Title: Substance use cascade among youth in six Southern Africa countries: prevalence and risk factors

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Introduction

Substance use and abuse, such as cigarette, liquor consumption, cocaine, and other illegal drugs is a public health problem globally (Larm, Silva, & Hodgins, 2015; Tahiraj et al., 2016a). Adolescents and the Young People (Young people) are considered to be the most important population to target as the practices and conditions that influence health and lead to adulthood disorder usually begin in that stage of life (Henkel, 2011; Larm et al., 2015; Tahiraj et al., 2016). Existing literature suggests that people who do not use substances before the age of 21 years are less likely to use substance in adulthood (Tahiraj et al., 2016b; Whitesell, Bachand, Peel, & Brown, 2013). Thus, determining the prevalence of ever used of substance, current use of substance and those who want to stop the use of substance as well as factors that are associated with substance use among the youth in particular are important towards the development of effective public health policies to stem the tide of substance use and abuse.

Methodology

The data source for this study was drawn from a 2018 Baseline Survey data of the SRHR/HIV Knows No Borders project (a collaboration of the International Organization for Migration (IOM), Save the Children Netherlands (SCNL) and University of the Witwatersrand's School of Public Health (WSPH) consortium partners) in the Kingdom of Eswatini, Lesotho, Malawi, Mozambique, South Africa, and Zambia. The aim of the project was to improve the sexual and reproductive health and HIV (SRH-HIV) related outcomes among adolescents & young people (AYP), sex workers (SW) as well as other people living in 10 high migration communities in the selected countries. In order to establish a benchmark for the project's impact to be measured against, a baseline survey was conducted. For this paper, the study population were male and female respondents aged 15-24 years (from the primary study, which involved women aged 15-49 years and men 15-59 years).

The outcome for this study is substance use. Substance use is defined as any harmful or hazardous use of psychoactive substances. In this study, we asked respondents if they have ever used, currently using or want to stop using any the following substances: marijuana, nyaope, mandrax, codeine, heroine, and other forms of substances. The survey questionnaire also explored the specific substance respondent would like to stop using as well as assistance required to stop using. The explanatory variables of interest are age, sex, education, country, wealth index, migration status, living arrangement and employment status.

Analysis was conducted in two stages. In the first stage a cascade analysis of substance use from ever use, to current use and intention to stop using was carried out in order to see the changes in the percentages of young people previously using, currently using as well as want to stop using substance. In the second stage the factors associated with ever use, current use and wanting to stop substance use were explored using binary logistic regression. Lesotho was not included in this multivariable analysis because all the respondents in Lesotho reported to be currently using. Thus, there's no comparison group. Binary logistic regression model is a technique for determining the association between a dependent variable which is dichotomous using values 0 or 1 (i.e. failure or success) and a set of explanatory variables. This is expressed as:

$$\mathbf{Log\ (p/1\text{-}p) = a + \sum \beta iXi + e}$$

Where p = the event of occurrence (outcome variable)

X = the explanatory variables

β = the size of the coefficient of explanatory variable

e = the base of natural logarithms

Data analysis were done using Stata 15 version. Results were interpreted by using odds ratio with level of significance set at $p<0.05$ and confidence intervals of 95%.

Results

Table 1: Percentage distribution of substance use among youth in six Southern African countries

	Lesotho	Malawi	Mozambique	South Africa	Kingdom of Eswatini	Zambia
Total Number	**N=133**	**N=460**	**N=340**	**N=381**	**N=138**	**N=381**
% Ever used	**100.0**	**51.1**	**98.5**	**54.9**	**96.4**	**39.6**
% Currently using	**100.0**	**48.7**	**97.1**	**9.7**	**95.7**	**37.3**
Current % change	**0.0**	**-4.7**	**-1.4**	**-82.3**	**-0.7**	**-5.8**
% of current users that wish to stop	**8.3**	**7.1**	**5.1**	**13.5**	**5.5**	**8.5**

Table 1 presents a cascade analysis on substance use among the young people in the six southern African countries. The table shows that all sampled young people in Lesotho have used and are all still using and only 8.3% of current users wish to stop substance use. In Malawi, result shows that 51.1% of young people have ever used any form of substance, 48.7% are currently using substance and 7.1% of current users would like to stop using. In Mozambique, result shows that 98.5% of young people reported to have ever used substance and 97.1% reported that they are currently using. The result also shows that 5.1% of current users in Mozambique would like to stop using. In South Africa, a great change is observed among the sampled young people who

had previously used substance and who are currently using substance. Table 1 showed that 54.9% were previously using and only 9.7% are currently using substances. Of the 9.7% current users, 13.5% of them would like to stop using. In the Kingdom of Eswatini, 96.4% reported to have ever used, 95.7% are currently using and 5.5% of current users intend to stop using. The percentage of young respondents in Zambia that have ever used was 39.6%. At the time of the survey, 37.3% were using and 8.5% of current users would like to stop using.

Table 2 presents the logistic regression analysis of factors that are associated with ever used substance, current substance use and wanting to stop substance use. The results from Table 2 shows that age was not associated with substance ever used and current substance use. However, our result shows that age is associated with wanting to stop substance use. The result shows that with a unit increase in age, the odds of wanting to stop substance use increase by 65%.

With regards to country, the results from the logistic regression shows that ever used substance and current substance use is lower in all countries compared to Mozambique. For instance, the risk of ever used substance is 0.22 times lower among respondents living in Swaziland compared to respondents in Mozambique. Similarly, result shows that the risk of current substance use is 0.18 times lower among respondents residing in Malawi compared to respondents living in Mozambique. The result on association between country and wanting to stop substance shows no significant association.

Table 2: Odds ratio (and 95% confidence intervals) of logistic regression analysis of substance use and associated factors in the six Southern African countries

	Ever used substance (n=963)		**Current substance use (n=963)**		**Want to stop substance use (n=384)**	
	Odds Ratio	(95% CI)	Odds Ratio	(95% CI)	Odds Ratio	(95% CI)
Variable						
Age	0.98	0.9-1.05	0.98	0.90-1.06	1.65	1.21-2.26*
Country						
Mozambique	Ref		Ref		Ref	
Malawi	0.02	0.01-0.05*	0.18	0.01-0.05*	1.03	0.22-4.85
South Africa	0.03	0.01-0.08*	0.01	0.00-0.02*	3.28	0.38-28.2
Swaziland	0.22	0.05-0.96*	0.34	0.08-1.38	0.83	0.11-5.96
Zambia	0.01	0.00-0.02*	0.01	0.00-0.03*	1.23	0.18-8.59
Sex						
Male	Ref		Ref		Ref	
Female	0.67	0.48-094*	0.52	0.36-0.76*	0.20	0.05-0.77*
Employment status						
Employed	Ref		Ref		Ref	
Not employed but in school	0.74	0.49-1.122	0.85	0.52-1.38	2.13	0.39-11.7

Not employed and not in school	0.97	0.64-1.46	1.18	0.75-1.84	1.56	0.38-6.33
Migration status						
Non-migrant	Ref		Ref		Ref	
Internal	0.53	0.64-0.96*	0.63	0.31-1.28	1.08	0.09-13.2
International	0.50	0.22-1.15	0.23	0.07-0.79*	1.51	0.13-18.0
Educational level						
Primary	Ref		Ref		Ref	
Secondary	1.76	1.12-2.63*	1.60	1.05-2.43*	1.13	0.24-5.31
Tertiary	2.01	1.12-3.76*	1.41	0.67-2.97	0.74	0.07-7.69
Wealth index						
Poor	Ref		Ref		Ref	
Middle	0.74	0.49-1.12	0.73	0.48-1.46	5.00	1.12-22.2*
rich	0.63	0.37-1.08	0.67	0.39-1.17	1.63	0.27-10.0
Living arrangement						
Parents	Ref		Ref		Ref	
Partner	0.69	0.41-1.15	0.83	0.47-1.46	0.71	0.12-4.00
Relatives	0.69	0.47-1.03	0.84	0.54-1.31	0.37	0.08-1.85
Non-relative	1.61	0.82-3.15	1.72	0.85-3.50	Empty	
Prob> F						0.000

With respect to gender, logistic regression analysis shows that gender is significantly associated ever used substance, current substance use and wanting to stop substance use. Result shows that the risk of ever used substance is 0.67 times lower among female respondents compared to male respondents. Result also shows that the risk of current substance use is 0.52 times lower among female respondents compared to male respondents. Lastly, our result shows that the risk of wanting to stop substance use is 0.20 times lower among female respondents compared to male respondents.

Table 2 show that there is no significant association between wanting to stop substance use and migration status. However, the significant association of ever used substance and current substance use show inconsistent significant associations in migration status categories. Our result shows that the risk of substance ever used is 0.53 times lower among internal migrant compared to non-migrants. The result also shows that the risk of current substance use is 0.23 times lower among international migrants compared to non-migrant.

Table 2 also shows that there is no significant association between wanting to stop substance use and educational level. However, result shows that the risk of ever used substance is 1.76 and 2.01 times higher among respondents with secondary and tertiary education respectively compared to respondents with primary education. Result also shows that the risk of current substance use is 1.6 times higher among respondents with secondary education compared with respondents with primary education.

With respect to wealth index, our result shows that both ever used substance and current use of substance is not associated with wealth index. However, we found that wanting to stop substance use is associated with wealth index. The result shows that the risk of wanting to stop substance use is five times higher among respondents in the middle wealth index compared to those in the poor wealth index. Result also shows that wanting to stop substance use is not significant with the category of rich wealth index.

Discussion

The implication of the results is-a-vis existing literature and policies will be discussed.

Funding

The SRHR-HIV project and this paper were funded by the Government of the Kingdom of Netherlands through the SRHR-HIV Knows No Borders Consortium. The consortium partners are the International Organization for Migration, Save the Children Netherlands and University of the Witwatersrand's School of Public Health.

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