



# Shared and unique predictors of antisocial and substance use behavior among a nationally representative sample of South African youth



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## ARTICLE INFO

### Article history:

Received 22 August 2014

Accepted 27 September 2014

Available online 5 October 2014

### Keywords:

Antisocial behavior

Violence

Child abuse

Community violence

Substance use behavior

## ABSTRACT

There are well-documented high prevalence rates of violence, aggression, and substance use in South Africa. We examined theoretically salient risk factors for antisocial behavior and substance use identified in high income countries (e.g., abuse and poverty; Shaw & Gross, 2008) and whether they had predictive effects among South African youth, for whom longitudinal research examining predictors of violence is lacking. We collected data from a large, high-risk longitudinal sample of youth from two provinces in South Africa, encompassing rural and urban sites ( $N = 3515$ ; 97% retained at one year; 56.7% female;  $M$  age = 13.45). We assessed antisocial behavior and substance use using an adapted version of the CBCL-YSR and items from national surveys. Finally, we assessed risk factors using previously-validated indices of risk. Antisocial behavior and substance use were reciprocally related over time. Controlling for this overlap, as well as for relevant demographic covariates, child abuse predicted increases in antisocial behavior over time, and exposure to high levels of community violence predicted increases in both antisocial behavior and substance use one year later. The findings suggest that contextual risk factors underpinning etiological models of antisocial behavior and substance in high income countries are also relevant within the South African context. In particular, both harsh home and community environments were related to the development of youth antisocial and substance use behavior outcomes. We discuss the implications of these findings for preventative interventions to reduce youth engagement in risky antisocial and/or substance use behavior in South Africa.

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## 1. Introduction

Historically, high rates of physical violence have characterized South African society at a structural-, community-, and interpersonal-level (Barbarin, Richter, & DeWet, 2001; Leoschut & Bonora, 2007; Seedat, Van Niekerk, Jewkes, Suffla, & Ratele, 2009; van der Merwe & Dawes, 2000). A large literature has proposed that this legacy of violence contributes to ongoing high levels of sexual violence against women, use of weapons, and substance use behavior, particularly among young males growing up in deprived communities (Barbarin et al., 2001; Jewkes et al., 2006; Reddy et al., 2010). However, very few empirical studies have examined prospective associations between contextual risk factors for antisocial and substance use among youth in South Africa. The paucity of empirical research examining putative risk factors for antisocial behavior is of concern because young people aged 12–22 years old are increasingly the most likely perpetrators of violence or aggressive crime in South Africa, and around 35% of the country's prison population is under 25 years old (Department of Correctional Services, 2010). In the current study, we examined reciprocal associations between substance use and antisocial behavior in a large, high risk, and national sample of South African youth. Further, we examined whether exposure to violence, child abuse, or poverty predicted increases in antisocial behavior and substance use over time, controlling for their overlap.

Etiological models of antisocial behavior and substance use in high-income countries have been developed through decades of longitudinal research. In particular, prospective longitudinal studies have identified risk factors at the level of the individual (e.g., gender and early-onset conduct problems), family (e.g., abuse or harsh parenting), and community (e.g., living in a high-crime or deprived neighborhood) (see Loeber, Farrington, Stouthamer-Loeber, & Van Kammen, 1998; Murray & Farrington, 2010), all of which increase the likelihood of an individual developing aggressive or violent behavior, or using substances. However, much less is known about whether the same risk factors apply in LMIC (Murray, Cerqueira, & Kahn, 2013), where violence rates are often high, and there is a pressing need for preventive strategies. Qualitative investigations and large-scale cross-sectional surveys of youth in South Africa (mostly in Cape Town) have highlighted the roles of poverty, income disparity, exposure to violence and crime (including at home, school, and in the community), and familial environment in contributing to a culture of antisocial behavior among adolescents (e.g., Burton, 2006; Leoschut, 2009; Leoschut & Bonora, 2007). An important research question is whether the same factors that are reliably identified by prospective, longitudinal empirical studies in high-income countries also predict the development of AB and substance use among youth in South Africa.

To date however, few longitudinal, empirical studies have examined prospective associations between risk factors and antisocial behavior development among the South African youth. In a recent exception, we found that experience of violence in the community predicted youth-reported antisocial behavior four years later, over and above earlier reports of antisocial behavior, age, gender, and demographic factors, including poverty and orphanhood (see Gardner, Waller, Cluver, Maughan, & Boyes, under review). A primary goal of the current study was to try and replicate the same pattern of findings in an independent and much larger sample of high-risk youth from two different provinces in South Africa. However, in addition to high levels of antisocial or aggressive behavior, substance use among South African youth is also an increasing concern (e.g., Plüddemann, Flisher, McKetin, Parry, & Lombard, 2010; Ramsoomar & Morojele, 2012; Reddy et al., 2010).

Previous studies suggest that substance use (including cigarette smoking, alcohol use, and other drug use) and antisocial behavior are highly cross-sectionally inter-related among South African youth (e.g., Carney, Myers, Louw, Lombard, & Flisher, 2013; Morojele et al., 2002; Pahl, Brook, Morojele, & Brook, 2010; Plüddemann et al., 2010). Previous studies have also found that antisocial behavior predicts increased likelihood of engagement in substance use (Bui, Ellickson, & Bell, 2000; Mason & Windle, 2002). Further, a prospective association has been reported between engagement in substance use behavior and later violent behavior (including carrying weapons, bullying, and getting into physical fights) in studies from other developing countries (e.g., Ferguson & Meehan, 2010; Kuntsche, Knibbe, Engels, & Gmel, 2007), although this association has not been consistently replicated among South African youth within cross-sectional (e.g., Bui et al., 2000) or longitudinal (e.g., Carney et al., 2013) studies.

In order to identify how best to intervene with at-risk youth however, empirical evidence is needed from studies that prospectively test associations between putative risk factors and both antisocial behavior development and engagement in substance use. Given the apparent co-occurrence of various forms of substance use and other forms of antisocial or delinquent behavior, interventions that seek to target multiple behaviors may be more efficacious in changing psychosocial outcomes among youth in South Africa. There is thus a need for empirical studies that examine co-occurrence of antisocial and substance use behavior. Co-occurrence between traits is theorized to occur for several reasons – antisocial behavior may be a risk factor for substance use, or antisocial behavior may be a secondary manifestation following substance use; alternatively, substance use and antisocial behavior may share common risk factors (Caron & Rutter, 1991). However, risk factors thought to contribute to risk for these outcomes in a high-income country context (e.g., low-income and bereavement), may be relatively normalized among many youth growing up in deprived communities across different parts of South Africa, and thus not associated with the outcomes in the same way. Further, societal and/or service-level differences between South Africa and other countries may affect relationships between risk factors and antisocial behavior or substance use outcomes.

Indeed, there are risk factors potentially unique to the Southern African context that may put youth at risk of developing antisocial or substance use behavior. For example, approximately 3.7 million youth in South Africa have been orphaned and half of these are estimated to have been orphaned by HIV/AIDS (UNICEF, 2013). Previous studies have shown that youth orphaned by HIV/AIDS in South Africa are vulnerable to a host of chronic internalizing problems over time, including symptoms of anxiety, depression, and post-traumatic stress disorder (Cluver & Gardner, 2007; Cluver, Orkin, Gardner, & Boyes, 2012). However, no previous studies have examined whether orphanhood (by HIV/AIDS versus other causes) is associated with greater likelihood for substance use behavior. Another contextual source of risk important in the South African context is the type of housing, with high rates of violence being noted among informal urban housing settlements (e.g., Housing Development Agency South Africa, 2011; Hunter, 2010). However, no previous studies have assessed the direct effect of housing type or urban living on the development of youth antisocial or substance youth behavior.

In the current study, we had two aims relating to the association between antisocial and substance use behavior and potential shared or unique risk factors for these outcomes among South African youth. *Study aim 1* was to examine the co-occurrence of substance use and antisocial behavior among adolescents in South Africa. We conducted

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