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doi: https://doi.org/10.57709/10097327

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ABSTRACT

Risky Behaviors of Ugandan Youth in
Vocational Training Compared to Traditional Education

By

PORTIA C. BUCHONGO

April 19, 2017

INTRODUCTION: Formal education in sub-Saharan Africa has been found to decrease the risk of HIV infection among youth. However, vocational skills training has been used as an alternative for youth to gain employment. Yet, little is known about the types of risk behaviors prevalent among youth who enroll in vocational skills training programs.

AIM: The purpose of this study is to examine risk behaviors such as alcohol use, lack of condom use, sex with multiple partners, and transactional sex among youth living in the slums who participate in vocational skills training. The relationship of personal characteristics such as hopefulness and participation in vocational training programs will also be explored.

METHODS: Analyses were conducted using survey data based on a cross-sectional study of youth ages 12-18 years (N=1134), living in the slums of Kampala, that were surveyed in the Spring of 2014. The study sample included youth who had at least some formal education or higher and were compared to youth who had at least some formal education and participated in vocational skills training (N=1059). Alcohol use, lack of condom use, sex with multiple partners, and engaging in transactional sex were the primary risk factors of interest. Five multivariable logistical regression models were used to examine the risk behaviors and hopefulness in its associated with youth who participated in vocational skills training. Multivariable analysis stratified by gender was also conducted.

RESULTS: Youth who participated in vocational skills training had completed primary education (62%) and were predominately female (80%). Youth who participated in vocational skills training were less likely to report alcohol use (AOR 0.38; 95% CI 0.20, 0.70) and more likely to report feeling hopeful often (AOR 1.73; 95% CI 1.07, 2.97).

DISCUSSION: Youth participation in vocational training is association with youth being less likely to use alcohol and youth feeling hopeful often compared to youth who do not participate in vocational training. Vocational skills training may be a viable strategy for reducing some risk behaviors. However, further research on this group and strategy for risk reduction is needed to assess the impact of these programs on youth behaviors.

Keywords: *Vocational training, risky behaviors, alcohol use, Ugandan youth*

RISKY BEHAVIORS OF UGANDAN YOUTH IN VOCATIONAL TRAINING COMPARED TO TRADITIONAL EDUCATION

by

PORTIA C. BUCHONGO

B.S.N., VIRGINIA COMMONWEALTH UNIVERSITY

A Thesis Submitted to the Graduate Faculty
of Georgia State University in Partial Fulfillment
of the
Requirements for the Degree

MASTER OF PUBLIC HEALTH

ATLANTA, GEORGIA
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APPROVAL PAGE

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ACKNOWLEDGMENTS

Thank you to my thesis committee. Dr. Douglas Roblin for your support throughout my time here in the program at GSU. Dr. Monica Swahn for your support during the thesis process and the opportunity to travel to Uganda to see and experience the environment and people reflected in this data set. I'd also like to thank Rogers Kasyire for his work and commitment to the Uganda Youth Development Link. Thank you to Rachel Culbreth and Malikah Waajid for their support and guidance. Thanks to all the GSU faculty and staff that have supported me up to this point. Special thanks to my husband for his support throughout the program.

Author's Statement Page

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___Portia C. Buchongo_____
Signature of Author

TABLE OF CONTENTS

ACKNOWLEDGMENTS iii

LIST OF TABLES.....iv

INTRODUCTION..... 1
1.1 Background.....1
1.2 Purpose of Study.....2
1.3 Study Questions.....2

REVIEW OF THE LITERATURE.....3
2.1 Traditional Education and HIV.....3
2.2 Traditional Education and Risky Behaviors.....4
2.3 Gender Differences.....6
2.4 Defining Vocational Training.....6
2.5 Vocational Training and Risky Behaviors.....7

REFERENCES.....8

MANUSCRIPT.....16
INTRODUCTION 16
METHODS 18
Data.....18
Measures.....19
Analyses.....20
RESULTS.....21
DISCUSSION.....24
CONCLUSION.....26
REFERENCES.....28

APPENDICES.....31

List of Tables

Table 3.1 Bivariate associations of all variables and youth living in slums who participated in vocational training and those who did not but had at least some formal education.

Table 3.2 Bivariate associations of risky behaviors of interest, hopefulness, and time spent at UYDEL among youth living in slums who participated in vocational training and those who did not.

Table 3.3 Multivariable associations between youth in vocational training and risky sexual behaviors as an outcome among youth living in the slums of Kampala.

Table 3.4 Multivariable associations between males in vocational training and risky sexual behaviors as an outcome among youth living in the slums of Kampala.

Table 3.5 Multivariable associations between females in vocational training and risky sexual behaviors as an outcome among youth living in the slums of Kampala.

Table 3.6 Multivariable association between youth in vocational training and feeling hopeful as an outcome among youth living in the slums of Kampala.

Table 3.7 Multivariable association between males in vocational training programs and feeling hopeful as an outcome among male youth living in the slums of Kampala.

Table 3.8 Multivariable association between females in vocational training and feeling hopeful as an outcome among female youth living in the slums of Kampala.

I. INTRODUCTION

The HIV prevalence in Uganda is estimated to be 2.4% for youth age 15-19 years (Uganda Bureau of Statistics, 2016) . Risky sexual behaviors such as inconsistent condom use, sex with multiple partners, transactional sex, and alcohol consumption contribute to the HIV risk among young people (Commission, 2014) . Alcohol consumption among this age group is concerning. Early alcohol use has been found to be associated with problem drinking (Swahn et al., 2011). Alcohol use has also been linked to sex with multiple partners and lack of condom use (Kalichman, Simbayi, Kaufman, Cain, & Jooste, 2007). Although educational attainment has been shown to increase condom use (Lagarde et al., 2001; Agyei & Migadde, 1995) because the development of health reasoning skills acquired during education (Baker, Leon, & Collins, 2011). However, risky behaviors among this demographic continue to be a major concern.

Since the establishment of Uganda's Universal Primary Education (UPE) program enrollment rates in primary education has reached as high as has 8.8 million students (Uganda Bureau of Statistics, 2016). In 2013 the completion rate for primary education in Uganda was approximately 55.6% ("The World Bank," 2016). Although research has shown free schooling is associated with reducing risk behaviors among African youth (Cluver, Orkin, Yakubovich, & Sherr, 2016). Poverty, which has impacted student retention rates due to costs related to school fees, uniforms, and supplies, is a major barrier to accessing formal education (Mpyangu, Lubaale, Onyango, & Ochen, 2014). For youth who are orphaned or living in the slums, access to education is a challenge, leaving many out of the formal school system. For young people who can complete formal education, they face challenges with underemployment across many African countries (Oketch, 2007). Unemployment is also heavily attributed to the urbanization occurring in Africa along with stagnant job creation in densely populated urban areas (Banks,

2016) . The limited number of jobs to support the overpopulated urban areas leave many youths out of the job market.

The challenges faced in attaining an education and after completion of education, have opened the door for vocational training (VT) programs to be used as an alternative means to gain employment and empower youth. Though costs are still associated with many VT programs, they are often used as a conduit for re-entry into formal school settings, or to gain self-reliance. However, the infrastructure of many of these programs are ill-equipped to keep up with the demands of the labor markets, advances in technology, and show little return on investment regarding of long-term employment (Oketch, 2007). Still, for youth living in the slums, VT programs remain a viable option to generate income.

1.2 Purpose of the Study

The use of VT programs along with HIV education has been shown to decrease the number of sexual partners and increase condom use among youth (Rotheram-Borus, Lightfoot, Kasirye, & Desmond, 2012). However, little is known about the characteristics of youth who enroll in VT programs, regarding the sexual risky behaviors they tend to exhibit or personal characteristics such as hopefulness. The purpose of this study is to investigate the relationship that alcohol use, inconsistent condom use, sex with multiple partners, and transactional sex have on youth living in the slums of Uganda who participate in VT programs. To further characterize these young people, hopefulness will be examined as a motivational factor.

1.3 Research Questions

The primary research questions are:

1. What types of risky behaviors are exhibited by youth who enroll in vocational training programs compared to youth who do not participate in vocational training programs?
2. Are there differences in these behaviors based on gender?
3. Does hopefulness help characterize youth who participate in VT programs?

Understanding the characteristics of youth who attend VT programs, will help target strategies to reduce risk behaviors. It can also help inform the literature on the role of VT programs beyond its potential to generate income for youth.

II. LITERATURE REVIEW

2.1 Traditional Education and HIV

Evidence on the relationship between traditional education and risk behaviors among youth in Africa has been vast, yet findings have been inconsistent. Before 1996, research in Sub-Saharan Africa showed higher levels of education were associated with higher rates of HIV infection (Hargreaves et al., 2008). However, after 1996 higher levels of education were associated with lower rates of HIV infection (Hargreaves et al., 2008). Higher educational attainment has been associated with condom use (Lagarde et al., 2001). However, alcohol use (Santelli et al., 2013), sex with multiple partners (Santelli et al., 2013), lack of condom use, and transactional sex (Choudhry, Östergren, Ambresin, Kyagaba, & Agardh, 2014) remain prevalent behaviors among Ugandan youth. These behaviors have also been found to continue at the collegiate levels of education (Choudhry, Agardh, Stafström, & Östergren, 2014). Gender differences in risk behaviors were also consistent throughout the literature.

Earlier studies have also shown primary and secondary education were associated with a an increased the odds of HIV infection (Smith et al., 1999) . These findings were from a cross-sectional study on the rural Rakai, Uganda community examined the association between HIV prevalence and education attainment across 31 communities with 3102 participants. Females who had a primary school education were more likely (OR=1.7; 95% CI: 1.1-2.4) to be infected (Smith et al., 1999). However, these findings are limited to HIV prevalence data, and risk of HIV was unable to be analyzed. A stronger prospective cohort design on the same community found educational attainment decreased risk for HIV infection (Santelli et al., 2013). However, these studies do not address risky behaviors among youth enrolled in formal education.

2.2 Traditional Education and Risky Behaviors

Risk behaviors in formal educational settings have been examined. Alcohol use has been identified as an indicator of sex with multiple partners (Choudhry, Agardh, et al., 2014) and lack of condom use (Mbulo, Newman, & Shell, 2007). A cross-sectional study of 1179 Ugandan University students found alcohol use during sexual activity was associated with an increase odds (AOR=1.78; 95% CI: 1.11-2.86) of inconsistent condom use. This same study found that alcohol use increased the odds (AOR=4.18; 95% CI: 2.50-7.00) of having sex with multiple partners, especially among female students (Choudhry, Agardh, et al., 2014). Similar behaviors were also found at the collegiate level in a Zambian Study, which found College and University drinkers were more likely to not use condoms during their last sexual encounter (Mbulo et al., 2007). Students who were drinkers were also more likely to have more than one sexual partner compared to nondrinkers (Mbulo et al., 2007). Though both studies show similar findings, the Zambian study compared University students with those in high school, which may not be the

most comparable groups. Since behaviors such as alcohol use and sexual activity has the potential change with increased age. The differences in behaviors found comparing University students to high school students may be more attributed to differences in the age of these two groups.

Regarding academic performance, research has shown an association between self-reported academic performance and risky sexual behaviors, with a significant association between poor academic performance and inconsistent condom use with new sexual partners among University students (Mehra, Kyagaba, Ostergren, & Agardh, 2014). Females who reported poor academic performance were more likely (AOR=3.65; 95% CI 2.23, 5.97) to have inconsistent condom use with new partners compared to their male counterparts (AOR= 1.59; 95% CI 1.07, 2.36). Females who reported good academic performance (AOR=1.53; 95% CI 1.15, 2.03) also had a similar outcome (Mehra et al., 2014). Self-report is a weak method to measure academic performance and its association with risky behaviors could be overestimating this relationship. Gender differences were apparent in the findings. Differences in inconsistent condom use remain comparable between females with good academic performance to males with poor academic performance which reveals a weakness of formal education as a protective factor for females. Although other evidence has found education to increase condom use and the number of sexual partners due, to smaller social networks, this is not consistent across studies for women (Jukes, Simmons, & Bundy, 2008). As women become more educated, this often delays marriage, which contributes to an increase in the number of sexual partners for women (Jukes et al., 2008).

2.3 Gender Differences

Gender differences in risk behaviors were apparent throughout the literature. In the Rakai Community Cohort Study, which examined risk and protective factors for rural youth in Uganda, young women ages 15-19 years had an HIV incidence that was four times higher than their male counterparts (Santelli et al., 2013). Differences were also found related to risk factors. HIV risk increased for young men who used alcohol (aIRR= 2.08; 95% CI: 1.15-3.77) and for young women who had an increased in the number of sexual partners (aIRR=2.27; 95% CI: 1.36-3.81). Young women who were current students (aIRR= .22; 95% CI: .07-.72) and boys attending secondary school (aIRR= .42; 95% CI: .21-.86) had a decreased risk for HIV (Santelli et al., 2013). HIV incidence were also found to be higher among those who were leaving school (Santelli et al., 2013). Although this study was able to calculate risk, it is important to note that geographically, rural settings have been found to have a lower prevalence of HIV infections compared to urban settings in Sub-Saharan Africa (Magadi, 2013). These findings may not have been consistent in an urban setting.

2.4 Defining Vocational Training

Globally, vocational training (VT) is formally referred to as Technical and Vocational Education and Training (TVET). In Uganda, this sub-sector of education offers formal training, primarily in agriculture and vocational institutions. Formal vocational training programs are offered to students after seven years of primary schooling (Sifuna & Sawamura, 2010). As formal education remains highly regarded, many youths who choose TVET do so to gain employment in hopes of returning to the formal education setting or continue in the workforce. Much of the vocational training market in Uganda reflects informal training that offers nonagricultural skills that use the apprenticeship approach ("UNESCO-UNEVOC World TVET

Database," 2014). Many informal training programs require fees for enrollment or are financed through donors. Skills acquired through informal training is typically related to the demand of the current market, and may include handcrafts, car maintenance, tailoring, food service, brick laying and many others (Chinonso, 2010). However, many of the skills acquired through informal training are limited, lack certification, and are not as easily transferable in other sectors of the job market (Eichhorst, Rodríguez-Planas, Schmidl, & Zimmermann, 2013).

In terms of the role of TVET and youth, it has been considered a strategy to empower youth and instill self-reliance with the prospect of employment. The impact of employment on quality of life for marginalized youth has been acknowledged, and gaining self-reliance through employment is one aspect of increasing quality of life (Blaak, Openjuru, & Zeelen, 2013). Motivational factors, such as hope, have also been noted to play an important role in adolescent development, as a contributing factor in achieving one's goals (Valle, Huebner, & Suldo, 2006). Snyder's theory of hope incorporates goals, (which can be short-term or long-term; pathways, which represent one's ability to reach these goals) and agency (which relates to self-motivation an individual uses to the effort needed to remain on the pathway to reach the goal set forth) (Valle et al., 2006). Hopefulness is a personal factor that can be used to motivate youth to achieve goals, such as employment.

2.5 Vocational Training and Risky Behaviors

The evidence is lacking on the impact that vocational training programs in Sub-Saharan Africa (SSA) have on youth behaviors. Much of the research incorporates other interventions such as health education, formal education, or financial stipends with vocational training programs (Kennedy, Fonner, O'Reilly, & Sweat, 2014; Blaak et al., 2013; Bandiera et al., 2012).

Evidence in SSA has shown these programs provide employment to youth, motivate youth, instill self-reliance and can benefit marginalized youth (Blaak et al., 2013; Bandiera et al., 2012; Tukundane, Minnaert, Zeelen, & Kanyandago, 2015). However, attaining economic stability, and the quality of the curriculum in these programs in terms of aligning with advancing labor markets has come under scrutiny.

A systematic review of 12 studies (Kennedy et al., 2014) used a mixture of income generating interventions, which included financial services, and vocational training in combination with health education to decrease risky sexual behaviors. Of these, only three studies used vocational training and health education combination. One study restricted its participants to youth, while two studies included adult sex workers. Overall this review was inconclusive in demonstrating the impact of these multimodal methods used to reduce risky sexual behaviors. However, another study found the number of sexual partners decreased, and an increase in condom use among Ugandan youth who received vocational skills training in combination with HIV prevention education over a ten-week period (Rotheram-Borus et al., 2012). Positive changes in risk behaviors among girls were also found in a similar study which used the Empowerment and Livelihood for Adolescents (ELA) program to provide vocational training and life skills through health education (Bandiera et al., 2012).

Though the ELA program showed a significant increase in condom use by girls from baseline, this outcome did not use vocational training to predictor condom use (Bandiera et al., 2012). Instead, life skills curriculum, which included topics such as HIV/AIDS awareness and violence against women, contributed to the increase in condom use. However, vocational training was used to measure employment related outcomes. A 32% increase in income

generating activities from a 12.5% baseline, and a 40% increase in self-employment from a baseline of 7% was obtained for girls that received vocational training (Bandiera et al., 2012).

A qualitative analysis (Blaak et al., 2013) of two non-formal vocational education programs was guided by a theoretical framework for self-reliance. Both programs incorporated life skills and targeted early school leavers. Achieving self-reliance through economic empowerment was a consistent theme between both programs (Blaak et al., 2013). Many of the participants who left traditional schooling opted for vocational training due to low fees and a curriculum which served their immediate needs for job placement after program completion (Blaak et al., 2013). Qualitative analysis, used to compare four vocational education and training (VET) programs, showed participants had increased access to labor markets, and improved livelihood (Tukundane et al., 2015). However, in both studies there was variation in the vocational program infrastructure, teaching methods, and accessibility. The potential impact that the variation across programs had on participant's ability to access labor markets is not addressed.

A weakness of the ELA program study was the lack of randomization methods used to assess vocational training in the designated treatment communities (Bandiera et al., 2012). Girls who inhabited control communities that did not have a program site were not excluded from participating in the voluntary ELA program, and they may have crossed over into communities that offered this program. Since no procedures were in place to prevent this type of cross-over from control grouped communities to treatment grouped communities, results may overestimate the effect of the intervention. The qualitative methods the previous studies are limited in the ability to demonstrate a relationship between VET programs and a reduction in risky behaviors or increase in youth employment (Blaak et al., 2013; Tukundane et al., 2015). However, they do

support a latent construct for self-empowerment among youth who find value in VET programs. Findings from theses qualitative studies could be used designing quantitative studies to characterize youth that participate in VET programs.

Programmatic differences across vocational training programs were evident across all literature. Some programs incorporated academic teaching in English, public health, and business calculations in their programs. This inconsistency has implications for measuring the impact these programs have on risk behaviors. Still, more evidence on vocational training programs used as the sole intervention to reduce risk behaviors is needed. This evidence to clearly characterize youth who participate in these programs would also contribute to risky behavior prevention strategies.

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III. MANUSCRIPT

INTRODUCTION

The Joint United Nations Programme on HIV/AIDS (UNAIDS) has estimated the HIV prevalence among young people in Uganda age 15-24 to be 3.1% (Commission, 2014). Risky behaviors such as inconsistent condom use, sex with multiple partners, alcohol use, and transactional sex have contributed to HIV risk among youth (Lagarde et al., 2001; Santelli et al., 2013; Choudhry, Östergren, Ambresin, Kyagaba, & Agardh, 2014). Educational attainment has been found to decrease the risk of HIV infection among youth (Hargreaves et al., 2008). Since the establishment of Uganda's Universal Primary Education (UPE) enrollment has been as high as has 8.8 million students (Uganda Bureau of Statistics, 2016). However, many youths who qualify for enrollment are not enrolled due to costs associated with formal education such as uniforms and supplies impose a barrier for youth living in the slums (Mpyangu, Christine M., Lubaale, Yovani A., Onyango, Eria O., & Ochen, Eric A., 2014). Poverty has strongly impacted student retention rates and access to the formal education system (Mpyangu, Christine M. et al., 2014).

Underemployment is a challenge for youth across Africa (Oketch, 2007). The urbanization of Africa along with stagnant job growth in highly populated urban areas has contributed to underemployment among youth (Banks, 2016). Many of the school curricula do not prepare students for the current labor market, which leaves many students who complete formal education unemployed (Chinonso, 2010). Youth who participate in vocational training programs also leave formal schooling due to unforeseen like events, such as a death in the family (Blaak, Openjuru, & Zeelen, 2013). Therefore, vocational training (VT), also referred to as technical training, has been viewed as viable alternative, to acquire relevant skills for employment and to empower youth (Chinonso, 2010). Vocational training has been broadly defined, and can include formal classroom training with a broad curriculum, a specific trade, use

the apprenticeship model, or take place in informal settings which may or may not incorporate local businesses (Sifuna & Sawamura, 2010).

Education has been linked to reducing inconsistent condom use, at secondary or higher levels of education (Agyei & Migadde, 1995). Evidence continues to show that youth enrolled in traditional school settings engage in alcohol use (Santelli et al., 2013), sex with multiple partners (Santelli et al., 2013), don't use condoms, and engage in transactional sex (Choudhry et al., 2014). These behaviors are also often modified by gender. Males tend to use alcohol more (Santelli et al., 2013) and women are more likely to engage in transactional sex (Choudhry et al., 2014). These behaviors place youth at risk for HIV infection.

Much of the appeal of VT is its potential to lead to employment opportunities. Evidence of risky behaviors associated with youth who enroll in these programs is lacking. The purpose of this study is to examine the relationship that inconsistent condom use, alcohol use, sex with multiple partners, and engaging in transactional sex have on youth living in the slums of Kampala, Uganda, who participate in vocational training programs. It is plausible that the economic opportunities tied to vocational training may have implications for the types of behaviors youth engage in. Hopefulness is a personal characteristic of interest that has been shown to motivate youth (Valle, Huebner, & Suldo, 2006), and has been linked to self-esteem, a component of self-empowerment (Esteves, Scoloveno, Mahat, Yarcheski, & Scoloveno, 2013). The primary research question is: What types of risky behaviors are associated with youth who enroll in vocational training programs compared to youth that do not participate in vocational training programs? Are there differences in these behaviors based on gender? Does hopefulness help to characterize youth who participate in vocational training programs? Understanding the

characteristics of these youth will help target strategies to reduce risk behaviors and inform the potential for vocational training programs to reduce these behaviors among youth.

METHODS

3.1 Data

A cross-sectional analysis was conducted using data from the "Kampala Youth Survey 2014" collected in March and April 2014. Survey questions were used to quantify and examine high-risk behaviors and exposures that focused on alcohol use, sexual behaviors, and HIV, in a convenience sample of urban youth 12-18 years of age. Youth from this sample accessed services provided by the Uganda Youth Development Link (UYDEL) in their drop-in centers, which serviced youth living in slums or on the streets of Kampala, Uganda. The survey was based on previously validated quantitative measures to assess alcohol use, violence perpetration and victimization, prevalence of alcohol marketing, sexual behaviors and mental health among adolescents.

Previously validated instruments used in the United States and globally to develop this survey included; Global School-based Student Health Survey (GSHS), Kampala Youth Survey 2011, US AID Survey, MAMPA 2012 Questionnaire, AUDIT Questionnaire, CAGE Questionnaire, iMPPACS, AIDS Indicator Survey, the Demographic Health Survey and the National Teen Pregnancy Survey. 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.

Interviewers received a one-day training conducted by the Georgia State University (GSU) research team. The Kampala Youth Survey 2014 was administered to the participants on Google Nexus 7 tablets using Qualtrics survey software (Qualtrics, Provo, UT). 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. Of the 1,134 participants, only 19 participants were enrolled in vocational skills training at UYDEL with no other form of education. For comparability, participants who reported receiving no education, regardless of participation the vocational skills training program at UYDEL, were excluded from analysis. This yielded an analysis sample size of 1059, which was used to conduct analyses for this study.

3.2 Measures

The independent variable of interest was youth participation in vocational skills training at UYDEL. This variable was defined based on participants affirmed response to participation in vocational skills training at UYDEL. Youth who received some education, completed primary school, or completed secondary school in addition to the vocational skills training were categorized as youth that participated in a vocational training skills program (N= 313). The comparative group was youth who received some education, completed primary school, or completed secondary school, but without vocational skills training (N=746).

Alcohol use, condom use, sex with multiple partners, and engaging in transactional sex were identified as the risky behaviors (dependent variables) of interest. The corresponding survey questions for these measures included: "Have you ever had a drink of alcohol in the past year?" (yes/no); "Did you use a condom the last time you had sexual intercourse?" (yes/no); "With how many different people have you had sexual intercourse with in your life?" (no = none or 1-2 partners; yes= 3 or more partners); and "Have you ever gotten money, food, or other things for having sexual intercourse with someone?" (yes/no). Sex with multiple partners was originally coded as a five-level variable; no partner, 1-2 partners, 3-4 partners, 5-6 partners, and

6 or more partners. This variable was recoded as a dichotomous variable; with the response, none and 1-2 partners recoded as no, and the responses, of 3 or more partners recoded as yes.

Demographic variables included age and gender. The covariates used in this analysis were parental presence, categorized as both parents, one parent or no parent living; stable housing, captured by survey question "Have you ever lived on the street with no place to go?". Other covariates were based on survey questions which asked participants had they ever had sexual intercourse, were they planning on having sex in the future and how long they had been using services at UYDEL. Hopefulness was the personal characteristic, and dependent variable categorized as, youth reporting feeling hopeful never, sometimes or often, and was used to assess youth feeling hopeful based on exposure to vocational training.

3.3 Analyses

Descriptive statistical analyses were conducted on demographic variables, including age, gender, and education level. This analysis was also conducted on risky behavior variables and youth characteristic variables, which included alcohol use, condom use, multiple partners, transactional sex, parental presence, ever lived on the street, ever had sexual intercourse, future sex, time spent at UYDEL, and feelings of hopefulness. Chi-square test were conducted to assess differences between youth participation in VT and youth that only received some level of education based on all covariates. An additional chi-square test was conducted to assess differences between the amount of time spent at UYDEL based on alcohol use, condom use, sex with multiple partners, transactional sex and feeling hopeful.

Multivariable logistic regression models were used to predict alcohol use, condom use, sex with multiple partners, and engaging in transactional sex respectively, among youth who

participated in vocational training compared to those who did not participate in vocational training. Participation in vocational training was used to predict alcohol use in model 1, condom use in model 2, sex with multiple partners in model 3, and engaging in transactional sex in model 4. In all four models, age, gender, if youth had ever lived on street, and parental presence were controlled four. Hopefulness was found to be significantly different between youth who participated in vocational training and those that did not. A separate multivariate logistic regression model used youth participation in vocational training programs to predict youth who reported feeling hopeful, and controlled for age, parental presence, and youth who reported ever living on the street. A multivariable logistic regression analysis was also conducted on all models, including hopefulness, and stratified by gender to test for gender differences, which had been noted across empirical evidence. Unadjusted and adjusted odds ratios were calculated at a 95% confidence interval for all multivariable logistic regression models, including the gender stratified multivariable logistic regression models. All statistical analyses were calculated using SAS 9.4 (SAS Institute, Cary, NC).

RESULTS

Youth participation in vocational training (VT) was 29.6% (Table 1). Most of the participants in the vocational skills training were female (80%), completed primary school (62%), and had never lived on the street (78.3%). In terms of the risk behaviors of interest, 82.8% had used alcohol, 33.8% had not used condoms the last time they had sexual intercourse, 44.9% had sex with multiple partners, and 23.2% had engaged in transactional sex. Significant differences were found in age, gender, alcohol use, transactional sex, parental presence, those reported ever having sexual intercourse, future sex, and time spent at UYDEL for youth who

participated in vocational training and those who had not. When assessing differences in risky sexual behaviors and hopefulness based on the time youth spent at UYDEL, regardless of participation in VT, these differences were only significant for youth who engaged in transactional sex (Table 2).

The multivariable logistic regression unadjusted models found youth that participated in the VT program were significantly less likely to use alcohol (OR= 0.45; CI= .26-.77) compared to youth who did not participate in the VT program (see Table 3). Youth that participated in the VT program were also significantly more likely to engage in transactional sex (OR= 2.24; CI= 1.66-3.02). In the adjusted models youth who participated in the VT program were less likely to use alcohol (AOR= 0.38; CI= .20-.70) and more likely to be older than 15 years of age (AOR= 2.82; CI= 1.40-5.66) compared to youth that did not participate in VT program. In the adjusted model for transactional sex as the primary exposure variable, participants in VT program were significantly less likely to be male (AOR= 0.19; CI=.13-.29), more likely to be older than 15 years of age (AOR= 3.18; CI=2.15-4.72), and more likely to have lived on the street before (AOR= 4.03; 2.75-5.92) compared to those who did not participate in the VT program. In the adjusted model for condom use, participants in VT program were less likely to be over the age of 15 years old (AOR= 0.51; CI:.31-.84) and less likely to have no parent living (AOR=0.91; CI=.56-1.47), compared to those who did not participate in VT. In the adjusted model for sex with multiple partners, participants in VT program were more likely to be over the age of 15 years old (AOR= 4.31; CI:2.31-8.04), more likely to have no parent living (AOR=1.81; CI=1.11-2.96), and more likely to have lived on the street before (AOR= 3.18; CI=2.10-4.82) compared to those who did not participate in VT. Lack of condom use (model 2), sex with multiple partners

(model 3), and engaging in transactional sex (model 4) were not significantly associated with youth who participated in VT in the adjusted models.

In the stratified unadjusted multivariable logistic regression models, males who participated in the VT program were significantly more likely to engage in transactional sex (OR= 2.23; CI=1.09-4.54) (Table 4). This relationship was also found among females who participated in VT (OR= 1.46; CI= 1.03-2.06) (Table 5). In the adjusted stratified analysis females who participated in the VT were also less likely to use alcohol (AOR= 0.31; CI=.14-.71) and more likely to be over 15 years of age (AOR= 3.01; CI=1.15-7.87), compared to females who did not participate in VT program. However, in the adjusted model for alcohol use (Table 4), males who participated in VT program were more likely (AOR= 4.27; CI=1.07-17.03) to report having no parents and more likely be over 15 years of age (AOR= 2.87; CI=1.01-8.20) compared to males who did not participate in the VT program. No association was found between males in VT and alcohol use, condom use, or sex with multiple partners. In the unadjusted models for transactional sex, males who participated in VT were more likely to engage in transactional sex (OR= 2.23; CI=1.09-4.54) compared to males that did not participate in VT. However, this association was not found when transactional sex was adjusted for. Females who participated in VT more likely to (OR= 1.46; CI=1.03-2.06) engage in transactional sex compared to females that were not in VT. Like males, no association was found when transactional sex was adjusted for.

Hope was found to be significantly associated with youth who participated in VT (Table 6). Youth who participated in VT were more likely to report feeling hopeful often compared to never (AOR=1.73; CI=1.07=2.79), more likely to be male (AOR=1.60; CI=1.03-2.47), more likely to be older than 15 years of age (AOR= 1.64; CI= 1.08-2.49), and less likely to have ever

lived on the street (AOR= 0.54; CI= .33-.87) compared to youth that did not participate in VT. In the analysis of hopefulness stratified by gender, females who participated in VT were more likely to report feeling hopeful often compared to never (AOR= 1.87; CI= 1.07-3.26) compared to female who did not participate in VT (Table 8). No association was found among male youth who participated in VT and reporting feeling hopeful (Table 7).

DISCUSSION

This study primarily sought to assess risk behaviors associated with youth who participated in vocational training. Vocational skills training programs should be considered an alternative for youth living in the slums, as it has benefits for youth outside of employment. Youth who participated in the VT program were significantly less likely to use alcohol. No relationship was found between condom use, sex with multiple partner and youth that enrolled in the VT program. However, these findings have some positive implications, since alcohol use is an established risk factor for lack of condom use and sex with multiple partners (Kalichman, Simbayi, Kaufman, Cain, & Jooste, 2007) However, it is possible that unknown mediating factors contributed to this relationship. Since most of the VT program participants were female, and previous evidence has shown that males tend to drink more than females, which could explain these findings.

The large proportion of female participants in the VT program could also explain the relationship found with females reporting feeling hopeful more often. It is possible that females were targeted by the organization for placement into the VT, which may have contributed to them feeling more hopeful compared to males because of the potential opportunity that the program could afford them in the future. Especially since females are vulnerable to engaging in behaviors such as, transactional sex, which was associated with female youth who participated in

VT program. Although this relationship was not consistent when controlled for by covariates. Still, it is important to note that social and environmental factors may have also influenced this relationship. 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). Societal factors such as male dominance in the social power structure, also make women vulnerable to unwanted sex and engaging in transactional sex (Pettifor et al., 2008). However, we do know that significant differences in youth who engaged in transactional sex were noted based on the length of time spent at UYDEL. Future studies with a longitudinal design could inform the impact of VT programs on girls in reducing their involvement in transactional sex.

Youth who enrolled in VT were generally more likely to report feeling hopeful more often, compared to those that did not participate in VT. It is important to note that other services such as counseling and health education were also offered at UYDEL, which may have contributed to youth feeling hopeful often. Still, these findings have some implications for the potential of VT programs to increase self-reliance, as hope has been identified as a motivating factor in providing a pathway for attaining goals (Valle et al., 2006). In addition, self-esteem has also been linked to hopefulness, which could contribute to this relationship (Esteves et al., 2013).

Limitations in study methods and design include the convenience sample method used, which limits the generalizability of these findings. In addition to this, because the VT took place in an informal setting, it is also limited in the types of vocational settings these findings may apply to. Most of the youth in VT from our sample reported attending UYDEL from 1 month to a year time span. However due to the cross-sectional study design, we are unable to measure any temporal association between the risk behaviors identified or hopefulness, and youth attending

VT programs. Also, the interviewer techniques and the sensitive nature of the questions could have led to underreporting of risky behaviors from participants. Because the sample included youth with at least some formal education or higher, we are also unable to assess the time frame from leaving formal education to enrolling in VT, and the impact it may have had on these findings. It is possible that any amount of time out of schooling could have influenced risk behaviors among youth. Future studies should attempt to have a sample with a more evenly distribution of males and females. These studies should also seek to employ a longitudinal study design to demonstrate a temporal relationship between youth participating in VT and risky behaviors. In addition to this studying VT in formal setting could enhance the literature and reflect the diversity in the infrastructure of these programs.

CONCLUSION

Alcohol is a major driver for condom use and sex with multiple partners, its absence among youth who participated in VT program is promising. The findings of this study suggest vocational training should be considered an alternative for youth living in the slums, as it has the potential for benefits outside of employment, namely a reduction in alcohol use among this group. These findings also help to further characterize youth living in the slums that participate in VT. While transactional sex is still a concern among this group, the strong influences of social and environmental factors make reducing this behavior a challenge. More studies that examine the impact of vocational training on youth behaviors and characterize this group are needed. Future studies should attempt to compare youth in vocational training to youth actively enrolled in formal educational settings to explicitly assess the differences between these groups. These studies should also consider the differences in program structure across vocational training

programs. This will help inform existing HIV prevention, health education strategies, and strategies to reduce risk behaviors among youth in vocational and formal education settings.

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APPENDICES

Table 3.1 Bivariate associations of all variables and youth living in slums who participated in vocational training and those who did not but had at least some formal education.

Variable	Total sample *n* (%)	Vocational Training No *n* (%)	Vocational training Yes *n* (%)	*P*
	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)	467 (62.6)	247 (78.9)	
Gender				
Male	466 (44.05)	403 (54.1)	63 (20.1)	**
Female	592 (55.95)	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	387 (36.5)	255 (34.2)	132 (42.2)	
No Parents	221 (20.9)	156 (20.9)	65 (20.8)	
Lived on street				
No	843 (79.7)	598 (80.3)	245 (78.3)	0.46
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)	0.08
Yes	365 (66.2)	232 (63.7)	133 (71.1)	
Ever Had Sexual Intercourse				
No	505 (47.9)	380 (51.1)	125 (40.2)	**
Yes	550 (52.1)	364 (48.9)	186 (59.8)	
Multiple Partners				
No	303 (55.1)	199 (54.8)	104 (55.6)	0.86
Yes	247 (44.9)	164 (45.2)	83 (44.4)	
Sex for Goods				
No	811 (76.8)	605 (81.3)	206 (66.0)	**
Yes	245 (23.2)	139 (18.7)	106 (34.0)	
Future Sex				
No	621 (58.8)	457 (61.4)	164 (52.6)	**
Yes	435 (41.2)	287 (38.6)	148 (47.4)	
Time Spent at UYDEL				
<1 week	430 (49.8)	387 (70.2)	43 (13.7)	**
1-4 weeks	195 (22.6)	99 (18.0)	96 (30.7)	
1month-1year	208 (24.1)	47 (8.5)	161 (51.4)	
1year or more	31 (3.6)	18 (3.3)	13 (4.2)	

Feeling Hopeful				
Never	123 (11.7)	91 (12.3)	32 (10.3)	**
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.

Table 3.2 Bivariate associations of risky behaviors of interest, hopefulness, and time spent at UYDEL among youth living in slums who participated in vocational training and those who did not.

Variables	Time Spent at UYDEL					*P*
	Total n (%)	Less than 1 week n (%)	1-4 weeks n (%)	1 month-1 year n (%)	1 year or more n (%)	
	1059 (100)	430 (49.8)	195 (22.6)	208 (24.1)	31 (3.6)	
Alcohol Use						.5395
No	61 (17.43)	24 (16.4)	19 (21.4)	14 (14.3)	4 (23.5)	
Yes	289 (82.57)	122 (83.6)	70 (78.6)	84 (85.7)	13 (76.5)	
Condom Use						.5889
No	164 (33.3)	67 (33.2)	39 (32.5)	53 (36.1)	5 (21.7)	
Yes	328 (66.7)	135 (66.8)	81 (67.5)	94 (63.9)	18 (78.3)	
Multiple						.7305
Partners	227 (46.1)	92 (45.5)	60 (50.0)	66 (44.9)	9 (39.1)	
No	265 (53.9)	110 (54.5)	60 (50.0)	81 (55.1)	14 (60.9)	
Yes						
Sex for Goods						**
No	670 (73.3)	365 (80.0)	144 (69.6)	138 (63.6)	23 (67.7)	
Yes	244 (26.7)	91 (20.0)	63 (36.4)	79 (36.4)	11 (32.3)	
Feeling Hopeful						.3563
Never	104 (11.4)	50 (11.0)	25 (12.1)	24 (11.1)	5 (14.7)	
Sometimes	383 (42.0)	203 (44.7)	83 (40.1)	89 (41.0)	8 (23.5)	
Often	425 (46.6)	201 (44.3)	99 (47.8)	104 (47.9)	21 (61.8)	

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

*P <0.05.

**P<0.01.

Table 3.3 Multivariable associations between youth in vocational training and risky sexual behaviors as an outcome among youth living in the slums of Kampala.

Variables	Model 1		Model 2		Model 3		Model 4	
	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	___	0.78 (.42-1.45)	___	0.95 (.64-1.41)	___	1.42 (.95-2.11)	___	**0.19 (.13-.29)**
Female		Ref		Ref		Ref		Ref
Age [a]								
=<15 years	___	Ref	___	Ref	___	Ref	___	Ref
> 15 years		**2.82 (1.40-5.66)**		**0.51 (.31-0.84)**		**4.31 (2.31-8.04)**		**3.18 (2.15-4.72)**
Parental Presence [a]								
2 Parents	___	Ref	___	Ref	___	Ref	___	Ref
1 Parent		1.74 (.94-3.20)		0.87 (.58-1.31)		1.40 (.93-2.12)		1.16 (.81-1.67)
No Parent		**3.18 (1.34-7.55)**		**0.91 (.56-1.47)**		**1.81 (1.11-2.96)**		1.22 (.80-1.85)
Lived on Street [a]								
No	___	Ref	___	Ref	___	Ref	___	Ref
Yes		1.53 (.81-2.87)		1.42 (.95-2.12)		**3.18 (2.10-4.82)**		**4.03 (2.75-5.92)**
Vocational Training								
No	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref
Yes	**0.45 (.26-.77)**	**0.38 (.20-.70)**	0.71 (.49-1.05)	0.72 (.48-1.09)	0.97 (.68-1.38)	1.08 (.72-1.61)	**2.24 (1.66-3.02)**	1.26 (.90-1.76)

Model 1: Includes alcohol use as the outcome variable of interest.

Model 2: Includes condom use as the outcome variable of interest.

Model 3: Includes multiple partners as the outcome variable of interest.

Model 4: Includes transactional sex as the outcome variable of interest.

[a] Included in all four models.

Table 3.4 Multivariable associations between males in vocational training and risky sexual behaviors as an outcome among youth living in the slums of Kampala.

Variables	Model 1		Model 2		Model 3		Model 4	
	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		**2.87 (1.01-8.20)**		0.56 (.24-1.30)		**3.73 (1.44-9.64)**		1.99 (.95-4.16)
Parental Presence [a]								
2 Parents	___	Ref	___	Ref	___	Ref	___	Ref
1 Parent		2.00 (.79-5.09)		0.76 (.40-1.43)		1.25 (.68-2.30)		1.00 (.50-2.01)
No Parent		**4.27 (1.07-17.03)**		1.10 (.51-2.37)		1.75 (.81-3.79)		1.15 (.52-2.53)
Lived on Street [a]								
No	___	Ref	___	Ref	___	Ref	___	Ref
Yes		1.09 (.44-2.67)		1.32 (.73-2.39)		1.75 (.97-3.14)		**3.03 (1.63-5.64)**
Vocational Training								
No	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref
Yes	0.51 (.19-1.36)	0.50 (.18-1.38)	0.46 (.19-1.10)	0.41 (.17-1.02)	1.03 (.49-2.16)	1.05 (.49-2.26)	**2.23 (1.09-4.54)**	1.93 (.92-4.02)

Model 1: Includes alcohol use as the outcome variable of interest.

Model 2: Includes condom use as the outcome variable of interest.

Model 3: Includes multiple partners as the outcome variable of interest.

Model 4: Includes transactional sex as the outcome variable of interest.

[a] Included in all four models.

Table 3.5 Multivariable associations between females in vocational training and risky sexual behaviors as an outcome among youth living in the slums of Kampala.

Variables	Model 1		Model 2		Model 3		Model 4	
	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		**3.01 (1.15-7.87)**		**0.46 (.25-.87)**		**5.30 (2.25-12.51)**		**3.82 (2.40-6.08)**
Parental Presence [a]								
2 Parents	___	Ref	___	Ref	___	Ref	___	Ref
1 Parent		1.60 (.70-3.68)		0.93 (.54-1.61)		1.58 (.89-2.81)		1.23 (.80-1.89)
No Parent		2.58 (.83-8.03)		0.84 (.44-1.59)		**2.02 (1.05-3.89)**		1.25 (.76-2.05)
Lived on Street [a]								
No	___	Ref	___	Ref	___	Ref	___	Ref
Yes		2.06 (.83-5.14)		1.50 (.87-2.61)		**5.83 (3.14-10.82)**		**4.88 (2.96-8.05)**
Vocational Training								
No	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref
Yes	**0.35 (.16-.75)**	**0.31 (.14-.71)**	0.81 (.51-1.28)	0.85 (.53-1.38)	1.18 (.76-1.84)	1.10 (.67-1.80)	**1.46 (1.03-2.06)**	1.12 (.77-1.64)

Model 1: Includes alcohol use as the outcome variable of interest.

Model 2: Includes condom use as the outcome variable of interest.

Model 3: Includes multiple partners as the outcome variable of interest.

Model 4: Includes transactional sex as the outcome variable of interest.

[a] Included in all four models.

Table 3.6 Multivariable association between youth in vocational training and feeling hopeful as an outcome among youth living in the slums of Kampala.

Variables	Unadjusted		Adjusted	
	Sometimes OR (95% CI)	Often OR (95% CI)	Sometimes OR (95% CI)	Often OR (95% CI)
Gender [a]				
Male	___	___	1.22 (.79-1.89)	**1.60 (1.03-2.47)**
Female			Ref	Ref
Age [a]				
=<15 years	___	___	Ref	Ref
>15 years			1.42 (.94-2.16)	**1.64 (1.08-2.49)**
Parental Presence [a]		___		
2 Parents	___		Ref	Ref
1 Parent			1.08 (.69-1.70)	0.78 (.50-1.23)
No Parent			**1.45 (.83-2.53)**	1.00 (.57-1.75)
Lived on Street [a]				
No	___	___	Ref	Ref
Yes			0.64 (.39-1.03)	**0.54 (.33-.87)**
Vocational Training				
No	Ref	Ref	Ref	Ref
Yes	0.94 (.60-1.49)	1.54 (.99-2.40)	0.96 (.59-1.56)	**1.73 (1.07-2.79)**

[a] Included in adjusted model.

Table 3.7 Multivariable association between males in vocational training programs and feeling hopeful as an outcome among male youth living in the slums of Kampala.

Variables	Unadjusted		Adjusted	
	Sometimes OR (95% CI)	Often OR (95% CI)	Sometimes AOR (95% CI)	Often AOR (95% CI
Age [a]				
=<15 years	___	___	Ref	Ref
>15 years			1.53 (.81-2.89)	**2.05 (1.08-3.90)**
Parental Presence [a]				
2 Parents	___	___	Ref	Ref
1 Parent			1.42 (.68-2.95)	1.29 (.63-2.68)
No Parent			1.47 (.63-3.44)	0.81 (.34-1.94)
Lived on Street [a]				
No	___	___	Ref	Ref
Yes			0.69 (.35-1.38)	0.52 (.26-1.05)
Vocational Training				
No	Ref	Ref	Ref	
Yes	0.67 (.25-1.81)	1.58 (.63-3.97)	0.65 (.24-1.77)	1.57 (.61-4.02)

[a] Included in adjusted model.

Table 3.8 Multivariable association between females in vocational training and feeling hopeful as an outcome among female youth living in the slums of Kampala.

Variables	Unadjusted		Adjusted	
	Sometimes OR (95% CI)	Often OR (95% CI)	Sometimes OR (95% CI)	Often OR (95% CI
Age [a]				
=<15 years	___	___	Ref	Ref
>15 years			1.36 (.79-2.36)	1.40 (.80-2.43)
Parental Presence [a]				
2 Parents	___	___	Ref	
1 Parent			0.92 (.51-1.66)	0.56 (.31-1.01)
No Parent			1.42 (.68-3.00)	1.10 (.52-2.30)
Lived on Street [a]				
No	___	___	Ref	
Yes			0.58 (.30-1.13)	0.55 (.28-1.09)
Vocational Training				
No	Ref	Ref	Ref	Ref
Yes	1.10 (.64-1.88)	**1.80 (1.06-3.08)**	1.09 (.63-1.91)	**1.87 (1.07-3.26)**

[a] Included in adjusted model.