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Parenting and other potential protective factors associated with polysubstance use among public school students in Lagos, Nigeria

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*S*ubstance use is a growing problem in Nigeria. The present study extended recent work documenting the importance of parenting as protective against substance use in Nigerian youth by testing a model linking parenting, additional protective factors and polysubstance use. Public school students ($N = 1607$; 56% female; M age $= 14.88$; $SD = .44$ years) living in the greater Lagos region participated in school-based data collection. Lifetime polysubstance use, defined as use of two or more substances including alcohol or illicit drugs, or misuse of over-the-counter medications, was reported by 5.2% of the sample. Structural equation modelling that accounted for adolescent age and sex on all constructs revealed good model fit. Positive parenting (support and solicitation) was significantly associated with higher perceived harmfulness of substance use, religiosity and positive relationships at school. Positive school relationships were associated with a decreased likelihood of polysubstance use. Multiple group analysis revealed no overall sex differences in the model paths. Strengthening parent–adolescent relationships may have a cascading effect on protective factors and subsequent substance use, and should be included in youth substance use prevention programmes.

Keywords: Polysubstance use; Adolescents; Nigeria; Parenting; Protective factors.

Reports from Nigeria indicate on-going concerns regarding adolescents' use of alcohol and other drugs, including misuse of over-the-counter (OTC) and prescription medications (Agwogie et al., 2022; Mehanovic et al., 2020; Obadeji et al., 2020; Vigna-Taglianti et al., 2019). For example, non-medical use of codeine and tramadol has been on the rise among adolescents and young adults in Nigeria (Mehanovic et al., 2020; Vigna-Taglianti et al., 2019). Polysubstance use—that is, use of two or more substances including alcohol and illicit drugs, and misuse of OTC medications—is particularly problematic. Polysubstance use during adolescence may

heighten vulnerability to a variety of negative mental and physical health outcomes (Steinhoff et al., 2022). Further, the pattern of polysubstance use established during adolescence continues into young adulthood (Steinhoff et al., 2022).

Theory and empirical evidence both support the important role that parents and families at large play in contributing to adolescent substance use and misuse (Kliewer & Zaharakis, 2014; Schulenberg et al., 2014). Many studies of parental and family influences on adolescent substance use in Nigeria have focused on risk factors such as parental substance use (Mehanovic et al., 2020;

Obadeji et al., 2020; Ogunsola & Fatusi, 2017) or permissive attitudes towards substance use (Mehanovic et al., 2020; Ogunsola & Fatusi, 2017). Fewer studies have highlighted the important role that protective factors in the family domain play in predicting adolescent substance use and misuse (Agwogie et al., 2022; Ogunsola & Fatusi, 2017). For example, Ogunsola and Fatusi found that among urban students from Osun state, parental disapproval of substance use was associated with a lower likelihood of adolescent substance use; among rural students, connection to parents was associated with less substance use. In a study of over 2000 students from the greater Lagos region, Agwogie et al. (2022) demonstrated that parental disapproval of substance use differentiated adolescents in a "high substance use" profile from adolescents in a "low substance use" profile. Further, parental knowledge of adolescents' activities discriminated adolescents in an "alcohol use" profile from adolescents in a "low substance use" profile.

Parental emotional support and solicitation (an aspect of parental monitoring) are two dimensions of parenting with strong theoretical and empirical links to adolescent risk-taking behaviour. Several systematic reviews (e.g., Lac & Crano, 2009; Ryan et al., 2010) have found strong associations between parental support, parental monitoring and lower levels of risk-taking behaviour. These parenting constructs, however, have not been investigated as thoroughly in Nigeria. Understanding how these positive parenting dimensions are associated directly and/or indirectly with Nigerian adolescents' substance use has implications for interventions with parents and families.

Parenting has the potential to affect a variety of protective factors associated with substance use and misuse, including perceived harm from use, religiosity and positive relationships outside the family (Kliewer & Zaharakis, 2014; Schulenberg et al., 2014). However, studies in Nigeria have not evaluated associations of positive parenting with other protective factors influencing adolescent substance use. Regarding perceived harm, in a report that drew on data from the National Survey on Drug Use and Health, Lipari (2013) documented the important links between perceived harm from substance use and patterns of use in adolescents. As perceived risk increased, use decreased and vice versa. Adolescent religiosity is a robust protective factor against alcohol and other drug use, as indicated by several reviews (Grigsby et al., 2016). Positive relationships at school are linked prospectively to lower substance use and less risky use (Weatherson et al., 2018). As noted by the Centers for Disease Control and Prevention (CDC, 2022), youth who feel connected to their school—that is, who experience a sense of caring and belonging at school—experience a number of positive benefits, including lower substance use.

Sex differences in the role of protective factors

While positive parenting, greater perceived harm from substance use, religiosity and school connectedness tend to be associated with less substance use overall, knowing whether or not these factors operate similarly across males and females could help to inform gender-specific prevention approaches. As is the case in many countries worldwide, males and females are socialised differently in Nigeria. It is a common expectation that boys are brought up to become responsible male adults who can provide for their families and the girls as responsible female adults who can manage their homes, take care of the children and teach them social norms. Even though these differences in socialisation between male and female children have diminished somewhat over the past several decades due to the promotion of gender equality, the role of the school systems and globalisation (Ajayi & Owumi, 2013; Odimegwu et al., 2017), how boys and girls respond to environmental dictates such as availability of different substances of abuse and negative peer pressure becomes a factor of anticipatory socialisation (Ajayi & Owumi, 2013), defined as socialisation in anticipation of the status someone might occupy in the future. There also are cultural differences in response to substance use by males versus females. For example, the society frowns more at female versus male consumption of alcohol and tobacco smoking (Fagbule et al., 2021). Similarly, females are more likely to be subjected to stricter parental control and monitoring compared to males, which exposes male children more to antisocial behaviours (Odimegwu et al., 2017).

While many studies do not evaluate sex differences in linkages between protective factors and substance use outcomes, studies that include such evaluations have found both factors that are common across males and females and factors that are unique to either males or females. For example, Wan et al. (2019) found that low perceived dangerousness of drug use was a risk factor for Burmese girls', but not boys', use of glue/solvents and misuse of OTC medications and other psychoactive substances. However, connection to school was protective for girls' tobacco and alcohol use but not for use of glue/solvents and OTC medications, while connection to school was protective for boys' use of glue/solvents and OTC medications but not for tobacco and alcohol use. In that same sample, external religiosity did not discriminate profiles of substance use for either males or females (Kliewer et al., 2019). In a study that used data from the European Health Behavior in School-Age Children survey, Picoito et al. (2019) found that poor communication with mother was associated with substance use in girls but not boys.

The current study

In order to advance our understanding of how parenting might be associated with protective factors outside of the family domain and subsequent polysubstance use, the current study evaluated the extent to which positive parenting (emotional support and affection and solicitation) was associated with Nigerian adolescents' perceived harm associated with substance use, religiosity and relationships at school. Perceived harm, religiosity and positive relationships at school, in turn, were evaluated for their associations with polysubstance use. Although prior studies in Nigeria have established the protective role of parenting in relation to substance use, studies have not examined links between parenting and protective factors in the individual and school domains. We anticipated that higher levels of perceived positive parenting would be associated with higher levels of perceived harm from substance use, religiosity and positive relationships at school, which in turn would be associated with a lower likelihood of polysubstance use. Given the dearth of information on sex differences, differences across males and females in the model paths were examined in an exploratory fashion.

METHOD

Participants

Public school students ($N = 1607$; 43.6% male; M age $= 14.88$, $SD = 2.00$, range $= 10$–23 years) from the greater Lagos area participated. Most youth (57.2%) lived with both biological parents. A sizeable percentage of fathers or father figures (40.6%) and nearly one-third of mothers (32.7%) completed training at a higher educational institution or University. Fewer than 10% of fathers/father figures (9.8%) and 14.8% of mothers did not complete secondary school.

Procedures

All procedures were approved by the Lagos State Government through the Lagos State University Teaching Hospital Health Research Ethics Committee and were consistent with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards. Written consent to participate was provided by both parents and students. Student participation was voluntary and responses confidential.

Sample selection

This study was part of a larger school-based project in the greater Lagos, Nigeria area. Lagos State consists of six education districts. Two public schools—one junior and one senior high school, each of which have three grades—were randomly selected from each of these education districts. The total number of students in the sampled schools was 14,184 with population ranging from 921 to 1330 students in each of the schools. Based on this population range we sampled 135 students (a minimum of 10%) from each of the schools. Within each of the selected schools, 45 students were randomly selected for participation from each of the three grades. Students were eligible to participate if they were enrolled in the selected school for at least 4 months, were willing to participate, and had parental consent.

Survey administration

After parental consent was obtained, administrators arranged to administer the surveys at the schools. Surveys were completed independently by students in a classroom setting. Students' names were not entered on the surveys. Survey administrators monitored the classroom setting. Prior to distributing the surveys, the administrators introduced themselves, gave a brief overview of the purpose of this study and asked if students required further clarification. Compensation was not provided.

Measures

All measures were self-reported by students.

Demographics

Adolescents' sex, age, living situation, and paternal and maternal educational attainment was collected. Adolescents indicated with whom they lived from a list that included living alone or living with father, stepfather, mother, stepmother, siblings, grandparents, other relatives and other non-relatives. Responses for parental education included completed primary school or less, partial completion of secondary school, completed secondary school, partial completion of higher education, completed college or university and do not know or not applicable.

Parenting constructs

Parenting constructs included emotional support and affection (10 items) and solicitation (six items), which were used as indicators of a latent "Positive Parenting" construct. These constructs were drawn from the Global School-based Student Health Survey (World Health Organization, 2013), which has been used extensively in school-based survey research (www.cdc.gov/ghs/). For these scales, the time frame was the past 30 days, and response options included 1 (*never*), 2 (*rarely*), 3 (*sometimes*), 4 (*most of the time*) and 5 (*always*), with higher mean item scores indicating a greater level of the construct. Emotional Support and Affection described receipt

of emotional support and extent of felt love (sample item: "How often did your parents or guardians support and encourage you?"). Solicitation referred to parents' attempts to monitor adolescents' activities (sample item: "How often did your parents or guardians try to know where you went at night?"). Cronbach alphas for the current study were .94 for emotional support and .97 for solicitation.

Additional protective factors

Perceived harm was assessed with questions on harm associated with use of 26 substances including tobacco, alcohol, illicit drugs and misuse of over the counter medications obtained from the UNODC Global Assessment Program on Drug Abuse (UNODC, 2003). A sample item included: "How much do people risk harming themselves physically or in other ways if they smoke or take cannabis (igbo, weewee, weed) regularly?" Response options ranged from 0 (*no risk*) to 3 (*great risk*), and the item average was used in the analysis. Higher scores indicated greater perceived harm from substance use. The instrument had been used in school-based survey research in Nigeria (Afolabi et al., 2012), and demonstrated good validity and reliability. Cronbach alpha in the present study was .98. *Religiosity* was assessed with five questions assessing intrinsic religiosity. This measure has been used in previous large studies of risk and protective factors associated with adolescent substance use, and was a robust correlate of less substance use and fewer problems with use (Kliewer & Murrelle, 2007). Sample items included: "My faith in God helps me through hard times" and "I ask God to help me make important decisions." Response options ranged from 1 (*strongly agree*) to 4 (*strongly disagree*); items were reverse scored such that higher means indicated greater religiosity, and the item average was used in the analysis. Cronbach alpha in the current study was .93. *Positive experiences at school* was assessed with seven items, all from the Universal Prevention Curriculum (UPC) School Track Manual (Colombo Plan Drug Advisory Programme, 2018). Five items were from UPC Course 4 and two items were from UPC Course 6. Sample items included: "I feel close to people in this school" and "My teachers care about me." Response options ranged from 1 (*strongly agree*) to 5 (*strongly disagree*); items were reverse scored such that higher means indicated more positive experiences at school, and the item average was used in the analysis. Cronbach alpha in the current study was .82.

Polysubstance use

Lifetime use of two or more substances including alcohol, solvents or inhalants, khat, illicit drugs (methamphetamine, cocaine, cannabis, heroin), as well as non-medical use of amphetamines, tramadol, diazepam/valium, Rohypnol, Librium, morphine, pentazocine and codeine containing cough syrup were assessed. For assessment of non-medical use of substances, we asked "How many times in your life (if any) have you used any of these drugs without a doctor or medical worker telling you to do so?" Initial responses for lifetime substance use ranged from 0 (*never*) to 6 (*40 or more times*). Responses were then dichotomised into 0 (*never used*) or 1 (*ever used*). Students who used two or more different substances were categorised as polysubstance users.

Data analysis

Descriptive information on lifetime substance use in the sample was calculated first and Pearson chi-square tests were used to analyse sex differences in lifetime use. Next, means and standard deviations of key study variables by sex are presented, along with Pearson correlations among the study constructs by sex, and t tests of sex differences in key study constructs. The structural equation model was run using MPlus version 8.1 using maximum likelihood estimation with robust standard errors. Mplus allows missing data to be handled with full information maximum likelihood (FIML). FIML uses all information in the data for analyses, allows for less biased estimates and is an efficient missing data technique. The model assessed the extent to which the latent construct of positive parenting, indicated by parental emotional support and parental solicitation, was associated with perceived harm from substance use, religiosity, and positive experiences as school. These constructs, in turn, were assessed for their association with lifetime polysubstance use. Parental emotion support and solicitation are highly correlated. We also did not have strong theoretical justification to evaluate them separately in our model. We therefore used these two parenting constructs as indicators of a latent "positive parenting" construct. Youth age and sex were covaried on all key study constructs given some evidence of age and sex differences in all of the key study constructs (Kliewer & Zaharakis, 2014; Schulenberg et al., 2014; Steinhoff et al., 2022; Wan et al., 2019).

Sex differences in the model paths were tested using multiple group analyses. Specifically, an unconstrained model where the path coefficients were allowed to vary by sex was compared to a constrained model where path coefficients were set to be equal across sex. The fit of the models was assessed using the root mean square error of approximation (RMSEA), the comparative fit index (CFI) and the standardised root mean square residual (SRMR). Values below .08 for the RMSEA, values of .90 or above

for the CFI and values between 0 and .08 for SRMR indicate acceptable model fit (Bentler, 1992; Browne & Cudeck, 1993). The fit of the unconstrained and constrained models was compared by examining differences in the RMSEA, CFI and the Bayesian Information Criterion (BIC). Lower BIC values are optimal, and differences of 10 or more suggest an improvement in model fit, indicating a more parsimonious model. If BIC values for a constrained model are lower than for an unconstrained model, this indicates no systematic differences in overall model fit.

RESULTS

Table 1 presents information on lifetime substance use in the sample. Overall, alcohol, cough syrup with codeine and tramadol had been used most often. Males reported higher lifetime use of cigarettes, cannabis, heroin and amphetamines, as well as more polysubstance use, relative to females.

Table 2 presents descriptive information on and correlations among study constructs by sex. Parenting variables were significantly and positively associated with perceived harm from substance use and positive experiences at school for males and females, and with religiosity for males. Females reported more parental solicitation than males, $t(1256) = 2.95$, $p = .003$, but not more parental support, $t(1252) = 1.55$, $p = .12$. Females perceived greater harm resulting from substance use relative to males, $t(992) = 5.48$, $p < .001$, but reported similar

levels of positive experiences at school, $t(1556) = .73$, $p = .46$ and religiosity, $t(1605) = 1.10$, $p = .27$. Males were significantly older than females, $t(1605) = -2.51$, $p = .012$. Students who reported polysubstance use compared to those who did not had lower levels of perceived harm from use, $t(1375) = 5.01$, $p < .001$; lower levels of religiosity, $t(1510) = 3.11$, $p = .002$; and poorer relationships at school, $t(1556) = 4.27$, $p < .001$.

Figure 1 displays the results of the structural equation model linking parenting, additional protective factors and polysubstance use, and Table 3 presents the standardised path data.

Overall model fit was good, $\chi^2(9) = 81.35$, $p < .001$; RMSEA = .071 90% confidence interval (.057, .085); CFI = .948; SRMR = .028. Positive parenting was significantly and positively associated with each of the additional protective factors: perceived harm from substance use, religiosity and positive experiences at school. Only positive experiences at school, however, were uniquely and negatively related to polysubstance use with other variables in the model. Multiple group analysis revealed that a constrained model was a better fit than an unconstrained model (constrained model: BIC = 23,170; RMSEA = .057 [.045, .069]; CFI = .941; SRMR = .038; unconstrained model: BIC = 23,236; RMSEA = .070 [.056, .085]; CFI = .943; SRMR = .032). Thus, taken as a whole, the model was similar across sex, although some specific individual paths differed by sex.

TABLE 1
Descriptive information on lifetime use of all substances assessed in the study and tests of differences across sex

Substance	N providing data	Sample lifetime use		% Ever used	Males % ever used	Females % ever used	Chi-square results (df = 1)	p
		M	SD					
Cigarettes	1409	.03	.30	1.7	2.7	.9	7.05	.011
Alcohol	1406	.19	.72	10.6	12.1	9.5	2.53	.118
Cannabis	1515	.04	.39	1.7	2.6	.9	5.96	.023
Solvents or inhalants	1475	.03	.34	1.2	1.9	.7	3.92	.057
Cocaine	1499	.02	.29	.9	1.4	.6	2.45	.174
Heroin	1488	.02	.26	.5	.9	.1	—	.048
Khat	1486	.01	.26	.3	.5	.2	—	.659
Methamphetamines	1488	.01	.20	.5	.9	.2	—	.085
And non-medical use of these substances								
Codeine cough syrup	1480	.09	.49	4.7	5.2	4.2	.80	.387
Amphetamines	1470	.02	.30	.6	1.1	.2	—	.048
Tramadol	1478	.05	.39	3.3	3.9	2.8	1.35	.301
Diazepam	1461	.01	.25	.6	.9	.2	—	.086
Rohypnol	1464	.03	.30	1.2	1.6	1.0	1.03	.345
Librium	1465	.02	.28	.6	.8	.4	—	.309
Morphine	1466	.02	.30	.7	1.1	.4	—	.116
Pentazocine	1466	.02	.29	.8	.8	.7	.01	1.00
Polysubstance use	1607	.31	1.15	5.2	7.3	4.1	5.54	.023

Note: In cases where either males or females had fewer than five cases in the cell, Fisher's exact test is reported.

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TABLE 2
Descriptive information on and correlations among study constructs by sex

	Parental support	Parental solicitation	Perceived harm using substances	Positive school experiences	Religiosity	Age
Parental support	—	.49***	.18***	.13***	−.01	−.12***
Parental solicitation	.66***	—	.14***	.06	.06	−.08*
Perceived harm using substances	.25***	.24**	—	.16***	.05	−.02
Positive school experiences	.12**	.13***	.16***	—	.23***	−.07*
Religiosity	.18***	.17***	.14***	.19***	—	.14***
Age	−.06	−.03	−.08	−.03	−.02	—
Females, M	4.05	3.97	2.62	4.13	3.74	14.77
Females, SD	.92	1.07	.81	.65	.43	1.99
Males, M	3.97	3.79	2.39	4.11	3.71	15.02
Males, SD	1.14	1.26	.87	.66	.45	2.01

Note: Correlations for females are above the diagonal and correlations for males are below the diagonal. *N*s range from 794 to 907 for females and from 583 to 700 for males due to missing data. *$*p < .05$. **$p < .01$. ***$p < .001$.
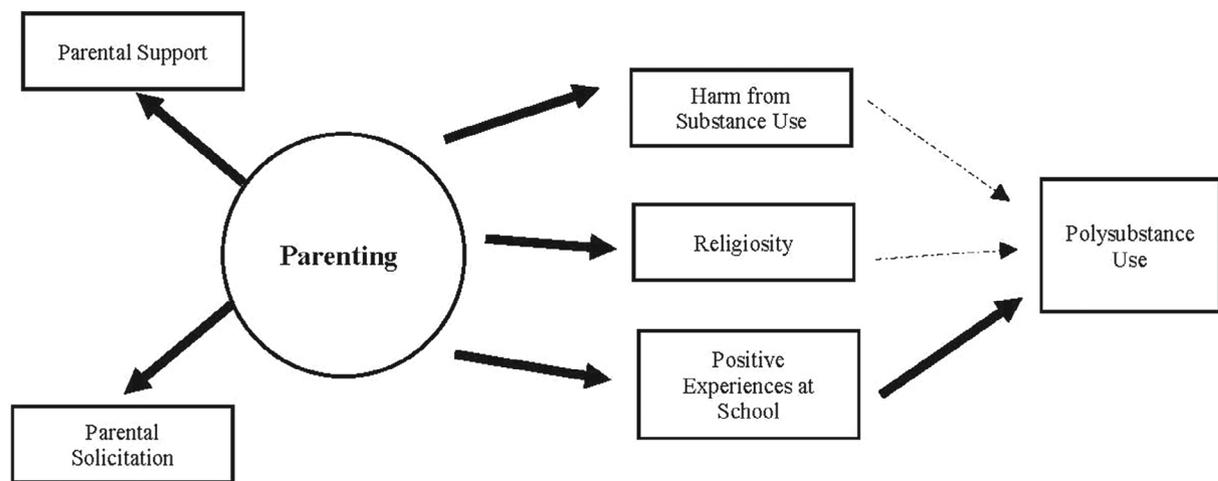

Figure 1. Structural equation model linking parenting, additional protective factors, and polysubstance use in Nigerian public-school students. *Note:* $N = 1607$. Solid arrows indicate significant model paths. Associations of age or sex with the constructs are not presented for clarity (see Table 3). $\chi^2(9) = 81.35$, $p < .001$; RMSEA = .071; 90% confidence interval (.057, .085); CFI = .948; SRMR = .028.

TABLE 3
Standardised path coefficients from the structural model linking positive parenting, additional protective factors and polysubstance use

Pathway	Standardised beta weight	p
Positive parenting (latent construct) → Parental support	.795	<.001
Positive parenting (latent construct) → Parental solicitation	.751	<.001
Positive parenting → Perceived harm from substance use	.235	<.001
Positive parenting → Religiosity	.435	<.001
Positive parenting → Positive experiences at school	.380	<.001
Perceived harm from substance use → Polysubstance use	−.035	.17
Religiosity → Polysubstance use	−.034	.18
Positive experiences at school → Polysubstance use	−.086	.001
Adolescent sex → Positive parenting	−.11	<.001
Adolescent sex → Perceived harm from substance use	−.11	<.001
Adolescent sex → Religiosity	−.03	.28
Adolescent sex → Positive experiences at school	−.05	.03
Adolescent sex → Polysubstance use	.039	.12
Adolescent age → Positive parenting	−.11	<.001
Adolescent age → Perceived harm from substance use	−.01	.58
Adolescent age → Religiosity	.07	.002
Adolescent age → Positive experiences at school	−.02	.37
Adolescent age → Polysubstance use	.070	.005

DISCUSSION

This study built on recent work in Nigeria and attempted to add to the existing literature on prevention of youth substance use and misuse. Importantly, we focused on protective factors, which has been understudied in Nigeria, and evaluated a model linking positive dimensions of parenting, additional protective factors in the individual and school domains, and polysubstance use. Positive parenting, indexed by parental support and solicitation, was positively associated with each of the protective factors we assessed: perceived harm from substance use, religiosity and positive experiences at school. However, in this model only positive experiences at school was uniquely associated with reduced likelihood of polysubstance use, after accounting for other constructs in the model, including youth age and sex. Further, the overall model applied equally well to males and females, indicating the importance of parenting for both males and females, and the significance of the school environment as protective against polysubstance use.

Positive and healthy connections with peers and school personnel (teachers, counsellors) were evidenced in the current study as particularly important when considering polysubstance use. This is consistent with the findings of Osuh et al. (2020) and guidance by the CDC highlighting the importance of positive school connections. The current study contributes to this literature by illustrating the connection between positive parenting and positive school connections in Nigerian adolescents.

Interestingly, although known to protect against substance use and misuse, and associated in the *t* tests with polysubstance use, when included in the multivariate model neither perceived harmfulness of substance use or religiosity were uniquely associated with polysubstance use. The finding with religiosity is consistent with findings from previous studies in Nigeria (Odukoya et al., 2013; Vigna-Taglianti et al., 2019). The finding regarding perceived harm is consistent with work by Leban and Griffin (2020), who found that perceived drug harmfulness was not associated with the use of marijuana and crack cocaine once other factors were considered. However, Leban and Griffin did not consider linkages between positive parenting, other protective factors and polysubstance use. It may be that relationships—particularly with schoolmates and adults at school—are more protective than risk perceptions. Indeed, neuroscientists have long argued that we are hardwired for connection, and that linkages between social ties and health can be explained by neuroscientific processes (Eisenberger, 2013). Further, positive relations at school may influence perceive risks associated with substance use. This possibility is supported by the positive associations of relationships at school and perceived harm from substance use for both the males and females in our sample.

Lastly, the overall patterns of association in the current study were similar across males and females, despite mean difference in polysubstance use. Although limited, past literature has reported both similarities (e.g., Kliewer et al., 2019) and differences (e.g., Picoito et al., 2019; Wan et al., 2019) in associations of both risk and protective factors with youth substance use. Whether or not sex differences are evidenced in a study may depend on the risk or protective factor being studied, the specific substance being investigated, a combination of these factors, or another factor entirely, such as cultural context. Whatever the case, the message from the current analysis of Nigerian youth suggests that parents influence the substance use of both males and females—both directly and via their associations with other protective factors. This should encourage parents to remain connected and involved with their junior- and senior-high-school students. This also suggests that parents should be involved in school-based programmes designed to prevent polysubstance use and misuse.

Strengths and limitations

Study strengths include a large sample size, use of validated survey measures, assessment of a broad range of substances, a focus on positive parenting and other protective factors, and a theory-based test of the model linking parenting to polysubstance use. Despite these strengths, several limitations should be noted. First, this study relied on adolescent perceptions of all constructs. Assessing parents' perceptions of their behaviour would have strengthened the study by reducing mono-source bias. Second, the cross-sectional design precludes judgements about the temporal ordering of these constructs. Third, the time frame of the measures included in the study differed. Parenting was assessed over the past 30 days, polysubstance use was assessed over students' lifetime, and the other protective factors included in the study did not have a time frame. It is possible that if a different design were used where youth reported on constructs in the same timeframe different patterns of association might have emerged. Fourth, the study combined perceive harm across a range of substances. It is possible that there are perceptions of harm from substance use that are unique to specific substances. The measurement of perceived harm in the current paper precluded that analysis. However, future work might investigate this possibility. Fifth, the study only included youth enrolled in and attending public school, thus the sample did not capture youth in the community who likely have fewer protective factors and more polysubstance use than school-going youth.

Implications for future research, policy and practice

Data from this study suggest the value of including parents as well as school personnel in any adolescent substance use and misuse prevention programme. Further, interventions that affect the climate of the school, including encouraging positive and healthy relationships among students and with school personnel, potentially can reduce substance use and misuse. Future work in Nigeria might explicitly test the value of a school-based prevention programming alone versus a school-based plus parenting programme in reducing substance use and misuse.

Conclusions

This study highlighted the important role that positive parenting plays in connecting to other protective factors that mitigate against adolescent polysubstance use—connections that appear to matter equally for male and female Nigerian youth. These findings suggest that efforts to enhance positive parenting and strengthen positive relationships at school may be useful in preventing polysubstance use in Nigerian adolescents.

COMPLIANCE WITH ETHICAL STANDARDS

All procedures were approved by the Lagos State Government through the Lagos State University Teaching Hospital Health Research Ethics Committee and were consistent with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards.

INFORMED CONSENT

Written informed consent to participate was provided by parents; students provided assent.

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