- <sup>a</sup>				
Safety X Witness stranger	1,493	-1.80**	.20	-.08

<sup>a</sup> Represents different steps in regression analyses

\*\* p < 0.01

The moderated regression analyses indicated significant direct effects for sense of safety on trauma-related symptoms when considered together with all the violence subscales. This suggests a health-sustaining role for sense of safety. There were no significant moderating effects for sense of safety.

## Discussion

The present study set out to investigate the relationship between exposure to violence and trauma-related symptoms and to examine the health-sustaining and stress-reducing roles of fortitude and the subjective experiences of safety in adolescents. The participants were administered a modified version of the Harvard Trauma Scale (Mollica et al., 1992), the Fortitude Questionnaire (FORQ: Pretorius, 1998) and the Safety Index (Ward et al., 2001).

The results of the current study demonstrate a significant positive relationship between all of the violent subscales and trauma-related symptoms. This implies that an increase in exposure to violence is significantly associated with an increase in trauma-related symptoms such as the experiencing of posttraumatic stress symptoms. Previous research have also found a positive relationship between exposure to violence and the experiencing of posttraumatic stress disorder (Fitzpartick & Boldizar, 1993; Berman et al., 1996; Ensink et al., 1997; Ward et al., 2001). The results support the hypothesis of Richters (1994) and Osofsky (1997), which suggests that repeated exposure to violence could be an enduring risk to child or adolescent adjustment. It is chronic exposure that could place children at risk for PTSD.

Regarding the role of fortitude and sense of safety, the results reflect that it is significantly negatively related to trauma-related symptoms. This suggests that youth who have high levels of fortitude and sense of safety would display lower levels of trauma-related symptoms such as post-traumatic stress when exposed to violence. The constructs of fortitude and sense of safety could therefore act as a variable that could influence the relationship of decreasing the negative mental-health related problems when exposed to violence. The present findings of the role of fortitude and sense of safety being negatively related to the trauma symptoms, is supported by previous research where individuals with high levels of fortitude reported significantly higher levels of life satisfaction, positive affect and subjective well-being than respondents with low levels of fortitude (Pretorius, 1998; Heyns et al., 2003).

There was significant direct effect for fortitude on trauma-related symptoms when considered

with all the violence subscales. This indicates a health-sustaining role for fortitude in respect of trauma-related symptoms. The direct effects hypothesis postulates that the effect of a 3<sup>rd</sup> variable (for example, fortitude), on well-being is independent on the level of the negative environmental conditions, such as exposure to violence. Also, an increase in the levels of fortitude will result in an increase in well-being, irrespective of the level of stress (in this case, exposure to violence). Other studies, which have looked at the direct effects of a 3<sup>rd</sup> variable, have also found significant relationships. For example, Pretorius (1992) found that problem-solving appraisal was directly associated with depression in a sample of 450 black South African students at the University of the Western Cape. Furthermore, a study focusing on the role of gender in the direct effects of social support amongst 437 undergraduate students at a historically black university in South Africa, found that women enjoyed health-sustaining effects for the dimensions of support more than men (Pretorius, 1996).

The results further suggest that a significant relationship was found between the product-term of fortitude and witness to stranger violence amongst the adolescent sample. This would imply a stress buffering role for fortitude in respect of the impact of witness to stranger violence is more strongly associated with an increase in trauma symptoms for those low in fortitude than for those high in fortitude. There has been support for the stress-buffering role for fortitude. Pretorius (1998) found that participants (undergraduate psychology students at the University of the Western Cape) with high levels of stress and high levels of well-being reported high levels of fortitude than participants with high levels of stress and low levels of fortitude.

An exploration of the results suggests that the moderated regression analysis indicated a high significant direct effect for sense of safety on traumatic-related symptoms when considered together with all the violence subscales. It could be postulated that the construct or variable of sense of safety on the well-being of youth are independent of the level of exposure to violence. An increase in the levels of sense of safety will result in an increase in well-being, irrespective of the level of exposure to violence. However, as the reliability scale of Safety Index is below the accepted convention for

satisfactory reliability, it is important to view the results with caution. The less than satisfactory reliability could be due to the low number of items on the Safety Index Scale.

The results indicate that no significant moderating effect was found for sense of safety. This suggests that sense of safety does not have a stress-reducing function and would not affect psychological adjustment after adolescent exposure to violence. As the safety index had less than satisfactory reliability, the results should be interpreted with caution.

In conclusion, the study provides empirical support for the presumed role that fortitude could play in helping adolescents who are exposed to violence, to maintain positive psychological health. Within a theory of fortitude, adolescents' evaluation of themselves, their support resources and their family environments influence their emotions and behaviour during transactions with the environment. Those who perceive their environments negatively, will have serious doubts about their ability to deal with a stressful encounter such as exposure to violence, and consequently, could succumb to violence by experiencing trauma-related symptoms. Those who perceive themselves, their support and their environment positively, will have a greater belief in their ability to manage a stressful encounter such as exposure to violence. The construct of fortitude enables us to understand how adolescents who are exposed to violence could manage stress and remain well. It would be important for research to continue to explore and investigate the roles of fortitude and sense of safety in adolescents who are exposed to violence. As the results suggest a significant relationship for the role of fortitude, it causes optimism for possible intervention strategies in recognising the origins of strength in adolescents that would allow them to cope despite exposure to violence.

### References

- Antonovsky, A. (1979). Health, Stress and Coping. San Francisco: Josey-Bass.
- Antonovsky, A. (1987). Unravelling the mystery of health: how people manage stress and stay well. San Francisco: Josey-Bass.

- Arnold, H.J. (1972). Moderator variables: A clarification of conceptual, analytical, and psychometric issues. Organisational Behaviour and Human Performance, 29, 143-174.
- Barbarin, O. A. & Richter, L. M. (2001). Mandela's children: growing up in post-apartheid South Africa. New York & London: Routledge
- Baron, R. M. & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: conceptual, strategic and statistical considerations. Journal of Personality and Social Psychology, 51, 1173-1182.
- Bell, C.C. & Jenkins, E.J. (1993). Community violence on the southside of Chicago. Psychiatry, 56, 46-54.
- Berman, S.L., Kurtines, W.M., Silverman, W.K., Lourdes, T. & Serafani, M.S. (1996). The impact of exposure to crime and violence on urban youth. American Journal of Orthopsychiatry, 66 (3) 329-336.
- Cohen, J. & Cohen, P. (1975). Applied multiple regression/correlation analysis for the behavioural sciences. Hillsdale, NJ: Erlbaum.
- Crime Information Analysis Centre (2001). The reported serious crime situation in South Africa for the period January-September 2001. Available on [http://www.saps.org.za/8\\_crimeinfo/200112/report.htm](http://www.saps.org.za/8_crimeinfo/200112/report.htm)
- Dunlap, W.P. & Kemery, E.R. (1987). Failure to detect moderating effects: is Multicollinearity the problem? Psychological Bulletin, 102, 418-420.
- Enzink, K., Robertson, B., Zissis, C. & Ledger, P. (1997). Posttraumatic stress disorder in children exposed to violence. South African Medical Journal, 87 (11), 1533-1537.
- Fitzpatrick, K. & Boldizar, J. (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.
- Fry, D. (1988). Intercommunity differences in aggression among Zapotec children. Child Development, 59, 1008-1019.

- Garbarino, J., Dubrow, N., Kostelny, K., & Pardo, C. (1992). Children in Danger: Coping with the consequences of community violence. San Francisco: Jossey-Bass.
- Garbarino, J. (1999). Lost Boys: Why Our Sons Turn Violent and How We Can Save Them. New York: Free Press.
- 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 (2), 1-12.
- Gun Free South Africa Statistics Sheet, Facts & Figures (2002). Available on <http://www.gca.org.za/facts/statistics.htm>
- Heyns, P.M., Venter, J.H., Esterhuysen, K.G., Bam, R.H. and Odendaal, D.C. (2003). Nurses caring for patients with Alzheimer's disease: Their strengths and rise of burnout. South African Journal of Psychology, 33 (2), 80-85.
- Jenkins, E.J. & Bell, C. (1994). Violence exposure, psychological distress, and high risk behaviours among inner-city high school students. In: Anxiety Disorders in African Americans, Friedman S, ed, New York Springer, pp76-88.
- Kinnes, I. (1995). Reclaiming the Cape Flats. Indicator South Africa: Crime and Conflict, 2, 5-8. University of Natal, South Africa.
- Lorion, R. P. & Saltzman, W. (1994). Children's exposure to community violence: following a path from concern to research to action. In D. Reiss, J. Richters, M. Radke-Yarrow, & D. Scharff (Eds), Children and Violence (pp. 55-65). New York: The Guilford Press.
- Mollica, R.F., Capi-Yavin, Y., Bollini, P., Truong, T., Tor.S., & Lavelle, J. (1992). Validating a cross-cultural instrument for measuring torture, trauma and post-traumatic stress disorder in Indochinese refugees. Journal of Nervous and Mental Disease, 180, 111-116.
- Moses, A. (1999). Exposure to violence, depression, and hostility in a sample of inner city high school youth. Journal of Adolescence, 22, 21-32.
- Osofsky, J.D. (1995). The effects of exposure to violence on young children. American Psychologist, 15, 782-788.

- Osofsky, J.D. (1997). Children and youth violence: An overview of the issues. In Osofsky, J.D. (ed). Children in a violent society (pp. 3-9). New York & London: The Guilford Press.
- Pretorius, T.B. (1992). Problem-solving Appraisal in the Association of Life Stress and Depression: A South African study. Psychological Reports, 71, 855-862.
- Pretorius, T.B. (1996). Gender and the Health-sustaining and Stress-reducing functions of Social Support: A South African study. Journal of Social Behaviour and Personality, 11, 193-208.
- Pretorius, T. (1998). Fortitude as stress resistance: Development and validation of the Fortitude Questionnaire (FORQ). Bellville: University of the Western Cape.
- Pretorius, T.B. & Diedricks, M. (1994). Problem Solving Appraisal, Social Support and the Stress-Depression Relationship. South African Journal of Psychology 24, 86-90.
- Richters, J. (1994). Community violence and children's development: towards a research agenda for the 1990's. In D. Reiss, J. Richters, M. Radke-Yarrow & D.Scharff (Eds.), Children and Violence (pp. 3-6). New York & London: The Guilford Press.
- Richters, J. & Martinez, P. (1993). The NIMH community violence project: I. Children as victims of and witnesses to violence. Psychiatry, 56, 7-21.
- Strumpfer, D.J.W. (1995). The origins of health and strength: From 'salutogenesis' to 'fortigenesis'. South African Journal of Psychology, 25, 81-89.
- Van der Merwe, A. (2001). The Relationship Between Exposure To Community Violence, Social Support, Parenting Attitudes and Child Behavioural Adjustment. University Of Cape Town: Unpublished Masters Thesis.
- Van der Merwe, A. & Dawes, A. (2000). Prosocial and antisocial tendencies in children exposed to community violence. South African Journal of Child and Adolescent Mental Health, 12, 19-37.
- Ward, C.L., Flisher, A.J., Zissis, C., Muller, M. & Lombard, C. (2001). Exposure to violence and its relationship to psychopathology in adolescents. Injury Prevention, 7, 297-301.