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Risky Behaviors of Youth Living in the Slums of Kampala: A Closer Examination of Youth Participating in Vocational Training Programs

Monica H. Swahn, Ph.D[a], **Portia Buchongo, MPH, BSN, RN**[b,*], **Rogers Kasirye**[c]

[a]Distinguished Professor, Division of Epidemiology and Biostatistics Partnership for Urban Health Research School of Public Health, Georgia State University 140 Decatur St. SE Atlanta, GA 30303, Mswahn@gsu.edu

[b]Georgia State University School of Public Health, 140 Decatur St. SE Atlanta, GA 30303

[c]Executive Director, Uganda Youth Development Link, Kasiryer@yahoo.com

Abstract

Obtaining formal education is associated with a decreased risk of HIV transmission among youth in sub-Saharan Africa. However, little is known about the role vocational skills training programs may have on risk behaviors linked to HIV transmission among vulnerable youth in sub-Saharan Africa. This study examined the characteristics and risk behaviors among vulnerable youth who receive vocational skills training by a community-based organization. Empirical analyses were conducted using a cross-sectional survey administered in 2014 to youth (ages 12 to 18 years) in the slums of Kampala (N=1134). Five multivariable logistic regression models were computed to determine the association between participating in a vocational training program and self-reported risk behaviors pertaining to alcohol use, lack of condom use, sex with multiple partners, and transactional sex. In our study, 29.6% of youth attended a vocational training program. Our findings show that youth who participated in vocational training were more likely to report often feeling hopeful (AOR: 1.7; 95% CI: 1.1, 3.0) and less likely to report alcohol use (AOR: 0.4; 95% CI: 0.2, 0.7) than those not attending vocational training programs, in multivariable analyses. Overall, findings varied for males and females. These findings, while preliminary, indicate that self-reported behaviors associated with risk for HIV transmission vary in some respects for youth participating in vocational training versus those who do not. However, additional research is needed, as are evaluations of the benefits and potential impact of vocational training in both the short and long-term for vulnerable youth in resource-poor settings and with limited access to formal education.

Keywords

Vocational Education and Training; Risky behaviors; alcohol use; Ugandan youth; vocational training

*Corresponding: P.Buchongo@gmail.com.

Declaration of Interest Statement

The authors declare that they have no competing interests.

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Introduction

The Joint United Nations Programme on HIV/AIDS (UNAIDS) has estimated the HIV prevalence among young people in Uganda (ages 15–24 years) to be 3.1% (Commission, 2014). However, the prevalence is much higher, 13.9%, among sexually active youth (ages 12–18) living in the slums of Kampala (Swahn, Culbreth, Salazar, Kasirye, Seeley, 2016). Key risk factors such as inconsistent condom use, sex with multiple partners, and transactional sex (sex in exchange for goods or money) have contributed to the high HIV prevalence among Ugandan youth. (Lagarde et al., 2001; Santelli et al., 2013; Choudhry, Östergren, Ambresin, Kyagaba, & Agardh, 2014) This is particularly true for those with limited access to formal education or who live in the slums (Swahn et al., 2016). Alcohol use among youth has been identified as one of the key risk factors for unsafe sexual practices that in turn increase risk for HIV transmission (Choudhry, Agardh, Stafström, & Östergren, 2014; Mbulo, Newman, & Shell, 2007). Youth living in the slums recognize that involvement in unsafe sexual practices while drinking alcohol is common and that it increases risk for HIV transmission (Swahn, Haberlen, Palmier, 2014).

Poverty has strongly impacted access to formal education and student retention rates (Mpyangu, Lubaale, Onyango, & Ochen, 2014), which has implications for youth living in the slums. Due to the financial resources needed to pursue formal schooling, such as purchasing uniforms and supplies, many young people are not enrolled or do not complete primary or secondary school (Mpyangu, C. M. et al., 2014). The lack of access to formal education has exacerbated disparities in health-risk behaviors. As an example, research shows that youth in the slums who are not enrolled in schools have a much lower prevalence of condom use at time of sex compared to their urban counterparts attending school (Swahn, Braunstein, Palmier, Kasirye, Yao, 2014). Previous research demonstrate that formal education reduces risk of HIV transmission (Hargreaves et al., 2008), and also reduces inconsistent condom use, particularly at secondary or higher levels of educational attainment (Agyei & Migadde, 1995). However, the impact of formal education on high-risk behaviors has not been fully evaluated or assessed. This is particularly the case for youth who live in low-resource settings with a high prevalence of HIV. For youth out of school, underemployment is a challenge (Oketch, 2007), due to stagnant job growth in highly populated urban areas (Banks, 2016), and poor preparation for the current labour market, leaving many students, including those with formal education, unemployed (Chinonso, 2010).

Vocational skills training (VST), also referred to as technical training, has been broadly defined, and can include formal classroom training with an extensive curriculum, a specific trade, an apprenticeship model, or can be delivered in an informal setting (Sifuna & Sawamura, 2010). This alternative to formal education has been regarded as a viable alternative to help young people acquire relevant skills to gain employment, and to empower youth living in poverty (Chinonso, 2010). However, research examining the impact of VST on health-risk behaviors, particularly those related to HIV transmission, among youth in the slums of sub-Saharan African has not been reported in the scientific literature.

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The purpose of this study is to examine the association between youth participation in VST and self-reported risky behaviors such as alcohol use, inconsistent condom use, sex with multiple partners, and engaging in transactional sex among youth living in the slums of Kampala, Uganda. Previous research demonstrates that alcohol use and misuse among youth is a significant concern in Uganda (Swahn et al., 2011) and among youth in the slums of Kampala (Swahn, Palmier, Kasirye, 2013). Moreover, youth who live in the slums are more likely to be sexually active and less likely to use condoms at time of sex than their urban peers in formal education (Swahn, Braunstein, Palmier, Kasirye, Yao, 2014). Additionally, previous research demonstrates a high level of transactional sex among youth in the slums (13.7% among sexually active youth). As such, it is our intent to examine if youth in the slums of Kampala who attend VST may be more or less likely than their peers to engage in health-risk behaviors that will increase risk for HIV transmission. Moreover, because many of these risk behaviors vary for males and females, we examine these patterns by gender (Santelli et al., 2013; Choudhry et al., 2014; Baral et al., 2015).

Due to the overwhelming influence of poverty and other hardship among these youths which exacerbate the likelihood of engaging in risky behaviors, we also wanted to examine hopefulness and whether it may be associated with VST. Hopefulness has been shown to motivate youth (Valle, Huebner, & Suldo, 2006), and has been linked to increased self-esteem, a strong component of self-empowerment (Esteves, Scoloveno, Mahat, Yarcheski, & Scoloveno, 2013). It is our hope that findings from the current study will inform current practices for building resilience among youth, and to inspire new research that can better determine and assess the potential impact of VST on health-risk behaviors more broadly. In particular, this research is needed in low-resource settings where new prevention and intervention strategies are warranted to curb the HIV epidemic.

Materials and Methods

Setting

The current study is based on the “Kampala Youth Survey 2014”, a cross-sectional survey of youth ages 12–18 years of age who live in the slums of Kampala, Uganda and who received services from the Uganda Youth Development Link (UYDEL) drop-in centers for disadvantaged youth (Swahn et al., 2016). UYDEL targets vulnerable youth (10–24 years of age) and focuses on enhancing the socioeconomic opportunities for disadvantaged youth by developing their skills for self-reliance. The vocational skills training uses an apprenticeship approach by offering nine months of training and partners youth with employers in various sectors such as hotels, electronics, motorbike repair shops, and beauty salons through internships.

Data Collection

Data was collected during in the spring of 2014 from 1,497 youth. The assessment was piloted with 43 youths, these youths are excluded from our results.

Of these, 320 surveys were lost due technical issues with the offline server, yielding 1,134 completed surveys. A convenience sampling method was used, and interviews were

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conducted by social workers and peer educators employed by UYDEL with previous research experience. Interviewers received training on the study methodology, survey questions, and recruited potential participants among attendees at their respective drop-in centers. Each survey question was translated into Luganda (the local language) if needed. The survey was administered to the participants on Google Nexus 7 tablets.

All participants were informed about the study, and provided verbal consent to participate in the study. Parental consent was not required for youth who "cater for their own livelihood", since they are considered emancipated in Uganda and are able to provide their own consent. Participation was limited to youth aged 12–18 years with no other exclusion criteria. Recruited youth received a small snack as incentive for participating in the survey. Institutional Review Board approvals were obtained from Georgia State University and the Uganda National Council for Science and Technology to conduct this study.

The Kampala Youth Survey 2014 included questions on alcohol use, alcohol marketing, sexual risk behaviors, adverse experiences, gender-based violence, and general violence. Questions from the survey were derived from previously validated instruments used to assess alcohol use, violence perpetration and victimization, prevalence of alcohol marketing, sexual behaviors and mental health among adolescents in the United States and globally. These included, Global School-based Student Health Survey (GSHS) (CDC GSHS, 2016), Kampala Youth Survey 2011 (Swahn, Palmier, Kasirye, Yao, 2012; Swahn, Haberlen, Palmier, 2014; Swahn et al., 2012; Swahn, Braunstein, Kasirye, 2014; Swahn, Dill, Palmier, Kasirye, 2015) MAMPA 2012 Questionnaire, AUDIT Questionnaire (Conigrave, Hall, Saunders, 1995), CAGE Questionnaire (American Psychiatric Association, 2002), iMPPACS (Hennessy, et al., 2013), AIDS Indicator Survey (Uganda Ministry of Health, 2012), and the Demographic Health Survey (Uganda Bureau of Statistics & ICF International, 2012). The survey was available to participants in both English and Lugandan (the local language), and survey translation was conducted by a certified Lugandan translator for accuracy. Information on demographics, alcohol usage, perception and beliefs related to alcohol and sex as well as their knowledge of HIV/AIDS and other STIs were attained from participants. The final sample yielded 1,134 completed surveys.

Data Analysis

Independent Variable—Vocational skills training was defined as youth who receive some formal education, complete primary school, or complete secondary school and participate in the vocational training skills program at UYDEL.

Dependent Variables—Alcohol use was assessed using "Have you ever had a drink of alcohol in the past year?". Condom use was measured using, "Did you use a condom the last time you had sexual intercourse?". Sex with multiple partners was assessed using "With how many different people have you had sexual intercourse with in your life?" Individuals could respond at five levels, categorized as: no partner, 1–2 partners, 3–4 partners, 5–6 partners, and 6 or more partners. These were recategorized into two response levels: no= none or 1–2 partners and yes= 3 or more partners. Transactional sex was measured using "Have you ever

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gotten money, food, or other things for having sexual intercourse with someone?", and was dichotomized as yes or no.

Hopefulness was measured using "In the past month, how often did you feel hopeful about the future?" Response categories included: "never", "sometimes" or "often". Demographic variables included age, which was categorized as "less than 15 years old" or "15 years or older", gender, which was dichotomized by male or female, and education level was categorized as "some education", "completed primary", or "completed secondary". Covariates of interest included parental presence, categorized as "both parents", "one parent" or "no parent living". Stable housing was measured using "Have you ever lived on the street with no place to go?", and included response options yes or no.

Statistical Analysis—Youth with no formal education were excluded from analysis. Youth who had at least some formal education and no vocational skills training were compared to youth who had at least some formal education in addition to vocational skills training. This exclusion criteria provided comparability between these groups. Descriptive statistics were calculated for demographic variables, including age, gender, and education level. Descriptive statistics for all risky behaviors and characteristics, including alcohol use, condom use, sex with multiple partners, and transactional sex were also computed., parental presence, stable housing, and hopefulness. Chi-square test were conducted to assess differences in risky behaviors, youth characteristics and other covariates.

Bivariate and multivariable analyses using four logistic regression models, were conducted to examine the relationship between youth participating in vocational skills training and their engagement in the risk behaviors of interest (alcohol use, condom use, sex with multiple partners and transactional sex). Additional analyses, stratified by gender, were also conducted for all four risk behavior outcomes. This analytic approach was also used to measure the association between participation in vocational skills training and level of hopefulness. Covariates were selected for inclusion in all models based on the bivariate statistical significance and empirical evidence. Unadjusted and adjusted odds ratios were computed with 95% confidence interval for all models, including gender stratified multivariable logistic regression models. All statistical analyses were computed using SAS 9.4 (SAS Institute, Cary, NC).

Results

About 30% of the youths surveyed were in vocational skills training (VST). Most VST participants are female (80%), 15 years of age or older (79%), have completed primary school (62%), have one parent living (42%), and have stable housing (78%) (Table 1). These are statistically significant differences by gender, age, and education level among youth who participated in VST and those that had not ($P < 0.01$). Differences in parental presence were also statistically significant ($P < 0.05$). Youth who participated in VST used alcohol less (75%) compared to youth that did not attend VST (87%). Transactional sex was more prevalent among youth who participated in VST (34%) compared to those that had not (19%). Lack of condom use was higher among youth who had not attended VST (36%), compared to youth that attended (29%) VST.

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In the final risk behavior regression models, alcohol use was associated with youth being 15 years or older (AOR: 2.8 CI:1.4, 5.7), having no parents (AOR: 3.2 CI: 1.3, 7.6) and attending VST (AOR: 0.4 CI: 0.2, 0.7). Condom use was associated with youth 15 years or older (AOR: 0.5 CI: 0.3, 0.8). Sex with multiple partners was associated with youth 15 years or older (AOR: 4.3 CI: 2.3,8.0), having no parents (AOR: 1.8 CI: 1.1, 3.0), and stable housing (AOR: 3.2 CI: 2.1, 4.8). Transactional sex was associated with youth 15 years or older (AOR: 3.2 CI 2.3, 4.7) and stable housing (AOR: 4.0 CI: 2.8,5.9). Participation in VST was not associated with condom use, sex with multiple partners or transactional sex, only alcohol use. Logistic regression models for all four risky behaviors are presented in Table 2.

In the gender-stratified models, among males, VST was not significantly associated with any of the outcomes in the adjusted regression models (Table 3). In a stratified analyses among females, VST was statistically significantly associated with alcohol use (AOR:0.3 CI:0.1, 0.7) (Table 4).

Finally, youth with VST were more likely to report often being hopeful about the future (AOR: 1.7, CI: 1.1, 2.8) than those youth who were not in VST (Table 5).

Discussion

This study examines the association between youth participating in VST and self-reported risky behaviors including alcohol use, inconsistent condom use, sex with multiple partners, and engaging in transactional sex among youth living in the slums of Kampala. Our findings show that there are clear differences with respect to both demographic characteristics and living conditions among youth receiving VST versus those that do not. As an example, those receiving VST are predominantly female, over the age of 15 years, more likely to use alcohol, more likely to engage in transactional sex and more likely to feel hopeful about the future.

Our key finding shows that females who attend VST are less likely than their peers to drink alcohol. This is a very positive finding that may be expected, given that the youth who attend the VST also receive psychosocial counselling and other health promotion messages. However, we do not find any other significant associations between VST and health risk behaviors for females. Since alcohol use is an established risk factor for lack of condom use and sex with multiple partners (Kalichman, Simbayi, Kaufman, Cain, & Jooste, 2007), it is possible that there are no other associations found between these behaviors and VST due to the lower prevalence of alcohol use among girls. However, this is not a satisfying explanation, as there are likely other potential confounders that may influence these findings which should be examined in future research.

Youth living in the slums have limited resources and often lack social support which contributes to the risk of engaging in transactional sex (Ssewamala, Han, Neilands, Ismayilova, & Sperber, 2010; Swahn, et al., 2016; Swahn, Braunstein, Kasirye, 2014). In addition, societal factors such as male dominance in the social power structure, also make female youth vulnerable to unwanted sex and engaging in transactional sex (Pettifor et al., 2008). In our study, VST is not associated with transactional sex for females, however, other

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factors such as living on the street (homelessness) is associated with transactional sex. Future prospective studies could provide insight into the short and long-term impact of VST programs on a range of risk behaviors among both males and females to understand the behavior patterns.

As expected youth who enrolled in VST are older, likely reflecting the demand or expectation that they provide for themselves and enter the work force. Moreover, youth who enroll in VST are generally more likely to report often feeling hopeful about the future. This is a critically important finding given the high levels of sadness and mental distress reported in this population in previous research (Swahn, Palmier, Kasirye, Babihuga, 2014; Swahn, Palmier, Kasirye, Yao, 2012). More importantly, hopefulness is a form or resilience that will likely increase the benefit of VST or of attending the UYDEL centers and services. Future research may explore this topic in greater detail to determine if the higher prevalence of hopefulness observed among VST participants was an outcome of that training or whether VST attracts hopeful youth. The comprehensive services UYDEL provides, which includes counselling and psychosocial support, may have influenced the association between VST participation and hopefulness.

There are several important limitations that should be factored in when interpreting our findings. This is a convenience sample, which limits the generalizability of our findings to other settings and other VST programs. Due to the cross-sectional nature of our study design, we are unable to establish a temporal and causal relationship between participation in VST and risky behaviors among youth. Future studies should consider assessing the temporal relationship between participation in VST and risky behaviors to provide additional insight into the potential for VST to overcome the individual and environmental factors that influence these risky behaviors. Additional limitations include the potential sensitive nature of the survey questions, which may have led to underreporting of risky behaviors. Lastly, participants reflect a heterogeneous group in terms of prior formal educational experiences, which may have adversely affect our findings. We are also unable to assess how the gap in time from formal schooling to enrolling in VST may influence risk behaviors among youth. In addition, we are unable to assess the additive affect that VST may have had on the risky behaviors we examined. A sensitivity analyses was computed to examine the bivariate associations with VST in the entire sample, regardless of prior education, showed the same pattern as the bivariate associations with VST of the sample restricted to those with at least some education. It is also possible the VST filled the void of formal education. Future studies should consider the educational level of youth and the length of time out of formal schooling, and length of time youth are enrolled in VST and the influence it may have on these behaviors. In addition, future research should also examine VST across formal and less formal settings to reflect the diversity in the infrastructure of these programs, especially in low-resource settings where VST is offered by various community based organizations.

Despite these limitations, these findings have implications for the potential of VST programs to build self-reliance and hopefulness(Valle et al., 2006). More importantly, the lower prevalence of alcohol use among females enrolled in VST is promising.

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Conclusion

While based on cross-sectional data, lower levels of alcohol use among females in the VST program, compared to their peers, is a promising finding that needs to be examined in future research. Future studies should also compare youth across education settings such as those in vocational training compared to youth actively enrolled in formal education, to explicitly assess the differences in terms of health risk behaviors and opportunities for intervention strategies. These studies should also consider factors such as the differences in curriculum and delivery of VST programs, the length of time in these programs and their impact on risky behaviors among youth. This research would inform future prevention strategies and also existing programs, largely implemented by community-based organizations, how to reduce risk behaviors in vulnerable populations in low-resource settings.

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Biography

Dr. Monica Swahn is a Distinguished University Professor in the division of Epidemiology and Biostatistics and a core faculty in the Partnership for Urban Health Research at Georgia State University School of Public Health. Her main research areas pertain to health risk behaviours among adolescents and young adults, primarily focusing on the structural drivers of alcohol, violence and HIV/AIDS in the United States and globally.

Portia Buchongo is a recent graduate of Georgia State University School of Public Health, where she earned her Master’s in Public Health with a focus in Epidemiology. She has participated in a Study Abroad to Uganda which focused on the epidemiology of alcohol use and alcohol related harm. She has a Bachelors in Nursing from Virginia Commonwealth University and has spent most of her professional career in the clinical setting as a critical care nurse.

Rogers Kasirye received his BA in Social Work and Social Administration in 1991 and an MA in Human Rights in 2001 from Makerere University, Kampala. He is the Executive Director of the Uganda Youth Development Link. He has consulted with both local non-governmental organizations and international agencies, including WHO, UNODC ILO/ IPECICF-Macro, and UNICEF, where he has been involved in the planning, implementation, advocacy and evaluation of programs related to child labour, street and slum children in Uganda and East Africa.

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Table 1.

Bivariate associations between psychosocial characteristics, risky behaviors, and participation in vocational skills training among youth in the slums of Kampala (n=1059).

Variable	Total sample	Vocational Skills Training NO	Vocational Skills Training YES	*P*
	***n* (%)**	***n* (%)**	***n* (%)**	
	1059 (100)	**746 (70.4)**	**313 (29.6)**	
Age				
15 years or Younger	345 (32.6)	279 (37.4)	66 (21.1)	**
Older than 15 years	714 (67.4)	(62.6)	247 (78.9)	
Gender				
Male	466 (44.1)	403 (54.1)	63 (20.1)	
Female	592 (56.0)	342 (45.9)	250 (79.9)	**
Education Level				
Some Education	337 (31.8)	258 (34.6)	79 (25.2)	**
Primary	611 (57.7)	417 (55.9)	194 (62.0)	
Secondary	111 (10.5)	71 (9.5)	40 (12.8)	
Parental Presence				
2 Parents	451 (42.6)	335 (44.9)	116 (37.1)	*
1 Parent No Parents	387 (36.5)	255 (34.2)	132 (42.2)	*
No Parents	221 (20.9)	156 (20.9)	65 (20.8)	
Stable Housing				
No	843 (79.7)	598 (80.3)	245 (78.3)	0.5
Yes	215 (20.3)	147 (19.7)	68 (21.7)	
Alcohol Use				
No	64 (17.3)	32 (13.1)	32 (25.2)	**
Yes	307 (82.7)	212 (86.9)	95 (74.8)	
Condom Use				
No	186 (33.8)	132 (36.3)	54 (28.9)	0.1
Yes	365 (66.2)	232 (63.7)	133 (71.1)	
Multiple Partners				
No	303 (55.1)	199 (54.8)	104 (55.6)	0.86
Yes	247 (44.9)	164 (45.2)	83 (44.4)	
Transactional Sex				
No	811 (76.8)	605 (81.3)	206 (66.0)	**
Yes	245 (23.2)	139 (18.7)	106 (34.0)	
Feeling Hopeful				
Never	123 (11.7)	91 (12.3)	32 (10.3)	**

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Variable	Total sample	Vocational Skills Training NO	Vocational Skills Training YES	*P*
	***n* (%)**	***n* (%)**	***n* (%)**	
	1059 (100)	**746 (70.4)**	**313 (29.6)**	
Sometimes	458 (43.5)	344 (46.4)	114 (36.5)	
Often	473 (44.9)	307 (41.4)	166 (53.2)	

Note: *P* value obtained using chi-square analyses.

* P <0.05.

** P<0.01.

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Table 2.

Multivariable associations between vocational skills training and risky behaviors among youth 12–18 years of age living in the slums of Kampala (n=1059).

Variables	Risky Behaviors							
	Alcohol Use		Condom Use		Multiple Partners		Transactional Sex	
	Unadjusted OR (95% CI)	Adjusted OR (95% CI)	Unadjusted OR (95% CI)	Adjusted OR (95% CI)	Unadjusted OR (95% CI)	Adjusted OR (95% CI)	Unadjusted OR (95% CI)	Adjusted OR (95% CI)
Gender[a]								
Male	___	0.8 (0.4–1.5)	___	1.0 (0.6–1.4)	___	1.4 (1.0–2.1)	___	**0.2 (0.1–0.3)**
Female		Ref		Ref		Ref		Ref
Age[a]								
=<15 years	___	Ref	___	Ref	___	Ref	___	Ref
>15 years		**2.8 (1.4–5.7)**		**0.5 (0.3–0.8)**		**4.3 (2.3–8.0)**		**3.2 (2.2–4.7)**
Parental Presence[a]								
2 Parents	___	Ref	___	Ref	___	Ref	___	Ref
1 Parent		1.7 (0.9–3.2)		0.9 (0.6–1.3)		1.4 (0.9–2.1)		1.2 (0.8–1.7)
No Parent		**3.2 (1.3–7.6)**		0.9 (0.6–1.5)		**1.8 (1.1–3.0)**		1.2 (0.8–1.9)
Stable Housing[a]								
No	___	Ref	___	Ref	___	Ref	___	Ref
Yes		1.5 (0.8–2.9)		1.4 (1.0–2.1)		**3.2 (2.1–4.8)**		**4.0 (2.8–5.9)**
Vocational Training								
No	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref
Yes	**0.5 (0.3–0.8)**	**0.4 (0.2–0.7)**	0.7 (0.5–1.1)	0.7 (0.5–1.1)	1.0 (0.7–1.4)	1.1 (0.7–1.6)	**2.2 (1.7–3.0)**	1.3 (0.9–1.8)

[a]Included in all four models.

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Table 3.

Multivariable associations between vocational training and health-risk behaviors among males, 12–18 years of age living in the slums of Kampala (n=466).

	Risky Behaviors Among Males							
Variables	**Alcohol Use**		**Condom Use**		**Multiple Partners**		**Transactional Sex**	
	Unadjusted OR (95% CI)	**Adjusted OR (95% CI)**	**Unadjusted OR (95% CI)**	**Adjusted OR (95% CI)**	**Unadjusted OR (95% CI)**	**Adjusted OR (95% CI)**	**Unadjusted OR (95% CI)**	**Adjusted OR (95% CI)**
Age[a]								
=<15 years	___	Ref	___	Ref	___	Ref	___	Ref
>15 years		2.9 (1.0–8.2)		0.6 (0.2–1.3)		**3.7 (1.4–9.6)**		2.0 (1.0–4.2)
Parental Presence[a]								
2 Parents	___	Ref	___	Ref	___	Ref	___	Ref
1 Parent		2.0 (0.8–5.1)		0.8 (0.4–1.4)		1.3 (0.7–2.3)		1.0 (0.5–2.0)
No Parent		**4.3 (1.1–17.0)**		1.1 (0.5–2.4)		1.8 (0.8–3.8)		1.2 (0.5–2.5)
Stable Housing[a]								
No	___	Ref	___	Ref	___	Ref	___	Ref
Yes		1.1 (0.4–2.7)		1.3 (0.7–2.4)		1.8 (1.0–3.1)		**3.0 (1.6–5.6)**
Vocational Training								
No	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref
Yes	0.5 (0.2–1.4)	0.5 (0.2–1.4)	0.5 (0.2–1.1)	0.4 (0.2–1.0)	1.0 (0.5–2.2)	1.1 (0.5–2.3)	**2.2 (1.1–4.5)**	1.9 (0.9–4.0)

[a] Included in all four models.

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Table 4.

Multivariable associations between vocational training and health-risk behaviors among females, 12–18 years of age living in the slums of Kampala (n=592).

Variables	Risky Behaviors Among Females							
	Alcohol Use		Condom Use		Multiple Partners		Transactional Sex	
	Unadjusted OR (95% CI)	Adjusted OR (95% CI)	Unadjusted OR (95% CI)	Adjusted OR (95% CI)	Unadjusted OR (95% CI)	Adjusted OR (95% CI)	Unadjusted OR (95% CI)	Adjusted OR (95% CI)
Age[a]								
=<15 years	___	Ref	___	Ref	___	Ref	___	Ref
>15 years		**3.0 (1.2–7.9)**		**0.5 (0.3–0.9)**		**5.3 (2.3–12.5)**		**3.8 (2.4–6.1)**
Parental Presence[a]								
2 Parents	___	Ref	___	Ref	___	Ref	___	Ref
1 Parent		1.6 (0.7–3.7)		0.9 (0.5–1.6)		1.6 (0.9–2.8)		1.2 (0.8–1.9)
No Parent		2.6 (0.8–8.0)		0.8 (0.4–1.6)		**2.0 (1.1–3.9)**		1.3 (0.8–2.1)
Stable Housing[a]								
No	___	Ref	___	Ref	___	Ref	___	Ref
Yes		2.1 (0.8–5.1)		1.5 (0.9–2.6)		**5.8 (3.1–10.8)**		**4.9 (3.0–8.1)**
Vocational Training								
No	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref
Yes	**0.4 (0.2–0.8)**	**0.3 (0.1–0.7)**	0.8 (0.5–1.3)	0.9 (0.5–1.4)	1.2 (0.8–1.8)	1.1 (0.7–1.8)	1.5 (1.0–2.1)	1.1 (0.8–1.6)

[a]Included in all four models.

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Table 5.

Multivariable association between youth in vocational training and feeling hopeful as an outcome among youth living in the slums of Kampala (n=1059).

	Feeling Hopeful			
Variables	**Unadjusted**		**Adjusted**	
	Sometimes OR (95% CI)	**Often OR (95% CI)**	**Sometimes OR (95% CI)**	**Often OR (95% CI)**
Gender[a]				
Male	___	___	1.2 (0.8–1.9)	**1.6 (1.0–2.5)**
Female			Ref	Ref
Age[a]				
=<15 years	___	___	Ref	Ref
>15 years			1.4 (0.9–2.2)	**1.6 (1.1–2.5)**
Parental Presence[a]		___		
2 Parents	___		Ref	Ref
1 Parent			1.1 (0.7–1.7)	0.8 (0.5–1.2)
No Parent			**1.5 (0.8–2.5)**	1.0 (0.6–1.8)
Stable Housing[a]				
No	___	___	Ref	Ref
Yes			0.6 (0.4–1.0)	**0.5 (0.3–0.9)**
Vocational Training				
No	Ref	Ref	Ref	Ref
Yes	0.9 (0.6–1.5)	1.5 (1.0–2.4)	1.0 (0.6–1.6)	**1.7 (1.1-2.8)**

[a]Included in adjusted model.