

Factors which predict interpersonal violence in South Africa

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Background: This paper responds to the call for an extensive research agenda to be developed and designed to identify, plan and then implement prevention programmes with respect to violent crime in South Africa. This study began that process by identifying the factors that predict violence, and then attempting to interpret the implications for violence prevention programmes. This research is grounded in literature on the built environment.

Method: The study was based on the responses of 2 399 South Africans, collected in 2011, during the Fifth Round Afrobarometer Survey. The study concentrated on 259 respondents who reported that either they or someone else in their family had been the victim of violence, defined as being physically attacked, in the last year.

Results: Logistical regression analysis identified six factors that predicted physical violence in South Africa. These were being a victim of property crime, poverty, gender, age, fear of crime in the home and the respondents' faith. Surprising findings relate to what may be called re-victimisation, whereby 60% of victims of violence were also victims of property crime. Fear of crime was another predictor of violence victimisation. Many of the respondents who reported having a fear of crime had been crime victims.

Conclusion: These findings suggest that victimisation could be the basis of crime prevention programmes in South Africa. Target hardening should be the mechanism used when implementing violence prevention programmes. Prevention and law enforcement personnel need to respond to reported incidents of property and/or violence victimisation, and then attempt to prepare victims to protect both their premises and their person.

Keywords: built environment, physical violence, property crime victim, re-victimisation, violent crime victim

Introduction

Recently, Ward et al.¹ suggested the implementation of an extensive research agenda designed to identify the factors that drive violence in South Africa. The second phase of this programme requires the creation of intervention programmes based on the results of the earlier research. Then, the task will be to determine whether or not the programmes are effective, and if so, how they can retain their effectiveness. Violence is a major societal problem in South Africa. Ward et al. stated that violence is the leading cause of injury in South Africa, and that the homicide rate is seven times the global average. Seedat et al.² indicated that violence and injury (together) were the second leading cause of death, and also of lost disability-adjusted life years in South Africa. Violence prevention has been institutionalised as a national priority, and South Africa maintains the National Injury Mortality Surveillance System. Formalised in 2001 as the Crime Violence and Injury Lead Programme (CVI), CVI evolved into The Safety and Peace Promotion Research Unit (SAPPRU). During the current programme cycle (2011–2015), SAPPRU will devote its resources to data-driven prevention initiatives and transferable solutions for injury and violence issues in South Africa.³

Mayosi et al.⁴ have suggested that the publication of The Lancet *Health in South Africa* series (2009) may be seen as a watershed event for the South African healthcare system. Current changes and challenges in that system are measured with that series as the baseline. The 2009 series called for a national response to injuries and violence. Mayosi et al. reported that the national response to violence has placed continuing emphasis on criminal justice enforcement, with few attempts to prioritise major injury-prevention issues, such as interpersonal violence, violence against females and male youth violence. The stated need is for improved data collection. The National

Crime Victimization Survey (NVCS) has been a constant source of data prior to 2009 and ongoing. Mistry⁵ reported that crime in South Africa declined from 1998 through October 2003. However, the study respondents felt less safe. In 2003, 23% felt safe walking alone at night in their area, compared to 58% in 1998. More than half of South Africans felt that crime had increased in the areas in which they lived over the past three years. Respondents were also asked about their impressions of police performance, and how they rated police performance in their local area. Slightly over half (52%) said that police officers were performing well in their area, and 46% that they were not. The 2007 NVCS⁶ revealed that there was a gap between the levels of crime reflected in the official statistics, which had continued to decline, and public perceptions of crime levels, which had continued to increase. Again, respondents were asked whether or not they thought that police officers were being effective in their area. In 2007, the percentage of respondents who thought that police officers were performing poorly dropped from 46% to 37%. In contrast to the 2003 survey, most respondents in 2007 provided a single reason for their negative impressions of police officers: response time. The 2010 Victims of Crime Survey⁷ revealed that more than 40% of households believed that the level of both violent and non-violent crime had decreased in their area from 2008–2010. Less than 30% thought that crime had increased. One third of households (33.3%) avoided going to open spaces alone because of fear of crime, 22.2% of households would not allow their children to go out without the supervision of an older person or to play freely in their area, and 14.7% would not permit their children to walk to school alone. Approximately 80% of households were satisfied with the performance of police officers in their area. 70.8% of the households thought that police officers were trustworthy. Police response time and police visibility were two issues that were addressed in the 2010

Victims of Crime Survey. Households in South Africa were asked about travelling time to the nearest police station, and 66.4% indicated that this could be achieved in less than 30 minutes.

The built environment has a longer history in South Africa than the crime surveys.⁸ The description by Srinivasan et al.⁹ of the built environment includes homes, schools, workplaces, parks and recreation areas, and business areas and roads. It encompasses buildings, spaces and products that are created or modified by people. Srinivasan et al. note that research in this tradition has focused mainly on housing, transportation and neighbourhood characteristics. Inadequate urban planning has been identified as a major challenge in certain areas, and the suggestion is that the impact of mediating and moderating factors within the built environment should be the focus of future health research. Landman and Liebermann¹⁰ noted that when implementing built environments, the emphasis has been on crime prevention through environmental design. This has resulted in the creation of walled-off neighbourhoods in South Africa, which appear to be fortresses, designated by physical barriers. These raise concerns about access and exclusion. Instead, Landman and Liebermann propose planning that directly involves residents in the crime prevention strategies of the neighbourhood. In contrast to earlier work, this research concentrates on violence that affects individual respondents and their immediate households. This is in contrast to the attention given to the factors at work in neighbourhoods,¹¹ and areas like counties or cities in the USA.^{12,13} The latter study is of great interest. It tested animal models in Bombay but concluded they could not be applied to humans and that the murder rate were not found to relate to crowding.

Method

The data source for our study was the Afrobarometer Surveys, a comparative series of public attitude surveys which covered up to 35 African countries in Round Five (2011-2013). Round Four included 20 African countries. The project's objectives were as follows:

To produce scientifically reliable data on public opinion in sub-Saharan Africa.

To strengthen institutional capacity for survey research in Africa.

To broadly disseminate and apply the survey results to Africa.

Begun in 1999, five rounds of the survey have been completed. South Africa was included in all five waves, as well as two other country-specific surveys. The most recent survey, Round 5, was conducted in October and November 2011 and released in 2013. Afrobarometer Data, South Africa 2011 is available at www.afrobarometer.org.

Based on representative national samples, the surveys assesses citizen attitudes to democracy and governance, as well as markets and civil society, among other topics. The survey consisted of face-to-face interviews completed by 2 399 citizens of South Africa aged 18 years or older. The interviews were conducted in 13 different languages. The sampling frame included all nine South African provinces, and the final sample supports an estimate with respect to the national population of adults in South Africa, and which is accurate to within a margin of error of ± 2 percentage points at a confidence level of 95%. The sampling procedures used in all of the Afrobarometer Surveys are explained in detail by Bratton, Mattes and Gyimah-Boadi.¹⁴

The dependent variable

Violence victimisation—Survey respondents were asked about criminal victimisation. The question asked was: "Over the past

year, how often, if ever, have you or anyone in your family been physically attacked?" Fixed responses were provided as "never", "once or twice", "several times", "many times" and "always". The study's dependent variable was created by treating "never" as one category (0), while all of the other affirmative responses were coded as 1. This dichotomous variable is the study's dependent variable and provides the basis for the logistic regression presented here.

The independent variables

A poverty scale used in the Afrobarometer Survey was adopted from Mattes et al.¹⁵ and run through the STATA scale reliability program. This procedure produced a Cronbach's alpha of 0.77. Scale scores were calculated and assigned to each respondent. The question which generated the scale was: "Over the past year, how often, if ever, have you or anyone in your family gone without enough food to eat, enough clean water for home use, without medical care, enough fuel to cook your food and a cash income?" This scale's reliability coefficient was 0.83 (Cronbach's alpha). The control variables listed in Table 1 were measured by a single item, like age, and others were collapsed into fewer categories, for instance, race, which became a dichotomous variable, black Africans and all others; and education, which was reduced to five categories, by combining no school, informal education only and some primary education. Other variables were also measured by single items, including fear of crime in the home and while walking in the neighbourhood, as well as property crime victimisation. Others, like the presence of a police station or a health clinic in the respondent's local area, and whether or not police officers were visible in the local area, were recorded by the interviewer and supplemented and checked by the interviewer's supervisor.

Results

The sample's social and demographic characteristics are displayed in Table 1, characterised according to whether or not the respondents were victims of physical violence within the last year.

Violence was more likely to be experienced by younger respondents (Table 1). Males were more likely than females to be victims of violence, and black Africans were much more likely than others to be victimised. All three variables were significant at the 0.000 level. There was no significant difference in violence victimisation by educational level, rural as opposed to urban residence, nor employment status.

Violence victimisation, with regard to selected independent variables in the last year, is displayed in Table 2. These items begin with fear of crime in the home or neighbourhood. The other measures in Table 2 were those observed by the interviewer and verified by the field supervisor, including residential crowding, the presence of a police station or health clinic, and whether or not police officers were visible in the survey area.

It is shown in Table 2 that fear of crime in the home and neighbourhood were statistically significant predictors of violence victimisation. Residence, urban or rural, residential crowding, whether or not there was a police station or a health clinic in the area, or if police officers were visible in the area, were not found to be statistically significant. A surprising finding in Table 2 was that 258 respondents reported that they were afraid of crime in their homes and that 197 (76.4%) had been victims of violent crime. One hundred and ninety-six respondents reported that they were afraid to walk in their neighbourhood, and represented 75.7 per cent of the reported victims of violence. These findings will be discussed shortly.

Table 1: The demographic characteristics of the South African sample, broken down by violence victimisation

Variable	Victim of violent crime		Total	p
	Yes [n (%)]	No [n (%)]		
Age (years)				
18–29	29 113 (13.9)	701 (86.1)	814	<0.001
30–49	49 107 (11.3)	841 (88.7)	948	
> 50	33 (5.5)	566 (94.5)	599	
Gender				
Male	155 (12.9)	1 044 (87.1)	1 199	0.001
Female	104 (8.7)	1 096 (91.3)	1 200	
Race				
Black or African	194 (12.7)	1 340 (87.4)	1 523	<0.001
White or European	15 (3.6)	398 (96.4)	413	
Coloured or of mixed race	31 (9.0)	315 (91.0)	346	
South Asian, East Asian or other	19 (18.1)	86 (81.9)	105	
Education				
None or informal education only	50 (9.7)	467 (90.3)	517	0.34
Primary school completed	176 (11.6)	1 343 (88.4)	1 519	
High school completed	27 (10.0)	244 (90.0)	271	
Post-secondary qualifications	58 (17.3)	277 (82.7)	335	
University graduate school	6 (6.7)	83 (93.3)	89	
Residence				
Urban	163 (10.1))	1 453 (89.9)	1 576	0.11
Rural	96 (12.3)	687 (87.4)	824	
Employment				
Unemployment	163 (10.7)	1 355(89.3)	1 518	0.06
Part-time employment	32 (15.2)	178 (84.7)	210	
Full-time employment	63 (9.5)	603 (90.5)	666	

The next step in the analysis was to include the independent variables listed in Tables 1 and 2 using logistical regression analysis, with violence victimisation as the dependent variable. These results appear in Table 3.

Six variables reached significance in the logistical regression analysis (Table 3). Five of these were highly significant; all at the 0.01 level or higher. The property crime victimisation measure was the strongest (z-score 9.87). The second strongest was the poverty measure (z-score 4.64), followed by gender (z-score 3.90), age (z-score –3.74), and then fear of crime in the home (z-score 3.07). The respondents' faith was the final measure to reach significance (z-score 2.0, p 0.05). Table 3 shows that none of the measures relating to the police, the presence of a health clinic or the rural-urban distinction reached statistical significance. Age was the only significant demographic factor. Gender, race and faith were not significant factors. The regression results produced a pseudo R^2 of 0.17.

The strength of the property crime victimisation in the regression equation suggests that there is a need to examine the property and violence indicators more closely. As a result, Table 4 cross-tabulates the violence and property crime victimisation measures.

One hundred and fifty-seven (60.6%) of the 259 identified violence victims were also victims of property crimes (Table 4). One hundred and ninety-seven respondents indicated that they had a fear of crime in their homes and 196 a fear of crime in the neighbourhood. Again, these results point to the need for the re-

victimisation of these South African respondents to be considered. The strength of property crime victim measures in Table 2 and Table 3 suggests that the fear of crime reported by many of the South African respondents was not unsubstantiated, and was perhaps rooted in their personal experience.

Conclusion

Before the implication of these findings can be discussed, it should be noted that the results of the findings presented in Tables 2 and 4 indicate one of the weaknesses of this study, and should be a requirement for future research. There is a need to establish the time priority for physical and property crime victimisation. We were unable to determine from the data which victimisation occurred first, or whether or not it occurred at the same time. Therefore, correlation did not necessarily mean causation. This same caution is applicable to the fear-of-crime indicator. The question is whether or not the respondents had a valid reason to fear crime, especially as a large percentage of them had been victims of crime.

The issues raised are central to the development of crime prevention programmes in South Africa. These findings raise the issue of what Shepard¹⁶ defined as criminal deterrence, to be used as a public health strategy. As Shepard suggests, despite the fact that violence is now seen to be a public health issue, criminal deterrence as a public health strategy has been greeted with ambivalence and even hostility. Target hardening is one form of deterrence and implies the need for the implementation of crime prevention programmes, based on prior victimisation. Law

Table 2: Cross-tabulation violence victimisation and selected independent variables

Variable	Victim of violent crime		Total	p
	Yes [n (%)]	No [n (%)]		
Fear of crime in the home				
Yes	197 (16.1)	1 024 (83.9)	1 221	<0.001
No	61 (5.2)	1 113 (94.8)	1 174	
Fear of crime in the neighbourhood				
Yes	196 (14.3)	1 174 (85.7)	1 370	<0.001
No	63 (6.1)	963 (93.9)	1 026	
Residence				
Urban	163 (10.1)	1 453 (89.9)	1 616	0.11
Rural	96 (12.3)	687 (87.7)	783	
Residential crowding				
One or two adults	89 (9.4)	858 (90.6)	947	0.14
Three or four adults	126 (11.3)	987 (88.7)	1 113	
Five or more adults	39 (13.1)	258 (86.9)	297	
Police station in the area				
Yes	120 (9.9)	1 092 (90.1)	1 212	0.22
No	138 (11.7)	1 041 (88.3)	1 179	
Police visible in the area				
Yes	113 (17.0)	1 003 (89.9)	1 116	0.32
No	146 (11.4)	1 137 (88.6)	1 283	
A health clinic in the area				
Yes	157 (10.2)	1 378 (90.0)	1 695	0.19
No	102 (12.0)	750 (88.0)	639	

Table 3: Logistic regression analysis of violent crime victimisation*

Variable	Coefficient	Standard error	z-score	p
A victim of property crime	1.540	0.156	9.87	<0.001
Lived poverty	0.087	0.019	4.64	<0.001
Gender	-0.066	0.155	3.90	<0.001
Age	-0.400	0.105	-3.74	<0.001
Fear of crime in the home	0.323	0.105	0.31	0.002
Faith	0.310	0.156	2.00	0.05
Employment	0.153	0.090	1.67	0.10
Crowding	0.056	0.035	1.58	0.12
Trust in the police	0.030	0.190	0.17	0.87
Police officers are visible	-0.135	0.176	-0.77	0.44
Race	0.014	0.100	0.14	0.89
Education	-0.100	0.127	-0.77	0.44
Police station	0.082	0.210	0.39	0.70
Health clinic	0.170	0.200	-0.86	0.40
Urban or rural	-0.030	0.178	-0.16	0.87
Fear of crime in the neighbourhood	0.064	0.10	0.61	0.54

*: Number of observations = 2 103, chi-square = 244.25, $p < 0.001$, pseudo $R^2 = 0.17$

enforcement personnel should respond and follow-up incidents of reported property and/or violence victimisation within their jurisdiction. The purpose would be to attempt to prepare and assist victims to better protect both their premises and their person. Target hardening includes procedures such as installing improved locks, ensuring that proper night lighting has been

fitted by residents and bushes, which might impede residents' view of their property and that of the neighbourhood, cleared from in front of windows. Personal experience with target hardening programmes suggests that residents become open to target hardening approaches, as well as personnel, once they have been victimised. Also, once victimised, residents should be

Table 4: Cross-tabulation of property and violent crime victimisation

	Victim of property crime		Total
	Yes [n (%)]	No [n (%)]	
Yes	157 (25.7)	454 (74.3)	611
No	102 (5.7)	1 686 (94.3)	1 788
Total	259	2 140	2 399

Yates' chi-square = 188.97, $p < 0.001$

encouraged to develop local neighbourhood anti-crime groups which provide security to their own communities.

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