Exposure to violence, teacher support, and school delay amongst adolescents in South Africa

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Background. Many adolescents in South Africa are exposed to multiple types of violence, socio-economic disadvantage, and low-quality education: all risk factors for educational outcomes including school delay (grade enrolment below that which is age-appropriate). Supportive teacher–student relationships are known to be associated with improved academic outcomes in high-income contexts.

Aims. To investigate whether the academic and emotional support provided by teachers can protect against school delay for adolescents exposed to multiple types of violence and socio-economic disadvantage in South Africa.

Sample. High-risk sample of 503 adolescents aged 10–18 exposed to multiple types of violence and socio-economic disadvantage at home, in school, and in their communities.

Methods. Multilevel aggregated structural equation modelling was applied to pre/post-RCT data. This investigated whether associations between adolescent exposure to violence and school delay could be lessened by having teachers who were academically and/or emotionally supportive.

Results. More frequent exposure to 'poly-violence' and receiving more emotional support from teachers were independently associated with greater school delay. On the contrary, higher academic support from teachers was associated with lower school delay. Neither academic nor emotional teacher support was found to moderate the relationship between more frequent exposure to 'poly-violence' and an increased risk of adolescent school delay.

Conclusion. Adolescents' academic support from teachers is low in poorly resourced school contexts in South Africa. School-based secondary prevention programmes assisting teachers with more training and academic support in deprived contexts have potential to reduce the impact of violence and socio-economic disadvantage on adolescents' school delay.

Having a supportive relationship with at least one adult other than the child primary caregiver is well established as important for children whose development or educational progress is at risk (Luthar, Cicchetti, & Becker, 2000; Lynch & Cicchetti, 1992). Of the various adults considered for this role, teachers are able to provide an important source of protection against school failure and it is well known that they can contribute to the resilience of highly at-risk children (Hall *et al.*, 2013; Luthar, 2006; Rutter, 1987; Sammons

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et al., 2013). For instance, teachers can be considered by young children as an alternative attachment figure when primary caregivers do not provide an adequate secure and loving environment at home (Garcia Sierra, 2012; Lynch & Cicchetti, 1992). Furthermore, having a supportive relationship with a school teacher can compensate against maltreatment and conflictual relationships at home during adolescence (Crosnoe & Elder, 2004; Lynch & Cicchetti, 1997).

Types of teacher support

Teachers can provide different types of support to students with studies often focusing upon academic support and/or emotional support (Ahmed, Minnaert, Van der Werf, & Kuyper, 2010; Ansong, Okumu, Bowen, Walker, & Eisensmith, 2017; Brewster & Bowen, 2004; Rudasill, Gallagher, & White, 2010; Zee, Koomen, & Van Der Veen, 2013; Zhang, Haddad, Torres, & Chen, 2011). Academic support refers to a variety of resources – interpersonal, emotional, cognitive, behavioural, and instrumental – contributing to student academic achievement and school success (Chen, 2005). It is primarily aimed at helping students improve their academic learning process using various instructional methods, educational services, or school resources (Abbot, 2014). Emotional support is a subtype of social support and refers to the provision of care, empathy, love, and trust (Langford, Bowsher, Maloney, & Lillis, 1997). Seminal research identifies that this can make a person feel cared for, loved, and valued, and that they belong to a network of mutual obligation (Cobb, 1976). Emotional support has been identified as an important protective factor for children's mental health and emotional well-being (Luthar *et al.*, 2000) as well as having positive effects on several educational outcomes (Osterman, 2002; Protheroe, 2007). For instance, supportive relationships and the experience of belonging are associated with academic motivation, engagement, and performance (Osterman, 2002). In particular, feeling known and valued by one adult in school is an important factor for learning, especially amongst children with difficulties in their personal and academic lives (Lynch & Cicchetti, 1992; Protheroe, 2007).

Teacher support and educational outcomes

Long-term supportive teacher–student relationships are well known to be directly associated with improved academic outcomes from the preschool (Hall *et al.*, 2013; Siraj-Blatchford, Taggart, Sammons, Melhuish, & Sylva, 2013) through high school periods (Hamre & Pianta, 2001; Roorda & Koomen, 2011; Sylva, Melhuish, Sammons, Siraj & Taggart, 2014; Wu, Hughes, & Kwok, 2010). Despite the fact that children's perceptions of positive teacher–student relationships decrease as children get older (Goodenow, 1993; Lynch & Cicchetti, 1997), a positive relationship with teachers is a strong predictor of school adjustment, engagement, and motivation during adolescence (Lynch & Cicchetti, 1997; Nugent, 2009; Perry & Liu, 2010; Sakiz, Pape, & Woolfolk, 2012). In a meta-analysis of 99 studies investigating the association between teacher–student relationships and students' school engagement and achievement from preschool to high school, medium-to-large associations were found between positive relationships and engagement (Roorda & Koomen, 2011). Furthermore, small-to-medium associations were found between positive relationships and academic achievement (Roorda & Koomen, 2011).

Further studies have investigated whether teacher support can lessen the relationship between exposure to risk factors and negative developmental outcomes. For instance, teacher emotional support and positive teacher–student relationships have been identified as buffering the negative effects of bullying on bully victims' academic achievement (Konishi, Hymel, Zumbo, & Li, 2010) and quality of life (Elledge, Elledge, Newgent, & Cavell, 2016; Flaspohler, Elfstrom, Vanderzee, Sink, & Birchmeier, 2009).

Despite the strong evidence of the existence of both direct and risk-mitigating effects from teacher support on student outcomes using normative samples in high-income countries (HIC), there is much less evidence investigating both disadvantaged students in HIC and students in low- and middle-income countries (LMIC) (Ansong *et al.*, 2017; Brewster & Bowen, 2004; Dass-Brailsford, 2005; Theron & Theron, 2014). Literature from sub-Saharan Africa suggests that in the face of multiple challenges such as poverty, violence, and HIV/AIDS, schools and teachers can play an important role contributing to the resilience of disadvantaged children and adolescents (Dass-Brailsford, 2005; Theron & Theron, 2014). Caring and nurturing teachers often go beyond their academic duty and voluntarily provide welfare, support, and mentorship to children in great need. For instance, in the South African context, resilience researchers have identified caring teachers as important 'agents of resilience' for neglected children with limited access to formal health and social services (Theron & Engelbrecht, 2012; Theron, Liebenberg, & Malindi, 2013).

However, limited and mixed findings can be found on the specific effects of teacher support on adolescents' educational outcomes in disadvantaged contexts in sub-Saharan Africa. Only two retrospective qualitative studies in South Africa investigated factors associated with the academic success of resilient students from socio-economic disadvantaged contexts (Dass-Brailsford, 2005; Theron & Theron, 2014). The first study analysed whether education services were associated with the academic success of 16 resilient, black university students from impoverished families (Theron & Theron, 2014). Results from this study showed that it was common for the university students to associate their academic resilience with a level of engagement and support from school teachers and principals that went beyond their ordinary tasks. The second study explored the factors that supported a resilient trajectory for disadvantaged black adolescents attending deprived township schools (Dass-Brailsford, 2005). The adolescents viewed their teachers as role models and sources of encouragement. In contrast, the results from a cross-sectional study with 135 students between 12 and 23 years in Ghana showed that teacher support was neither a mediator nor a direct predictor of student engagement (Ansong *et al.*, 2017). Based on these limited and mixed findings, it remains unclear what the effects of teacher support on students' educational outcomes are in the sub-Saharan African context (Ansong *et al.*, 2017). As a result, further studies investigating the relationship between teacher support and educational outcomes in sub-Saharan African countries are needed to shed light on this question.

Socio-economic disadvantage, exposure to violence, and school delay amongst adolescents in South Africa

South Africa is a highly unequal country (The World Bank, 2017). Overall, 60% of all South African children live below the poverty line (The South African Child Gauge, 2016). As a result, many children and adolescents facing poverty are frequently exposed to learning deprivation and school delay. Learning deprivation is especially high in many provinces.

For example, in the Eastern Cape, 29.3% of all adolescents in the intermediate phase and 35.8% in the senior phase are considered to be 'deprived learners' based on the *Learning Environment Deprivation Index* (Statistics South Africa, 2013). This index contains school measures that were associated with adolescents' educational outcomes, such as access to water and electricity (Statistics South Africa, 2013). Moreover, school delay – or being enrolled in a school grade below that which is age-appropriate – is common amongst adolescents in South Africa, especially in socio-economically disadvantaged communities (Spaull, 2015). In the Eastern Cape Province, in particular, 69% of learners in 2013 were older than the expected age given the grade and only 77.3% of 15-year-old adolescents had completed primary education (Statistics South Africa, 2013). Low-quality education, cumulative learning deficits, and grade repetition are associated with school delay, which in turn predicts school dropout, unemployment, limited social mobility, and poverty in South Africa (Spaull, 2015).

Within South Africa, socio-economic disadvantage and educational exclusion are associated with high rates of violence against children and adolescents at home, in the school, and in the community (Burton & Leoschut, 2013; Ward, Artz, Burton, & Leoschut, 2015). For instance, 64% of all adolescents aged 15 to 18 in South Africa currently experience two or more forms of violence in their lifetime, while 35.4% experience five or more forms of violence (Leoschut & Kafaar, 2017). Further, socio-economic disadvantage, educational exclusion, and exposure to violence all pose a risk to educational progress (Herrero Romero, Hall, Cluver, Meinck, & Hinde, unpublished data; Pieterse, 2015; Sherr *et al.*, 2016). For instance, results from a recent cross-sectional analysis of 4,747 youths aged 14–22 showed that repeated exposure to physical abuse at home was associated with school dropout and lower maths academic achievement (Pieterse, 2015). To date, however, only one study has investigated the relationship between exposure to multiple types of violence and educational outcomes. In a cross-sectional study of an at-risk sample of adolescents aged 10–18 in the Eastern Cape, more frequent exposure to 'poly-violence' was associated with worse school delay but not with worse academic motivation (Herrero Romero *et al.*, unpublished data).

The current study

To the best of our knowledge, no quantitative study yet exists to examine the relationship between teacher support and the educational outcomes of at-risk adolescents in South Africa. This is a profound gap in the literature and one that this investigation aims to address. We aimed to determine the potential protective impact of teacher academic and emotional support against adolescents' school delay in a context of violence and socio-economic disadvantage. Thus, this study examined two hypotheses. First, it was hypothesized that both teacher academic and teacher emotional support were likely to be directly associated with less school delay. Second, it was also hypothesized that teacher academic and emotional support would moderate the relationship between more frequent exposure to multiple types of violence (termed, 'poly-violence') and school delay.

Methods

Participants and study design

The current investigation was part of the Sinovuyo Teen study: a randomized control trial (RCT) evaluating the effectiveness of a parenting programme in reducing child abuse and harsh parenting in severely disadvantaged communities in the Eastern Cape, South Africa

(Cluver *et al.*, 2017). Study participants were adolescents aged 10 to 18 who were recruited alongside their main caregivers to take part in a parenting programme trial. Recruitment took place from April to May 2015. Overall, three recruitment strategies were used: First, school principals, social workers, and community leaders were asked to identify families in their communities who might benefit from the programme; second, community guides were recruited to help the research team reach more families; and third, some families self-referred when they found out about the programme. Inclusion criteria were as follows: Adolescents had to be 10–18 years old, they had to sleep at least four nights a week in the same household as their main caregiver, and they identified regular arguments at home in a brief screening questionnaire.

Trained, local research assistants conducted face-to-face interviews with adolescents before (baseline) and after (post-test) the parenting programme. For the more sensitive questions, tablets with Audio Computer-Assisted Self-Interview Software (ACASI) options were available. Further information about the Sinovuyo Teen trial recruitment, design, and methods can be found in the trial protocol (Cluver *et al.*, 2016).

The findings reported in this article come from an investigation of the adolescents who were recruited and interviewed at baseline (May–September 2015). Of the total 552 recruited adolescents, 22 dropped out before the completion of the STS programme and thus did not complete post-test interviews conducted from February to August 2016. Furthermore, 27 adolescents reported not attending school in the post-test interviews. Thus, only 503 adolescents were included in the present investigation.

Ethics approvals for this study were obtained from the University of Oxford, University of Cape Town, and the national and provincial Departments of Basic Education and Social Development, while community consent was gained from traditional chiefs and local governments. Individual consent to participate was then obtained from caregivers and adolescents. Adolescents received small participation 'thank you' packages with stationary and toiletries, as well as certificates. Economic compensation was not given to participants. Adolescents and their caregivers were informed about their right to withdraw their consent to participate at any time during the trial. Confidentiality was ensured anonymizing participants' personal data as well as using encryption techniques. For the current investigation, additional authorization from the Department of Basic Education was obtained for the research team to visit schools, and further consent was gained from school principals and teachers participating in the study.

Study measures

School delay (at post-test)
A continuous scale was used to measure adolescents' school delay. Scores ranged from -3 (3 years below age-appropriate grade) to $+3$ (3 years ahead of age-appropriate grade). Adolescents who were enrolled in the age-appropriate grade scored 0.

'Poly-violence' (at baseline)
Given the high rates of multiple types of violence adolescents were exposed to in the home, at school, and in their communities, '*poly-violence*' was defined as being exposed to at least two forms of violence in the past month. Six measures were used to record the frequency of violence that adolescents were exposed to. *Domestic violence between household members, Adolescent physical abuse by caregivers,* and *Adolescent*

emotional abuse by caregivers were measured using a culturally adapted version of the ISPCAN Child Abuse Screening Tool (ICAST-C; Meinck *et al.*, unpublished data; Zolotor *et al.*, 2009) and the Corporal Punishment subscale of the Alabama Parenting Questionnaire (Frick, 1991). *Perceived school violence* was measured using items based on UNICEF Safe and Caring Child-Friendly School Study (UNICEF, 2009). *Witnessing community violence* and *Community violence victimization* were measured using the Exposure to Violence Scale from the Social and Health Assessment (SAHA) study (Ruchkin, Vermeiren, & Schwab-Stone, 2004; Ward, Martin, Theron, & Distiller, 2007).

Sampled adolescents were classified into two profiles based on the frequency of their exposure to six forms of violence in the past month: Profile 1 – adolescents exposed to more frequent 'poly-violence' ($n = 60$) and Profile 2 – adolescents exposed to less frequent 'poly-violence' ($n = 443$). The two profiles were identified via a latent profile analysis (LPA) LPA is a person-centred type of analysis which identifies unobserved subpopulations from a heterogeneous population based on mean-level response patterns across multiple continuous risk indicators (Masyn, 2013). Latent profile analysis is increasingly used to measure the cumulative exposure to multiple forms of violence (Charak *et al.*, 2016; Clarke *et al.*, 2016; Lanza, Rhoades, Nix, & Greenberg, 2010; Petrenko, Friend, Garrido, Taussig, & Culhane, 2013). In contrast to variable-centred models, person-centred models allow researchers to identify patterns of exposure to co-occurring risks and outcomes between subgroups of children (Masten, 2014). In this study, the LPA suggested that there were two heterogeneous profiles of adolescents – differentiated according to the frequency of violence that they were exposed to. The LPA detailed results are reported elsewhere (see Herrero Romero *et al.*, unpublished data). Table 1 displays a summary of the mean scores for each of the six risk indicators for 'poly-violence', as well as frequencies of exposure to each indicator. Compared to adolescents in Profile 2 ($n = 443$), adolescents in Profile 1 ($n = 60$) were likely to experience more regular domestic violence ($p < .001$), physical abuse ($p < .001$), emotional abuse ($p < .001$), community violence victimization ($p = .060$), and to witness community violence ($p = .001$). However, the perception of school violence was equal across the two profiles ($p = .500$). In this investigation, an adolescent's membership of one of two profiles was treated as a measure of the frequency with which they experience 'poly-violence'. A dichotomous measure was created based on the two profile coded such that 0 indicated less frequent exposure to 'poly-violence' ($n = 443$) whereas 1 indicated more frequent exposure to 'poly-violence' ($n = 60$).

Teacher support (at baseline)

A diversity of measures and terms can be found in the literature investigating the effects of support from teachers on students' outcomes. Most studies analyse the positive relationship between 'teacher support' and educational outcomes using a very broad concept of 'support' which includes academic support, as well as social subtypes of support, such as emotional, informational, instrumental, and motivational support (Ahmed *et al.*, 2010; Ansong *et al.*, 2017; Brewster & Bowen, 2004; Zee *et al.*, 2013). Nonetheless, other studies have focused on the direct and unique positive effects of teacher emotional support (Rudasill *et al.*, 2010; Ruzek *et al.*, 2016) or teacher academic support (Chen, 2005) on the academic achievement of middle and high school students. In the current study, the following measures were used to investigate teacher support: academic support and emotional support.

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Table 1. Exposure to violence amongst adolescents from socio-economically disadvantaged communities in the Eastern Cape, South Africa

The six measures underlying the two 'poly-violence' profiles	Profile comparison: Mean (SE)			Profile comparison: n (%)	
	Profile 1: More frequent 'poly-violence' n = 60	Profile 2: Less frequent 'poly-violence' n = 443	p-Value from Wald test	Profile 1: More frequent 'poly-violence' n = 60 (%)	Profile 2: Less frequent 'poly-violence' n = 443 (%)
Exposure to violence – Risk indicators					
1. Domestic violence between household members	8.39 (1.13)	1.63 (0.21)	**<.001**	54 (90)	203 (45.8)
2. Adolescent physical abuse by caregivers	16.77 (2.65)	6.01 (0.35)	**<.001**	49 (81.7)	269 (60.7)
3. Adolescent emotional abuse by caregivers	21.58 (2.35)	3.93 (0.39)	**<.001**	60 (100)	323 (72.9)
4. Perceived school violence	9.20 (0.50)	8.86 (0.13)	.542	55 (91.7)	389 (87.8)
5. Community violence – victimization	1.19 (0.30)	0.66 (0.06)	.063	26 (43.3)	137 (30.9)
6. Community violence – witnessing	4.31 (0.56)	2.52 (0.14)	**.001**	52 (86.7)	309 (69.8)

Bold numbers indicate significant p-values (<0.05).

Table 2. Sinovuyo Teen Study measures recording teacher support of students

Measures	Authors	Items	Items response codes	Scale score range
Academic support	UNICEF (2009; three items)	1. Teachers notice if I am having difficulty with my lessons	0 = Never	0–24
		2. I can talk to teachers at school if I am having problems in class	1, 2 3, 4, 5, 6, 7 = that many times	
		3. My teachers give me feedback on my assignments that help me to improve my work	8 = 8 or more times	
Emotional support	Sherbourne and Stewart (1991; three items)	1. Is your teacher someone you can count on to listen to you when you need to talk	0 = Never	0–6
		2. Is your teacher someone to confide in or talk to about yourself or your problems	1 = Sometimes	
		3. Is your teacher someone who understands your problems	2 = Always	

Academic support from teachers was measured via student self-report using three items adapted from the Emotionally Supportive Climate scale used in the UNICEF Safe and Caring Child-Friendly Schools Study (UNICEF, 2009). This scale measured the extent to which students felt listened to and helped by teachers as well as other adults at school. The response code was adapted to a scale from 0 to 8 (see Table 2).

Emotional support from teachers was measured via student report using three items from the emotional/information subscale of the Medical Outcome Study (MOS) Social Support Survey (Sherbourne & Stewart, 1991). Responses correspond to a three-point Likert scale ranging from 'never' to 'always' (see Table 2).

Background measures

The analyses of this investigation statistically controlled for differences in adolescents' school delay that were linked to their age, gender, socio-economic disadvantage and which of the two Sinovuyo Teen study trial arms they took part in. This was carried out to achieve results that were more accurate to conditions on the ground (Meinck *et al.*, 2016; Operario, Cluver, Rees, Macphail, & Pettifor, 2008). Adolescents' age (recorded in years) and gender (coded 0 = male and 1 = female) were measured via self-completion questionnaires. Socio-economic disadvantage was indicated according to whether or not adolescents had two or more basic necessities not met in the past week (coded 0 and 1, respectively). Basic necessities were assessed using the *Top Eight Socially-perceived Necessities Index* in South Africa' (Pillay, Roberts, & Rule, 2006). A dichotomous measure recorded whether adolescents were participants in the intervention or the control trial arm in the main Sinovuyo Teen study trial coded 0 = control group (*n* = 252) and 1 = intervention group (*n* = 251).

Data analysis

Figure 1 shows a stylized representation of the multilevel aggregated structural equation model (SEM) that was specified to test the research objectives of this
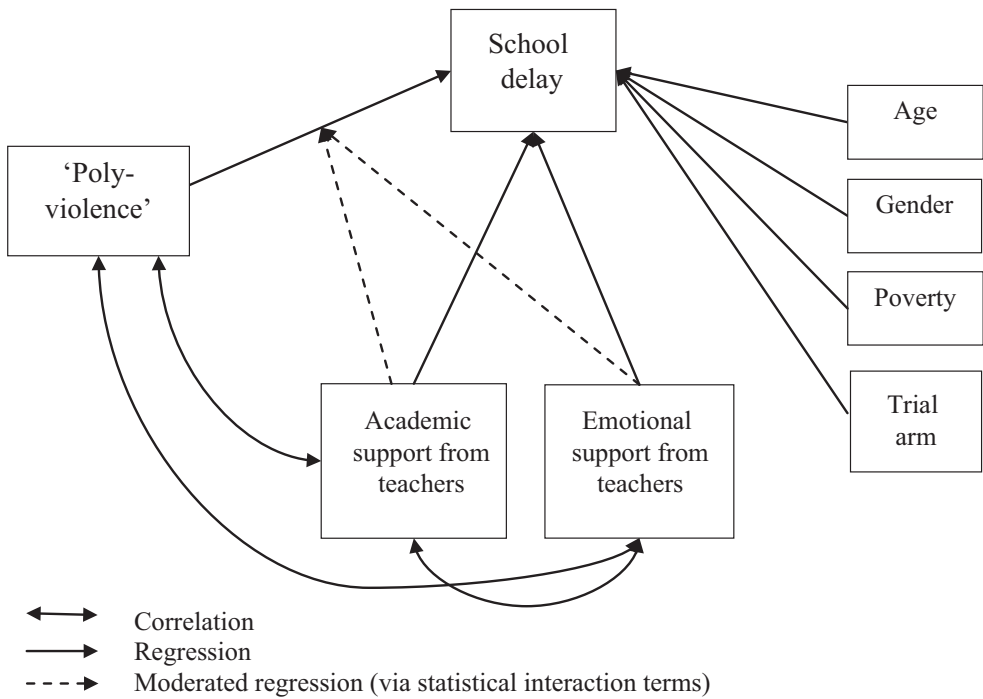
Figure 1. Stylized representation of the aggregated multilevel structural equation model estimating the effects of more frequent exposure to 'poly-violence' and the effects of teacher support on the likelihood of adolescent school delay in Eastern Cape, South Africa.

investigation. The dichotomous variable of 'poly-violence' was entered into the SEM. The model was implemented in two stages. First, the direct effects of more frequent exposure to 'poly-violence', plus teachers' academic, and emotional support on school delay were established. Second, two interaction effects between a binary and a continuous variable ('poly-violence' x teacher academic support; 'poly-violence' x teacher emotional support) were evaluated to investigate potential moderating effects of teacher support on the relationship between students' exposure to 'poly-violence' and school delay.

Adolescents were nested in schools and communities. Thus, to correct for the non-independence of observations, an investigation of the study design effects and intraclass correlation (ICC) was conducted. Intraclass correlations revealed that a small proportion of variation in school delay was attributable to differences between communities (ICC=0.15; $p < .05$), while no significant variation on school delay was explained due to differences between schools (Herrero Romero *et al.*, unpublished data). This necessitated the use of multilevel SEM which was achieved via use of standard errors corrected to take account of the effect of students being sampled from communities. Further, to avoid multicollinearity and increase the interpretability of the statistical interactions (Aiken, West, & Reno, 1991), all measures predicting school delay were grand mean-centred in SPSS before conducting the main structural equation models in Mplus v7 (Field, 2013; L. Muthen & Muthen, 2012). Acceptable model fit was identified for the two phases of the SEM as indicated by root-mean-square error of approximation (RMSEA) values of <.05 and comparative fit index (CFI) values of more than .9 (Kenny, 2014).

Table 3. Sample descriptive statistics at baseline (*n* = 503)

	Mean ± SD/n (%)
Demographics	
Adolescent age (years)	13.71 ± 2.34
Female adolescent	208 (41.4)
Adolescent living in a rural community	405 (80.5)
Adolescent was an orphan	160 (31.8)
Xhosa as the main language spoken at home	502 (99.8)
Household socio-economic characteristics	
More than two basic necessities missing in the past month	382 (75.9)
At least 2 days in the past week with not enough food at home	222 (44.1)
Living in a household where no one is working	350 (69.6)
Living in a household with no tap water	318 (63.2)
Schooling characteristics	
Enrolled in state school	503 (100)
Enrolled in at least 1 year below the appropriate grade in relation to age	128 (37.6)
Enrolled in at least two grades higher than the appropriate grade in relation to age	61 (13.1)
Attending secondary schools	214 (48.6)
Attending schools in rural communities	335 (66.6)
Attending poorly resourced schools[a]	430 (85.5)
Receiving free meals at school	484 (96.2)
Past-month exposure to violence[b]	
Witnessed domestic violence between household members	257 (51.1)
Experienced physical abuse by caregivers	318 (63.2)
Experienced emotional abuse by caregivers	383 (76.1)
Felt unsafe in school	444 (88.3)
Experienced community violence (victimization)	163 (32.4)
Witnessed community violence	361 (71.8)
Exposed to any form of violence	499 (99.2)
Exposed to 'poly-violence'	472 (93.8)
Exposed to all six forms of violence	57 (11.3)
Teacher support	
Academic support (Scale score range: 0–24)[c]	6.90 ± 2.14
Emotional support (Scale score range: 0–6)[d]	3.30 ± 1.96

Notes. [a]Quintile 1–3 State Schools.
[b]% of adolescents who replied different than *never* to at least one of the violence item questions or % of adolescents who replied *mostly true* or *definitely true* to at least one of the *perceived school violence* scale questions.
[c]Academic support scores in the study sample ranged from 0 to 9.
[d]Emotional support scores in the study sample ranged from 0 to 6.

Results

Descriptive statistics

Table 3 shows the main demographic and socio-economic characteristics of the study sample as well as displaying baseline characteristics related to school, exposure to violence, and teacher support. The vast majority of adolescents were Xhosa speakers (99.8%) who lived in rural communities (80.5%). Overall, adolescents in the study sample

were exposed to high levels of socio-economic disadvantage at home, in school, and in their communities. For instance, more than half of the study sample lived in households were no one was working (69.6%) and had no piped water at home (63.2%), while three quarters of the study sample reported having two basic necessities missing in the past month. 96.2% received daily free meals at school and 85.5% attended poorly resourced state schools (quintile 1 to 3 schools in the South African state school classification system). Around 40% of the study sample was enrolled in at least 1 year below the appropriate grade in relation to their age. Overall, adolescents in the study sample perceived very low academic support from their teachers ($M = 6.897, SD = 2.143$) with a maximum achieved score of nine of 24. Overall, 99.2% of the sample adolescents reported having been exposed to at least one form of violence in the past month, 93.8% said they were exposed to 'poly-violence' (at least two forms of violence), and 11.3% were exposed to all six forms of violence.

Correlations amongst variables are shown in Table 4. School delay outcome was significantly and positively related to more frequent 'poly-violence', emotional support from teachers, and older age, while being significantly and negatively related to academic support from teachers and female gender. However, these correlations were generally weak (<|0.32|). Neither family poverty nor trial arm was significantly associated with either school delay or violence profile membership (more frequent vs. less frequent 'poly-violence').

Academic and emotional support from teachers: independent effects
Table 5 shows the size and statistical significance of the independent effects and the interaction effects upon school delay from the estimated SEM while Figure 2 displays a stylized representation of the results of multilevel aggregated structural equation model (SEM). Results from Stage 1 of the modelling reveal the independent effects on school delay linked to more frequent exposure to 'poly-violence', teacher academic support, and teacher emotional support. Results from Stage 1 showed that being exposed to more frequent 'poly-violence' and receiving more emotional support from teachers were both independently associated with greater school delay ($p < .05$). On the contrary, higher academic support from teachers was associated with lower school delay ($p < .01$). Furthermore, males and older students were more likely to exhibit school delay ($p < .001$).

Academic and emotional support from teachers: interaction effects
Stage 2 of the SEM tested for potential interaction effects between exposure to more frequent 'poly-violence' and one or both of the teacher support measures. The results shown in Table 5 reveal that no significant effects were found for either the interaction of more frequent 'poly-violence' with academic support ($p = .466$) or more frequent 'poly-violence' with emotional support ($p = .846$). Furthermore, the independent effects on school delay from more frequent 'poly-violence', teacher academic support, teacher emotional support, student gender, and student age continued being significant once the interaction terms were added into the model. These results indicated that teacher support did not moderate the relationship between more frequent exposure to 'poly-violence' and adolescents' school delay in the context of socio-economically disadvantaged areas in South Africa.

Table 4. Intercorrelations amongst variables

	School delay	More frequent 'poly-violence' (P)	Emotional support from teachers	Academic support from teachers	Female gender	Older age	Poverty	Intervention trial arm
School delay	1.000	0.105	0.094*	−0.099*	−0.221***	0.322***	0.024	0.079
More frequent 'poly-violence' (P)	0.105	1.000	0.113	−0.027	0.027	0.133	0.060	0.001
Emotional support from teachers	0.094*	0.113	1.000	0.323***	0.139***	−0.040	−0.041	−0.003
Academic support from teachers	−0.099*	−0.027	0.323***	1.000	0.105*	−0.015	−0.108*	0.023
Female gender	−0.221***	0.027	0.139***	0.105*	1.000	−0.010	−0.007	0.042
Older age	0.322***	0.133	−0.040	−0.015	−0.010	1.000	0.028	0.012
Poverty	0.024	0.060	−0.041	−0.108*	−0.007	0.028	1.000	−0.117*
Intervention trial arm	0.079	0.001	−0.003	0.023	0.042	0.012	−0.117*	1.000

Notes. *$p < .05$; **$p < .01$; ***$p < .001$.

Table 5. Teacher academic and emotional support: Independent and interaction effects (with 'poly-violence') on school delay

	Unstandardized estimate	Standardized estimate	SE	p-Value
Step 1: Independent effects				
More frequent 'poly-violence' (P)	0.14	0.11	.06	**.011**
Emotional support from teachers	0.07	0.10	.03	**.024**
Academic support from teachers	−0.08	−0.09	.03	**.008**
Female gender	−0.59	−0.25	.11	**<.001**
Older age	0.18	0.31	.02	**<.001**
Poverty	0.02	0.02	.03	.561
Intervention trial arm	0.21	0.08	.15	.164
Step 2: Additional interaction effects				
More frequent 'poly-violence' (P)	0.14	0.11	.06	**.019**
Emotional support from teachers	0.07	0.10	.03	**.021**
Academic support from teachers	−0.08	−0.09	.03	**.008**
Female gender	−0.59	−0.25	.11	**<.001**
Older age	0.18	0.31	.02	**<.001**
Poverty	0.02	0.02	.03	.570
Intervention trial arm	0.22	0.08	.15	.154
P*Emotional support from teachers	−0.01	−0.02	.03	.846
P*Academic support from teachers	−0.03	−0.18	.04	.466

Note. Model fit for Model 1: RMSEA = .047, TLI = .911; Model fit for Model 2: RMSEA = .033, TLI = .940.
Bold numbers indicate significant *p*-values (<0.05).

Discussion

The current study analysed the effects of teacher support and exposure to 'poly-violence' on school delay amongst adolescents in South Africa. Adolescents in the sample were between 10 and 18 and exposed to high levels of violence and socio-economic disadvantage in their homes, schools, and communities. It was hypothesized that teacher academic and emotional support would act as protective factors against school delay. Moreover, it was hypothesized that this protection would be particularly important for adolescents exposed to more frequent 'poly-violence', compared to those exposed to less frequent 'poly-violence'.

The protective effect of teacher support on school delay
Our results suggest four sets of findings. First, descriptive statistics showed that adolescents in socio-economically disadvantaged communities perceive the academic support provided by teachers to be low. This is coherent with the socio-economic characteristics of poorly resourced state schools in rural Eastern Cape, where high learner-teacher ratios and poor academic learning environments are common (John, 2015; Spaull, 2013). In such contexts, providing consistent and effective academic support to all students can be difficult due to limited resources, high proportions of adolescents with special educational needs, institutionalized poor education of many teachers under the
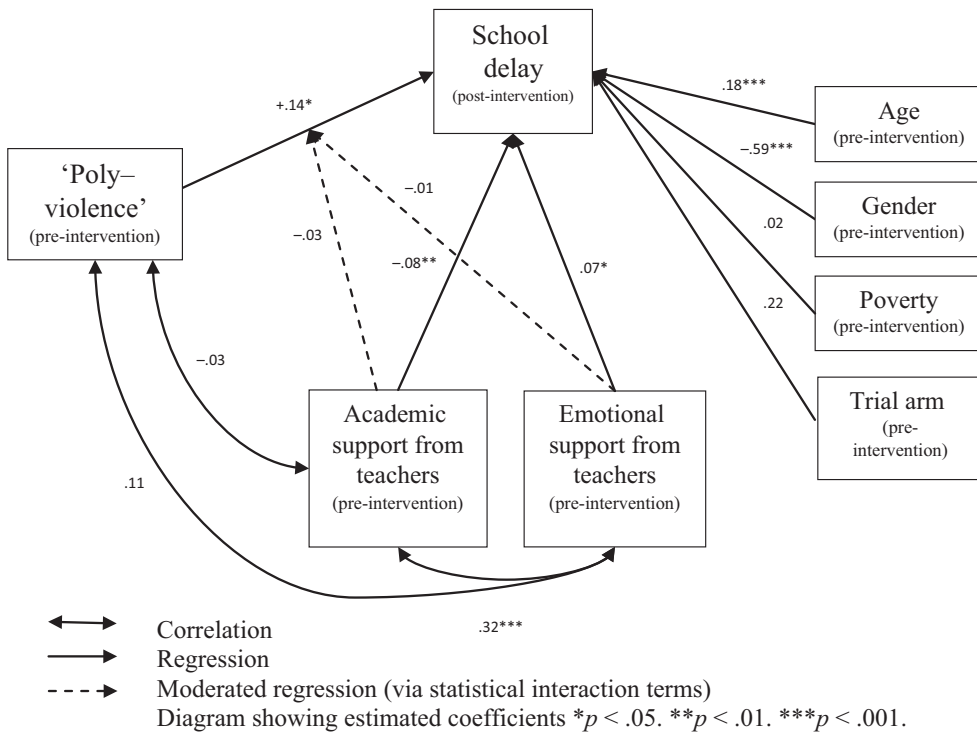
Figure 2. Stylized representation of the results of the aggregated multilevel structural equation model estimating the effects of more frequent exposure to 'poly-violence' and the effects of teacher support on the likelihood of adolescent school delay in Eastern Cape, South Africa (standardized estimates).

apartheid regime, and overall low turnout and high sickness amongst school staff (Spaull, 2015; Spaull & Kotze, 2015). In contrast, these same adolescents perceived the emotional support provided by teachers to be high. This is also in line with findings from other studies of at-risk youth in South Africa identifying teachers as sources of encouragement and care (Dass-Brailsford, 2005; Theron & Engelbrecht, 2012; Ward *et al.*, 2007).

Second, the academic support provided by teachers can help to mitigate the likelihood of school delay for all adolescents living in disadvantaged communities in South Africa (just not an extra 'boost' for those who experience more frequent 'poly-violence'; see below). This finding extends previous work with adolescents in HIC such as the United States, the Netherlands, New Zealand, and Hong Kong (Chen, 2005; Nugent, 2009; Perry & Liu, 2010; Zee *et al.*, 2013).

Third, contrary to what was hypothesized, emotional support from teachers is associated with an *increased* likelihood of school delay amongst adolescents who are exposed to multiple forms of violence and socio-economic disadvantage. This finding seems to contradict previous studies that point at the positive effect of affective or emotional support from teachers on educational outcomes (Rudasill *et al.*, 2010; Ruzek *et al.*, 2016). However, given the South African school context, one plausible explanation is that those adolescents who were in greater need of affectionate support were the most at risk for academic failure. Previous studies have shown how severe distress often hinders adolescents' academic progress in South Africa (Cluver, Operario, Lane, & Kganakga, 2011; Operario *et al.*, 2008). Thus, teachers may have been prioritizing their most

vulnerable students' well-being and mental health above academic matters. This might have led teachers to have low academic expectations for adolescents who were demonstrating greater disadvantage and/or needs – a reaction by teachers that has been well documented previously (Speybroeck *et al.*, 2012; Weiner, 1985). However, to confirm this hypothesis, other outcomes related to adolescents' well-being will need to be considered in future analyses. These analyses could also investigate the potential mediating pathway of low teacher expectations.

Fourth, neither the academic nor emotional support provided by teachers proved protective against the increased school delay associated with being more frequently exposed to 'poly-violence'. Therefore, teachers can play an important role in protecting against exposure to violence and socio-economic disadvantage for the adolescent populations in South Africa. Nevertheless, this finding suggests that teacher support has little buffering effect against the negative impact of being more frequently exposed to 'poly-violence' on adolescents' school delay. Furthermore, the fact that our results showed no moderating effects of teacher support (emotional or academic) on the relationship between violence exposure and school delay implies that children who are highly at risk (i.e., exposed to more frequent 'poly-violence') do not receive the special attention they need at school. Other studies have shown that teachers can protect against the negative effects of exposure to maltreatment at home or bullying on several child outcomes in the United States and Canada (Elledge *et al.*, 2016; Flaspohler *et al.*, 2009; Konishi *et al.*, 2010; Lynch & Cicchetti, 1992). However, in the specific context of multiple exposure to violence and socio-economic disadvantage in South Africa, further research needs to examine other potential factors mediating the relationship between exposure to violence and school delay, such as parental support and peer support. For instance, results from a very recent analysis in South Africa show that supportive parenting characteristics such as positive parenting and consistent discipline have the potential to protect against school delay for poly-victimized adolescents (Herrero Romero, Hall, Cluver, & Meinck, 2017).

Strengths, limitations, and implications for policy

The current study has three main strengths. First, this is the first study to investigate the effects of teacher support on adolescents' academic outcomes in South Africa through the gathering and analyses of numeric data. This facilitates a breadth in our understanding that was previously lacking. Second, this is one of the very few studies focusing on a highly at-risk sample in a sub-Saharan context and the potential role of teacher support contributing to adolescents' resilience in educational outcomes. Third, data were collected in two waves (pre-intervention or baseline and post-intervention).

However, our results need to be interpreted with caution due to several limitations. First, this study is unable to determine whether school delay happened before or after adolescents' experiences of violence and teacher support. Thus, causality cannot be inferred. That said, our findings do set up a basis for further longitudinal analyses. These analyses would need to apply both longer time frames and various time points to be able to confirm whether teacher support predicts later academic outcomes. Second, self-report measures were used to assess exposure to violence and teacher support. Although standardized and validated tools were used asking adolescents to only recall incidents in the past month, triangulation methods could be valuable to improve the reliability of results and reduce potential biases. Third, exposure to 'poly-violence' was measured using a dichotomous variable in the SEM. It is well known that dichotomizing quantitative

measures can result in the loss of reliable information and the misclassification of individuals within groups (Maccallum, Zhang, Preacher, & Rucker, 2002). However, we used LPA to inform the number and types of poly-victimized groups of adolescents in order to avoid categorizing all individuals under a unique group (poly-victimized adolescents). As opposed to methods splitting samples using the median to form high and low groups, in resilience research LPA has been identified as an appropriate approach to distinguish portions of the sample experiencing relatively few risk factors, or subsamples similarly exposed to certain types of risks (Kumpfer, 1999; Luthar, 1993). While an alternative variable-centred approach could have been applied (i.e., creating a continuous measure – an index of dichotomized items from several subscales) (Charak *et al.*, 2016; Finkelhor, Ormrod, & Turner, 2007), this approach to poly-victimization has further limitations: First, these models are not able to consider the frequency of episodes of violence, and second, they give the same importance to all different types of experiences of violence. Fourth, self-report measurements with more informative categories than the broad ones used for emotional support from teachers ('never', 'sometimes', and 'always') could be applied in future research to gain more detailed results and improve their interpretability. Fifth, the study sample ranged from 10 to 18 years of age. It is well known that factors and pathways to school success play differently across ages (Crosnoe & Elder, 2004; Lynch & Cicchetti, 1997). Thus, investigations using larger samples and conducting subgroup analyses by age might help in establishing differences between younger and older students and the effects of teacher support on their academic outcomes. Sixth, although academic success can be considered an indicator for academic resilience, this is only a small sphere in a student's life. Further studies looking at protective factors for other academic and non-academic outcomes of highly at-risk adolescents are needed in order to inform future interventions that improve the resilience of adolescents exposed to multiple types of violence. Seventh, the study sample participated in a research prevention programme to reduce harsh parenting and child abuse. While adolescents' exposure to violence at baseline was collected previous to the intervention, adolescents' educational outcomes were collected post-intervention. Thus, it is plausible to think that school delay might have been influenced by the type of participation in the trial (intervention vs. control). However, when trial arm was introduced in the SEM as a covariate (to control for study participation), results showed that trial arm was not associated with school delay. Finally, although violence and poverty are two important factors related to school delay, one needs to be aware of the potential confounding effects of some important missing variables. On the one hand, important systemic problems for the analysis and comprehension of school delay in South Africa were not investigated in the present study. For instance, school-level factors such as limited school resources and poor teaching quality as well as community characteristics such as lack of transport and limited access to health and social services were not measured (Burton & Leoschut, 2013; Hoadley, 2007; Theron & Engelbrecht, 2012; Visser & Juan, 2015). On the other hand, significant individual and family factors can also hinder adolescents' school progression in South Africa such as orphanhood, psychological distress (i.e., depression, anxiety or PTSD), or family HIV/AIDS (Cluver *et al.*, 2011; Kuo, Operario, & Cluver, 2012; Orkin, Boyes, Cluver, & Zhang, 2014).

Our findings suggest that more academically supportive teachers can make an important difference to the academic outcomes of highly at-risk adolescents in deprived contexts in South Africa. Thus, increased investment in disadvantaged schools is needed to allow for conditions where teachers can provide better academic support to all students. For instance, school-based interventions assisting teachers with more training

and academic support in disadvantaged contexts could potentially contribute to the academic resilience of highly at-risk adolescents.

Conclusion

While teacher emotional support cannot eliminate the negative impact of exposure to violence and socio-economic disadvantage on adolescents' school delay – and indeed, teachers in very constrained settings may be able to provide emotional support only to the highest-risk adolescents – academic support from teachers can protect against the effects of these risk factors. Nevertheless, adolescents' academic support from teachers is low in poorly resourced school contexts in South Africa. School-based secondary intervention programmes assisting teachers with more academic support in deprived contexts could reduce the impact of violence and socio-economic disadvantage on adolescents' school delay.

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