"First, she was sleeping around. Second, she was doing anal sex. Third, she was dirty": Measuring HIV Risk Among Young Women in Dar Es Salaam, Tanzania

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Sub-Saharan Africa (SSA), as a region, has struggled tremendously to combat the spread of the Human Immunodeficiency Virus (HIV).[1] More specifically, young women have been described as the most at-risk population in the region.[2] Tanzania exemplifies these trends. In sub-Saharan Africa, three in five new HIV infections among 15-19 year-olds are among girls.[3] Similarly, the HIV incidence rate is ten times higher among female sex workers than among the general population, and HIV-related illnesses remains the leading cause of death among young women 15-19-year-olds globally.[4] scholars have sought to understand possible factors that leave young women disproportionately more vulnerable to HIV infection than young men in Tanzania and elsewhere in sub-Saharan Africa.[5] It is important to investigate possible explanations for the gendered variation in HIV infections in Tanzania, in order to develop well-targeted interventions, legislation, and treatment methods for young women. Socially-determined behaviors leave some individuals more at-risk for infection is a major step in determining the adequate method of intervention.

In this paper, I utilize bivariate statistical analysis with a small-N sample to investigate the experiences of 30 young women (aged 15-19 years old) in Dar es Salaam, Tanzania,[6] and answer the question: What explains variation in HIV-related risk behavior?

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[1] UNAIDS, *Women and HIV: A Spotlight on Adolescent Girls and Young Women*, n.d.
[2] Marie Laga et al., "To Stem HIV in Africa, Prevent Transmission to Young Women," *Aids*, no. 15 (2001): 931–932, http://gateway.ovid.com/ovidweb.cgi?T=JS&PAGE=crossref&AN=00002030-200105040-00014; Suzanne Maman et al., "Leveraging Strong Social Ties among Young Men in Dar Es Salaam: A Pilot Intervention of Microfinance and Peer Leadership for HIV and Gender-Based Violence Prevention Suzanne," *HHS Public Access* 13, no. 11 (2016): 1–2.
[3] UNAIDS, *Women and HIV: A Spotlight on Adolescent Girls and Young Women*.
[4] Ibid.
[5] Daniel T Halperin and Helen Epstein, "The Role of Multiple Concurrent Partnerships and Lack of Male Circumcision : Implications for AIDS Prevention," *The Southern African Journal of HIV Medicine*, no. MArCH (2007): 19–25; Catherine MacPhail and Catherine Campbell, "'I Think Condoms Are Good but, Aai, I Hate Those Things':Condom Use among Adolescents and Young People in a Southern African Township," *Social Science & Medicine* 52, no. 2001 (2001): 1613–1617; Maman et al., "Leveraging Strong Social Ties among Young Men in Dar Es Salaam: A Pilot Intervention of Microfinance and Peer Leadership for HIV and Gender-Based Violence Prevention Suzanne"; Laga et al., "To Stem HIV in Africa, Prevent Transmission to Young Women."
[6] Thespina Yamanis, "In-Depth Interviews with Key Informants / Leaders of Groups," 2018.

Literature

This section seeks to describe and critique existing literature on HIV prevalence in young women. I will discuss three major areas of study: socio-economic status (SES), gender inequality, and social networks.

Socio-Economic Status

Neighborhood-level as well as individual-level SES can have a variety of different impacts on an individual's health. SES can shape behavior and therefore potential health outcomes.[7] SES can impact an individual's access to education, access to strong support networks, or access to treatment or preventative care. Similarly, contrasting SES within communities has the potential to result in marginalized groups, who in turn, often have limited access to the above list.[8]

Disease typically impacts disadvantaged communities.[9] This is due in part because of limited access to treatment facilities or options.[10] Those in low SES are more likely to live in remote and isolated locations or in marginalized neighborhoods. Both the social and physical separation from others could prevent those suffering from HIV to seek treatment (either due to extremely high traveling expenses or lack of knowledge surrounding HIV prevention and treatment).[11] Similarly, marginalization and isolation permit disease to spread more rapidly within

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[7] Galea Sandro and Vlahov David, "Social Determinants and the Health of Drug Users: Socioeconomic Status, Homelessness, and Incarceration," *Public Health Reports* 117, no. 1 (2002): S135–S145.
[8] Ibid.
[9] Ruth Joy et al., "Impact of Neighborhood-Level Socioeconomic Status on HIV Disease Progression in a Universal Health Care Setting," *Journal of Acquired Immune Deficiency Syndromes* 47, no. 4 (2008): 500–505.
[10] Paul Farmer, "Infections and Inequalities," 2001.
[11] Galea Sandro and Vlahov David, "Social Determinants and the Health of Drug Users: Socioeconomic Status, Homelessness, and Incarceration."

the communities in question due to a low community-level access to sexual education, preventative measures, and treatment.[12] Marginalized groups tend to have limited access to social welfare systems as well.[13] Social welfare systems provide those who become infected with the resources to afford regular appointments and anti-retroviral therapy (ART). There appointments would spread awareness of HIV prevention, as well as suppress individuals' viral loads, making them less infectious.[14] This is an example of treatment as prevention, which has long been deemed as very strong preventative strategy in HIV interventions. Therefore, lessening the marginalization of these communities has the potential to have an extreme impact on individual as well as community-level health.

More specifically, low SES is a major risk factor for HIV in young women.[15] It is not uncommon for young women with low SES backgrounds to abandon their education prematurely, in order to pursue an alternative career path. Unstable employment and transactional sex can potentially result in negative health outcomes for these young women.[16] Transactional sex and multiple partnership leave specifically women more at-risk for contracting HIV due to likely concurrent unprotected sexual interactions. In terms of formal employment, labor force participation for men in Tanzania is about 74%, while for women it is 59% for identical age brackets.[17] Therefore, fewer women are formally employed or seeking formal employment than men. Limited financial capital can leave these young women less likely to be

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[12] Ibid.
[13] Ibid.
[14] Maman et al., "Leveraging Strong Social Ties among Young Men in Dar Es Salaam: A Pilot Intervention of Microfinance and Peer Leadership for HIV and Gender-Based Violence Prevention Suzanne."
[15] Ibid.
[16] Shelley Lees et al., "Sexual Risk Behaviour for Women Working in Recreational Venues in Mwanza, Tanzania: Considerations for the Acceptability and Use of Vaginal Microbicide Gels," *Culture, Health and Sexuality* 11, no. 6 (2009): 581–595.
[17] The World Bank, "Labour Force Participation Rate for Ages 15-24, Total (%), (Modeled ILO Estimate)," 2018, https://data.worldbank.org/indicator/SL.TLF.ACTI.1524.ZS.

diagnosed or treated for HIV. However, labor force participation rates do not track informal employment. Informal employment can include anything from childcare to transactional sex. These informal jobs do allow young women to financially support themselves. However, many of these informal jobs ultimately leave them more at-risk for infection, due to the inherent danger in sex work.[18]

Low SES in young women can have major health impacts. However, socio-economic status alone does not have the ability to track an individual young woman's influence from her social support network. This model is limited in describing low SES as the major determinant of health due to the fact that it cannot measure friendship ties, which can often lead to greater changes in behavior. For example, young women are more likely to perform transactional sex if their peers are also sex workers, and not formally employed.[19]

More broadly, SES has the serious potential to impact health outcomes. However, it is a limited explanation, as there are equally important factors that matter, when evaluating a HIV risk. Risky behavior, like transactional sex, can result from low SES but can also result from peer pressure and groupthink.

Gender Inequality

Gender inequality refers to the differential treatment experienced by one gender versus the other because of differential norms, social structures, etc. These barriers can have a significant impact on young women's health outcomes in SSA. Women in SSA experience

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[18] Carmen H. Logie et al., "HIV, Gender, Race, Sexual Orientation, and Sex Work: A Qualitative Study of Intersectional Stigma Experienced by HIV-Positive Women in Ontario, Canada," *PLoS Medicine* 8, no. 11 (2011).
[19] Ibid.

limited access to education and lack of sexual negotiating power.[20] Similarly, women are extremely more likely than men to experience gender-based violence (GBV) and intimate partner violence (IPV) in their lifetime.[21] Both CBV and IPV increase an individual's risk for HIV infection.[22]

Throughout the past decade, many have attempted to implement school-based interventions, in an effort to increase knowledge of HIV in the region.[23] However, there remains significant gender gaps in access to education.[24] While improving the integrity of sexual education programs within schools has the potential to be extremely effective for those within schools, many adolescents in SSA remain out of school.[25] Therefore, these interventions would miss thousands of young adolescents that would benefit from sexual education the most.[26] Educated young women are more likely to feel empowered, and therefore, more likely to have a significant voice in decision-making within sexual relationships.

Unequal power distributions in relationships are another serious risk factor for HIV infection in young women. Women often have limited decision-making power as well as sexual negotiating power within sexual relationships.[27] Sexual negotiating power is the ability to

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[20] MacPhail and Campbell, "'I Think Condoms Are Good but, Aai, I Hate Those Things':Condom Use among Adolescents and Young People in a Southern African Township."
[21] Peter Glick, "HIV Prevention in Africa: What Has Been Learned?," in *The Socioeconomic Dimensions of HIV/AIDS in Africa* (Cornell University Press, 2010), 258.
[22] Ibid.
[23] AJ Mason-Jones et al., "School-Based Interventions for Preventing HIV, Sexually Transmitted Infections, and Pregnancy in Adolescents (Review)," *Cochrane Database of Systematic Reviews*, no. 11 (2016), http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD006417.pub3/epdf.
[24] K.G. Santhya and Shireen J. Jejeebhoy, "Sexual and Reproductive Health and Rights of Adolescent Girls: Evidence from Low- and Middle-Income Countries," *Global Public Health* 10, no. 2 (2015): 189–221, http://www.tandfonline.com/doi/abs/10.1080/17441692.2014.986169.
[25] S. Nnko et al., "Pre-Marital Sexual Behaviour among out-of-School Adolescents: Motives, Patterns and Meaning Attributed to Sexual Partnership in Rural Tanzania," *African Journal of Reproductive Health* 5, no. 3 (2001): 162–74, http://www.ncbi.nlm.nih.gov/pubmed/12471939.
[26] Ibid.
[27] Ibid.; Anne M. Teitelman et al., "Urban Adolescent Girls' Perspectives on Mutiple Partners in the Context of the Sexual Double Standard and Intimate Partner Violence," *NIH Public Access* 8, no. 9 (2014): 9–10.

effectively assert their comforts, discomforts, or likes and dislikes with a sexual partner. For young women in SSA, sexual negotiating power influences condom use and the occurrence of multiple overlapping partnerships.[28] Condom use can prevent the spread of HIV infection during sex. However, many young women do not feel comfortable asking their partner to use condoms due to the unequally gendered power distribution in romantic relationships.[29] Similarly, multiple overlapping partnerships can increase young women's HIV risk. Concurrent relationships increases all sexual partners' HIV risk due to the increased viral load and decreased symptoms at the first stage of HIV infection.[30] In many African contexts, society tends to reward men tend for multiple partnership, but stigmatize women for the same behavior.[31] Similar to condom negotiation, many young women have difficulty or cannot ask their partners to remain in a monogamous relationship.[32]

Social Networks

While individual young women may feel increasingly vulnerable to HIV infection due to gender inequality and norms, young women may feel more empowered if they know that their friends and peers are beginning to negotiate condom use and multiple partnership. Groups of young women may be able to empower one another, rather than be oppressed together. There remains a significant gap in literature surrounding possible group-based interventions, focusing on creating more equal gender norms that allow women to have a stake in sexual relationships.

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[28] MacPhail and Campbell, "'I Think Condoms Are Good but, Aai, I Hate Those Things':Condom Use among Adolescents and Young People in a Southern African Township."
[29] Ibid.
[30] Halperin and Epstein, "The Role of Multiple Concurrent Partnerships and Lack of Male Circumcision : Implications for AIDS Prevention."
[31] Teitelman et al., "Urban Adolescent Girls' Perspectives on Mutiple Partners in the Context of the Sexual Double Standard and Intimate Partner Violence."
[32] Halperin and Epstein, "The Role of Multiple Concurrent Partnerships and Lack of Male Circumcision : Implications for AIDS Prevention."

The literature unquestionably suggests that SES and gender inequality are definitive social determinants of health for young women. However, in recent years, a new body of literature emphasizes the importance of social networks in HIV transmission and prevention.[33] Network behaviors can relate to individual HIV-related risk behaviors. Similarly, social capital has been identified as a social factor influencing HIV vulnerability.[34] Recent research focused on young women has emphasized community based interventions, aimed at empowering young women.

Social Networks are a young women's support system, peers, family etc. Behavior, values, and norms are defined within the confines of this network, and essentially create boundaries for the young women in this social network. Similarly, the strength of an individual's social network has the potential to impact an individual's HIV risk.[35] Sense of belonging and group worth are fundamental aspects of the social experience, and offer an incredibly unique opportunity to influence behavior.[36] Young women in SSA often are subject to extremely gendered stereotypes that can leave them marginalized and oppressed.[37] Social marginalization of any individual has the potential to result in negative health outcomes, due to a lack of community communication and access to treatment or prevention information.

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[33] SR Friedman et al., "Emerging Future Issues in HIV/AIDS Social Research," *AIDS* 20 (2006): 959–65; AA Adimora, VJ Schoenbach, and IA Doherty, "HIV and African Americans in the Southern United States: Sexual Networks and Social Context," *Sexually Transmitted Disease* 33 (2006): S39-45; P De et al., "The Importance of Social Networks in Their Association to Drug Equipment Sharing among Injection Drug Users: A Review," *Addiction* 102 (2007): 1730–9; DA Luke and JK Harris, "Network Analysis in Public Health: History, Methods, and Applications," *Annual Review of Public Health* 28 (2007): 69–93; C Barrington et al., "Talking the Talk, Walking the Walk: Social Network Norms, Communication Patterns, and Condom Use among the Male Partners of Female Sex Workers in La Romana, Dominican Republic," *Social Science & Medicine* 68 (2009): 2037–44.

[34] Virginia A Fonner et al., "Social Cohesion , Social Participation , and HIV Related Risk among Female Sex Workers in Swaziland" 9, no. 1 (2014).

[35] Angelique Harris et al., "Feelings of Belonging: An Exploratory Analysis of the Sociopolitical Involvement of Black, Latina, and Asian/Pacific Islander Sexual Minority Women," *J Homosex* 62, no. 10 (2015).

[36] Ibid.

[37] Ibid.

Similarly, collective action has the potential to be a powerful source of empowerment, knowledge creation, and HIV prevention.[38] Shared trust, connectedness, and unity are all key characteristics of social networks that should be harnessed for future research. Social cohesion and increased civic engagement have been shown to decrease all-cause mortality in the U.S.[39] Some more recent studies have shown that an increase in early civic engagement and social cohesion leads to delayed exposure to sexual experiences, and lower rates of sexually transmitted infections (STI) in the U.S.[40] Therefore, it is clear that social networks, and the level of social connectedness, can lead to health outcomes.

Education remains an extremely important prevention method for young women in SSA. Access to education has the potential to delay early exposure to sexual experiences in young women, which research shows is another possible explanation for the serious burden young women are currently carrying in the HIV epidemic.[41] However, education is not defined by formal education. In social networks, individuals have the ability to educate each other, leading to more efficient health outcomes. Educating communities and groups has recently become and extremely popular preventative intervention strategy.

Methodology

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[38] Susan Kippax et al., "Between Individual Agency and Structure in HIV Prevention : Understanding the Middle Ground of Social Practice," *American Journal of Public Health* 103, no. 8 (2013): 1367–1375.
[39] Sheri A Lippman et al., "Context Matters: Community Social Cohesion and Health Behaviors in Two South African Areas Sheri," *Health Place*, no. 415 (2018): 98–104.
[40] Taylor R Ellen JM, Jennings JM, Meyers T, Chung SE, "Perceived Social Cohesion and Prevalence of Sexually Transmitted Diseases," *Sexually transmitted diseases* (2004); DR Holtgrave and Crosby RA, "Social Capital, Poverty, and Income Inequality as Predictors of Gonorrhoea, Syphilis, Chlamydia and AIDS Case Rates in the United States," *Sexually transmitted infections* (2003); Hensel DJ et al., "Are Social Organizational Factors Independently Associated with a Current Bacterial Sexually Transmitted Infection among Urban Adolescents and Young Adults?," *Social science & medicine* (2014).
[41] Laga et al., "To Stem HIV in Africa, Prevent Transmission to Young Women."

Gendered variation in HIV infections in sub Saharan Africa (SSA) has puzzled researchers for years.[42] In most other regions of the world, HIV is isolated to key populations (men who have sex with men, injection drug users, sex workers, etc.). However, in SSA HIV is a generalized epidemic, and therefore is predominantly spread through heterosexual sexual behavior. The assumption is therefore that men and women in SSA have relatively similar HIV prevalence rates. However, this is not the case, as I discussed previously; instead, young women are extremely more at risk for contracting HIV. Young women's prevalence rates remain extremely high compared to young men's, and they remain the most vulnerable population in the region. This extreme vulnerability can only be explained by societal norms and behaviors that disadvantage young women.

I felt that it was extremely important for my data analysis to be Neopositivist due to the nature of my project. HIV is an incredibly sensitive topic due to the intense stigma surrounding the disease, and therefore I felt it necessary to develop a systematic approach to grouping young women as being at "high risk" for contracting HIV. Similarly, it is my belief that the best approach to determining behavioral trends in the high-risk group was to perform a chi squares analysis. I believed that a firm analysis, utilizing statistical skills would be best suited for my research paper, and therefore deemed Neopositivist the best fit.

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[42] Simon Gregson, Heather Waddell, and Stephen Chandiwana, "School Education and HIV Control in Sub-Saharan Africa: From Discord to Harmony?," *Journal of International Development* 13, no. 4 (2001): 467–485; Shelley Lees et al., "Sexual Risk Behaviour for Women Working in Recreational Venues in Mwanza, Tanzania: Considerations for the Acceptability and Use of Vaginal Microbicide Gels," *Culture, Health and Sexuality* 11, no. 6 (2009): 581–595; Daniel T Halperin and Helen Epstein, "The Role of Multiple Concurrent Partnerships and Lack of Male Circumcision : Implications for AIDS Prevention," *The Southern African Journal of HIV Medicine*, no. March (2007): 19–25; Connie L. Celum et al., "Rethinking HIV Prevention to Prepare for Oral PrEP Implementation for Young African Women," *Journal of the International AIDS Society* 18, no. Suppl 3 (2015): 1–10; Rebecca Lewinsohn et al., ""This Baby Came up and Then He Said, 'I Give up!': The Interplay between Unintended Pregnancy, Sexual Partnership Dynamics and Social Support and the Impact on Women's Well-Being in KwaZulu-Natal, South Africa," *Midwifery* 62, no. August 2017 (2018): 29–35.

Data and Methods

Hypothesis

I am most interested in how group behavior and interests can influence individual behavior, possibly making individuals more at-risk for HIV infection. Therefore, my hypothesis is that women who belong to groups with very risky interests will be more likely to have individual risky behaviors than those who belong to groups with low risky interests. I examine trends in behavior among a sample of 30 young women from Dar es Salaam.

My key independent variable is "group interests" and I also consider education level, and social ties among specific individuals. Most variables are self-reported.

I utilize qualitative data, gathered from semi-structured interviews conducted, transcribed, and coded by another research team. The research team identified the thirty key informants interviewed were all gathered from a larger population of women they surveyed for a project on sex work and social connectedness in Tanzania. This research project was heavily focused on the influence of group behaviors and social networks on HIV-risk behaviors. In particular, they were interested in economic wellbeing and social connectedness as social determinants of health for these young women in Dar es Salaam, Tanzania. This qualitative technique offers the unique opportunity to gather participants' views on relevant issues under study[43].

All interviews were conducted on site in Dar Es Salaam, the largest city in Tanzania. The research team that performed the interviews noted the setting:

> Dar es Salaam has a population of 4.36 million, approximately 10% of the total Tanzanian mainland population. The HIV prevalence in Dar es Salaam is 6.9% which is

[43] Teitelman et al., "Urban Adolescent Girls' Perspectives on Mutiple Partners in the Context of the Sexual Double Standard and Intimate Partner Violence."

higher than the national average of 5%. Young women aged 15-19 in Tanzania have an HIV prevalence of 1.6% (1.4-2.0%).The HIV prevalence among women in Dar es Salaam is 8.2%.[44]

All interviews revolved around young women's social networks. The goal of the interviews was to gather pertinent information regarding people in group, group description, group leadership, HIV prevention, personal background, personal group history, social activities, and social interactions. Young women interviewed were all aged fifteen and older and a member of a group. These thirty women were selected amongst the hundreds of surveys because the research team believed they were leaders of their groups or were group members that were knowledgeable on the groups. In order to protect their personal information, girls were encouraged to reflect on group behaviors, interests, and characteristics, rather than their own individual ones.

Young women were recruited from social venues (i.e. bars, clubs, parks, etc.) located in Dar es Salaam, Tanzania. Groups of young women and men regularly visited these social venues, which are "meet up spots" of sorts, where groups congregate to chat, dance, drink, etc. Social venues such as these offer researchers the opportunity to chat with those who may be recruited and patrons or managers of the venue, who may offer a unique perspective on the location. Similarly, recruitment from these locations allows researchers to visit and observe the venues firsthand.[45]

The interviews were conducted with a small sample from the larger pool of young women that previously participated in the large survey. Each young woman belonged to, or was

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[44] Yamanis, "In-Depth Interviews with Key Informants / Leaders of Groups."

[45] Ibid.

the leader of, a "group". A group is defined as, two or more girls that gather together at least once a week and advise each other on social or business interests. Groups usually have names that members collectively identify with. All of the groups in this sample consist of young women aged 15 to 25 years old. Group characteristics and interests vary, and the majority of the women in this sample belong to groups with ten to twenty members.

The average participant in the in-depth interviews was eighteen or nineteen years old, not currently attending school, and living at home with family. About half of the participants identified themselves as leaders of their groups, and the other half identified themselves as members.

First, interviews were conducted with up to 30 key informants, including at least one adolescent girl in each of the 15-20 networks:

> Girls and group leaders who appeared to be at the venue regularly and socialized with others were approached. Interviewers asked them if they would be willing to participate in a one-hour interview. Interviewers obtained consent and conducted interviews in the team's private field office.[46]

All interviews were 1 hour in length, recorded, and conducted in Swahili. Participants were asked to describe their group or venue, history with the group, people in the group, social activities and interactions, group leadership, HIV prevention activities, and personal background. Many of the questions asked were group-centered, as the research team conducting and collecting the interviews was mainly interested in groups and social networks. Some questions that were asked were:

1. What are some of the things that attracted you to join this group?

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[46] Ibid.

2. What do the girls aged 15 to 19 like to do when they spend time in this group?
3. Please give me some examples of how group members help each other. How did you support each other?
4. Have there ever been any HIV prevention activities in your group? Please describe them for me.

Participants were permitted to answer fully to all of these questions. All of these questions included follow-up questions and elicited varying lengths of responses. Interviewers knew the identities of the young women. After the interviews were conducted, the participants were thanked for their time and information that they shared. They were guaranteed that their information would remain confidential and identifying information would be removed.

After the interviews were conducted, the recordings were transcribed from Swahili into English and eventually coded. Using Dedoose 7.5.9, all 30 of the interviews were read by multiple coders, coding for 42 codes. Coding consisted of thoroughly reading the interview transcripts and highlighting text that matched a code. A few examples of codes included: discuss partner violence, trust in group, member income activity, and discussion of HIV.

Methods

I determined social connectedness to be a major variable, based on my literature review, and therefore decided to focus my analysis on that topic. Similarly, due to the connectivity in this population specifically, I felt that I would have a high quantity of data relating to this variable. I identified three major categories of codes relevant to the research question: discussion of gender-based violence, discussion of HIV, and participation in HIV prevention activities. From there, I

classified each participant's risk for HIV infection. To be classified as at high risk for HIV infection, an individual had to:

1. Be a victim of gender-based violence or belong to a group with high rates of GBV
2. Indicate discomfort in discussing HIV-related topics
3. Have no experience with HIV-related prevention interventions

I sorted all thirty respondents into low- and high-risk groups, and then determined emerging themes in each group using descriptive statistics from the coded data.

I then performed a chi squares analysis. I tested a possible correlation between relative HIV risk and levels of social connectedness, using the following codes

1. Trust in group

   This variable was taken from multiples codes (group relationship and group characteristics) and compiled to represent the level of trust an individual participant has in their group. The level of trust an individual has in their group is based on personal account, and is therefore self-reported. I decided to us this as one of my indicators because of literature that I read, that emphasized group belonging and the strength of a social network in determination of HIV risk.

2. Conflict in group

   Conflict in group is measured directly from the "group conflict" code. This code is derived from interviews. This variable is intended to indicate an individual participant's experience or observations of conflict within her group. Based on the existing literature that I've read, I decided to focus half of my analysis on group

conflict. Group conflict is a solid indicator of group cohesiveness, which has been determined to have a definitive impact on HIV risk.

Results

The analysis is based on data from 27 of the 30 total participants, as a lack of data required that three interviews be excluded. Table 1 describes descriptor statistics for the sample. All of the participants interviewed were young women living in Dar Es Salaam, Tanzania. 22% of the young women were between the ages of 16-17, 59.5% were between 18-19 years old, and 18.5% were older than 20 years old. The majority of participants lived at home with their family. 61.5% of the young women had completed or were in the process of completing their schooling, and 38% were not in school. Some participants cited financial hardship as their explanation for dropping out of schooling. Similarly, many young women were unsure if their friends would continue their schooling. 18.5% of the young women were unemployed and not generating any source of income. 81% of the young women were actively receiving some kind of income. Of that 81% generating income, 13.6% discussed engaging in sex work as their means of producing income.

Results were presented in two important groups: high risk and low risk. Figure 1 shows group conflict and relative HIV risk. Peer conflict was self-reported from the interviews with the young women. 35% of the overall participants reported experiencing high group conflict. However, prevalence of peer conflict remained consistent regardless of HIV-risk status. Results for group conflict were therefore not statistically significant.

	Low Risk	*High Risk*	
Low Conflict	7 (7.83) [0.09]	8 (7.17) [0.10]	15

High Conflict	5 (4.17) [0.16]	6 (6.00) [0.18]	8
	12	11	
chi square statistic is 0.5242	p-value is 0.469064		

Figure 1: Group Conflict and Relative HIV Risk

Figure 2 displays young women's trust in group compared to relative HIV risk. Similar to group conflict, trust in group/peers was entirely self-reported from the interviews. 60% of the overall young women described experiencing high trust in their peers, and 40% described experiencing low trust in peers. Similarly, in both the high risk and low risk group, 60% reported having high trust for their peers, and similarly 40% reported low trust in their group. Therefore, similar to group conflict, trust in peers was proven statistically insignificant.

	Low Risk	*High Risk*	
Low Trust	6 (6.00) [0.00]	4 (4.00) [0.00]	10
High Trust	9 (9.00) [0.00]	6 (6.00) [0.00]	15
	15	10	
chi square statistic is 0	p-value is 1		

Figure 2: Trust in Group and Relative HIV Risk

The lack of relationship between these two variables and HIV risk is surprising given that previous research has found peer characteristics to influence HIV risk. However, a statistically insignificant relationship may result from several sources. First, these independent variables may not adequately capture peer influence, considering peer influence is a known determinant of health. Second, the measure of relative HIV risk is not ideal because of the lack of codes directly

relating to condom use, number of sexual partners, etc. Finally, the initial sample from which respondents were drawn were all in some capacity deemed to be at-risk for HIV. However, variation in risk was still possible, so the lack of more common measures of HIV risk in the interview data (condom use at last sex, multiple concurrent partnerships) hampered the analysis.

I aimed to determine possible trends in a slightly more vulnerable population. All of the young women who participated in the in-depth interviews exhibited some type of risk HIV-related risk. I was searching for individuals that were deemed most at-risk. Therefore, I believe it is important to note that overall, 65% reported low group conflict. However, 81% of the 27 young women utilized in the analysis reported experiencing and/or had a close friend or family member experience intimate partner violence and/or gender-based violence. Because I used gender-based violence as an indicator of relative HIV risk, I could not include in a statistical analysis. However, the extremely high prevalence of violence seemed to be an important theme for the young women.

Conclusion

SSA has struggled to combat the spread of since the outbreak of the epidemic. More specifically, young women have been described as the most at-risk population in the region.[47] Tanzania, like other countries in SSA, has seen a significant rise in HIV incidence among young women.[48] Many have sought to understand the rise in incidence rates among young women specifically. Scholars have examined this trend in HIV infections from multiple perspectives, socio-economic status, gender inequality, and social networks. While all three are

[47] Laga et al., "To Stem HIV in Africa, Prevent Transmission to Young Women"; Maman et al., "Leveraging Strong Social Ties among Young Men in Dar Es Salaam: A Pilot Intervention of Microfinance and Peer Leadership for HIV and Gender-Based Violence Prevention Suzanne."
[48] UNAIDS, *Women and HIV: A Spotlight on Adolescent Girls and Young Women*.

solid explanations of definitive determinants of health for young women in SSA, each only captures an individual piece of the puzzle. Utilizing my qualitative sources and knowledge from existing literature, I aimed to answer the question: What explains variation in HIV-related risk behavior? Unfortunately, my findings were not as I predicted. However, my results remain solid indicators of a young woman's experience living in SSA. Given that all of the 30 participants interviewed were all at some type of risk, any type of trend would have been telling. For example, my results found that 81% of the young women had been victims of or bystanders towards GBV or IPV.

There may be other codes or variables that may be better indicators of group cohesiveness and social networks. Different mechanisms may be better suited to measure group characteristics impact on individual HIV-related risk behavior. Future interventions in SSA may consider examining other indicators for social connectedness and group cohesiveness. Similarly, gender-based violence and intimate partner violence may be positive points of intervention since those are known to be associated with HIV transmission. Considering almost all of the young women interviewed reported having been victim of or bystander of gender based violence or gender-based violence, scholars should likely examine the social structures supporting this social hierarchy that permits gender inequality to persist.

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