SOCIAL CAPITAL AND HIV RISK BEHAVIOR: FEMALE SEX WORKERS IN ANDHRA PRADESH, INDIA AND THEIR NON-CLIENT PARTNERS

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ABSTRACT

This analysis of existing survey data explored social capital, its community participation and 'prosocial' dimensions and their association with HIV risk taking behavior in a sample of 850 female sex workers and their non-client partners living in Andhra Pradesh, India. Our study utilized both Putnam and Coleman's framework for social capital. The community participation dimension of social capital was associated with both condom use and increased risk behavior. However, the 'prosocial' behavior or trust in people and institutions was not associated with either. These findings provide equivocal support for the influence of social capital on HIV risk taking behavior and suggest additional research is needed.

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CHAPTER 1

OVERVIEW AND GOALS

This study examines how social capital is associated with human immunodeficiency virus and acquired immunodeficiency syndrome (HIV/AIDS) risk behavior using quantitative survey data of female sex workers (FSWs) in Andhra Pradesh, India. A combination of Coleman and Putnam's theoretical frameworks were adapted for use in considering social capital's relationship to sexual risk taking behavior. For the purposes of this study, social capital refers to "a resource of individuals that emerges from their social ties" (Portes and Landolt, 1996).

Statement of the Problem

With a growing body of research on the social determinants of health and risk behavior, the concept of social capital has been applied to evaluate how networks and community participation affect agency and decision-making related to sexually transmitted disease. A number of studies have focused on socially marginalized populations (Bhattacharya, 2005; Samuels, Pelto, Verma and George, 2006) in developing nations (Krishna and Shrader, 2000; Grootaert, 2004; Matous and Ozawa, 2010) in order to determine whether relationships between social networks and risk behavior can contribute to positive health outcomes.

Our study contributes uniquely to the literature by focusing on female sex workers, a marginalized group whose livelihood, at least in part, is based on engaging in risk behavior. Examining how risk behavior is associated with their non-client partners

allows us to investigate how individualized social capital influences risk behavior in personal relationships. This study can potentially inform community participation intervention strategies to be incorporated into HIV/AIDS education and prevention programs.

Research Questions

Are potential stores of social capital associated with risk taking behavior in a region where social capital may have been developed through existing community participation and empowerment activities? If so, what do these relationships look like? Specifically, this study investigates these research questions: Is social capital associated with condom use with non-client partners of female sex workers and is social capital associated with whether or not female sex workers engage in risk behavior with their non-client partners?

Goals and Implications

The goal of this study was to contribute to the understanding of the relationship between social capital and HIV risk taking behavior for female sex workers, a marginalized population in a region where structural intervention strategies may have aided in forging network connections and potentially created social capital not previously existing among this population. Rather than explore FSWs and client relationships that may be more complex and constrained by economic necessity, we have chosen to look at the risk taking relationships between FSWs and non-client partners where social capital may more readily impact risk taking behavior.

The remainder of the thesis is presented in the following sequence: Chapter II, literature review and theoretical background underlying the study; Chapter III, research questions and hypotheses; Chapter IV, methodology; Chapter V, results, and Chapter VI, discussion and conclusions.

CHAPTER 2

LITERATURE REVIEW

Social Capital

Social capital's roots can be traced back to the classic theories of Marx, Weber, and Durkheim. Some scholars argue the history of the concept of social capital have roots as far back as Durkheim's work on suicide (1897[1951]) where he demonstrated that social integration was inversely related to the suicide rate in societies (Lochner, Kawachi and Kennedy, 1999) and considered this predecessor of social capital a public good (Lin, 1999). The descendants of those historical traditions have continued to conceptualize social capital in various ways. Notable scholars include Pierre Bourdieu, James Coleman and Robert Putnam, each of whom framed the concept somewhat differently.

Bourdieu may have been the first scholar to systematize social capital discourse in sociology (Portes, 1998) in *Acts de la Recherches en Sciences Sociales*, a journal founded and edited by Bourdieu (Bourdieu and Wacquant, 1992:57) published in 1980 (Portes, 1998). This initial French language publication did not receive much attention in the English speaking academy (Portes, 1998). However, Bourdieu's later work "The Forms of Capital", ubiquitous in social capital literature, claimed widespread attention. He suggested that social capital is comprised of assets one gains or has the potential to gain through memberships in networks (Bourdieu, 1986; Portes and Landolt, 1996; Portes, 1998) and social obligations or connections (Bourdieu, 1986). He saw social capital as a

privileged good (Lin, 1999) and tended to focus on how elite groups maintain their status, at least in part, because of their exclusivity and ability to exercise stores of social capital.

Coleman introduced social capital to American sociology (Matous and Ozawa, 2010) in his classic analysis of high school drop outs where he critiqued both economic and sociological explanations for social action and called for the development of an orientation that includes components of both (1988). This functionalist approach incorporated "rational action" (Coleman, 1988:S97) into analyses of social organization by considering actors in control over resources and their interests. Coleman lacked a precise definition but used social capital to "describe a resource of individuals that emerges from their social ties" (Portes and Landolt, 1996). Recently, Matous and Ozawa used Coleman's framework to analyze social capital stores in a Philippine slum (2010). Although often applied to micro-level analyses, Coleman's definition encompasses "persons or corporate actors" (Coleman, 1988:S98; Coleman, 1990:302) and outcomes (Matous and Ozawa, 2010). Norms and effective sanctions are also a type of social capital (Coleman, 1988).

Putnam, a political scientist, incorporated civic participation and institutions into his theoretical framework of social capital. He also suggested that communities, cities and nations have stores of social capital (Portes, 1998). Framing social capital as a collective resource has fueled many macro-level approaches in the fields of democratization and political development (Macinko and Starfield, 2001). He has also contributed the notions of bonding (holding groups together) and bridging (improving relations across groups) social capital. Research utilizing this perspective often

incorporates measures of associational involvement, participation in voluntary associations, and expressions of trust in authorities (Portes, 1998). Although this viewpoint has been widely utilized in scholarly research, his own work (Putnam, 1995; Putnam, 2000) has been criticized for circular logic and blaming declining civic engagement in Italy and the U.S on those left out of established organizations (Portes, 1998; Hawe and Shiell, 2000).

Coleman and Bourdieu's work are often applied to micro (or individual) level analyses (i.e., Matous and Ozawa, 2010) while Putnam's is most often used in macro (or structural) level analyses (Hawe and Shiell, 2000). It is also important to consider that social capital is not likely to be refined into a unified model, a fact that has been called both a strength and weakness of the concept (Hawe and Shiell, 2000; Harpham, Grant, and Thomas, 2002; Macinko and Starfield, 2001). Although it has been framed by many as primarily positive in effects (Grootaert, Narayan, Jones, and Woolcock, 2004; Matous and Ozawa, 2010), it is also important to consider potentially damaging effects (Bourdieu, 1986; Portes, 1998). These can include social exclusion, excess pressure on group members and restrictions on individual freedom (Portes, 1998:15).

Criticisms of the Concept

There is no single unifying framework or measurement for social capital and some say it has been used to describe too many social relationships and levels of analysis for it to be conceptually useful (Macinko and Starfield, 2001). This lack of consistency in models limits comparability between studies as well as generalizability. Macinko and Starfield (2001) suggest that instead of critiquing the strength of the concept, scholars

should justify why one conceptualization should be utilized over another, explore the mechanisms through which social capital might influence health, develop a set of core social-capital variables based on tested reliability and validity and finally, explore underlying socio-cultural, political & historical antecedents of social capital.

In addition to conceptual criticism, it is also important not to ignore how material conditions impact health by focusing exclusively on psychosocial indicators of health (Baum, 2000). Social capital is one of many variables to be considered in a thorough analysis of health outcomes. Fran Baum suggests in her rebuttal (2000) to Lynch et al. (2000) that the relationship between economic disadvantage and health status is mediated by social capital.

Critics also suggest a lack of focus on the negative aspects of social capital. These can include: Strong in-group ties that restrict outsiders, excessive demands for conformity, restrictions on members' individual freedom (Portes and Landolt, 1996; Macinko and Starfield, 2001), and in impoverished areas preventing members from rising above their poverty, what Portes calls "downward leveling pressures" (Portes and Landolt, 1996:3).

The Effect of Social Capital on Health and Risk Behavior

There are a number of empirical studies investigating whether or not social capital can explain patterns of health and illness and to a lesser extent those that examine social capital as a "component of the HIV risk environment" (Pronyk et al., 2008). Among these are quantitative studies of residents near mining towns in Africa (Campbell, Williams and

Gilgen, 2002; Pronyk et al., 2008), aggregated state-level STD infection rates (Holtgrave and Crosby, 2003), and the risk behavior of adolescents who reside in the U.S.A. (Crosby, Holtgrave, DiClemente, Wingood and Gayle, 2003). We have also reviewed qualitative studies on recent male immigrants to New York City (Bhattacharya, 2003) and a mixed method approach examining socially marginalized residents of Andhra Pradesh, India (Samuels et al., 2006).

One study utilizing Putnam's conceptualization of civic activity and trust that results in participation is Campbell et al.'s (2010) study that explores the effect of social capital on HIV transmission in a mining community. In this study, group membership was both health-promoting and risk-enhancing of HIV risk behavior depending on the type of group the participant was a member of. These results highlight the complexity of social capital and caution against making conclusions based on civic participation exclusively.

Rather than include only the structural or "associational links or activity" (Harpham et al., 2002:106) component of Putnam's conceptualization, as did Campbell et al.'s 2010 study, Pronyk et al. (2008) included the 'prosocial' or "perceptions of support, reciprocity, sharing or trust" (Harpham et al., 2002:106) aspect in their empirical piece on the impact of social capital on HIV-risk behavior. The community participation and 'prosocial' aspects were explored separately controlling for confounding factors. Neither aspect was entirely health promoting. Their results illustrate the complexity of the relationship between social capital and risk behavior.

All of the studies we reviewed did indeed find links between social capital and risk behavior (often conceptualized as condom use or lack of). Interestingly, social capital was also often associated with increased rates of risk behavior. There are several explanations of the avenues through which social capital may affect health and HIV risk behavior. Social capital may pressure group members to avoid high-risk activities, provide role modelling for condom use, development of relationships that result in better decision making, and enabling communities to take collective action (Pronyk et al., 2008). It may also influence healthy behaviors (Crosby et al., 2003), provide access to health promoting institutions (Harpham et al., 2002), as well as avenues for exchange of information (Pronyk et al., 2008). More abstractly, social capital may increase social cohesion, influence risk and protective behaviors, influence access to health services (Kawachi and Berkman 2000 in Crosby et al., 2003) and shape community norms (Pronyk et al., 2008). The above study results and these explanations for the relationship between social capital and HIV risk behavior provide support for refining the concept of social capital and that additional research is needed in this area.

Conceptualizing Social Capital and HIV Risk Behavior for our Study

Although this study is an analysis of existing data, the survey questionnaire was piloted for cultural relevance and to assess potential translation issues previous to full scale data collection efforts. Interestingly, the procedure for development of a culturally relevant tool from Krishna and Shrader's (2000) study was similar to the one utilized in the study from which this data came. Pilot surveys and community characteristics were

taken into consideration in development of the questionnaire in order to develop a culturally relevant instrument without significant translation issues. Social capital is conceptualized at the micro- or individual level for this study.

The prevailing theoretical perspectives utilized when analyzing social capital as an independent variable impacting health are Coleman and Putnam's (Veenstra, 2000; Szreter and Woolcock, 2004; Pronyk et al., 2008). We will employ their perspectives for this study as well. We did not use Bourdieu's classic theory for the purposes of this study because the dataset we use does not provide measures regarding power retention and elite networks.

For this analysis we conceptualize risk behavior as condom use and whether or not the respondent had sex with her non-client partner in the 7 days prior to the survey. We did this for several reasons. First, these are the prevailing measures in the literature we reviewed (Crosby et al., 2002; Holtgrave and Crosby, 2003; Bhattacharya, 2005; Samuels et al., 2006; Pronyk et al., 2008; Campbell et al., 2010). Additionally, they provide straightforward and concise indicators of risk behavior.

CHAPTER 3

RESEARCH QUESTIONS AND HYPOTHESES

Research Questions

Is social capital associated with condom use with non-client partners of female sex workers? Is social capital associated with whether or not female sex workers engage in risk behavior with their non-client partners?

Hypotheses

Condom use (Primary Dependent Variable)

Community participation and prosocial behavior (trust in people and institutions) will be associated with condom use due to multiple influences, like role modeling, and increased social cohesion discussed in our literature review.

Control variables

Literacy, household security, parenting and marital status will increase condom use while debt and espousing Hindu religious beliefs will decrease condom use.

Risk Behavior (Secondary Dependent Variable)

Community participation and prosocial behavior (trust in people and institutions) will be associated with an increase in likelihood of risk behavior due to the enhancing effects of social capital discussed previously.

Control variables

Debt, marital status, and Hindu religious beliefs will be associated with an increased likelihood of risk behavior while literacy, household security, and parenting will decrease it.

CHAPTER 4

METHODOLOGY

Participants

The data is from a study conducted in Rajahmundry, Andhra Pradesh by the Parivartan Project in 2009 to evaluate the effectiveness of a program to change attitudes and behavior towards condom use. Face-to-face interviews were conducted with 850 female sex workers over the age of 18 in Telugu, the local language. At the time of the survey all except for one lived in the state of Andhra Pradesh and in 28 different mandals with 43% in Rajamundry, where the survey was performed.

Their ages range from 19-65 with a median age of 30 years old. Most of the women interviewed were Christian (56%), 43% were Hindu, and 1% had a different religion or none at all. Although 84% had at least one previous marriage only 23% were married at the time the survey was conducted. Of those who were not married, 48% responded they had a 'temporary husband'. Eighty-two percent of the respondents indicated they were in debt. 80% were illiterate, meaning they could neither read nor write. Seventy percent had at least one of their children living in their household and 85% had been evicted from their homes one time or less over the last five years.

Sampling Methods and Data Collection

Respondent driven sampling (RDS) was utilized to recruit participants. This method was devised in 1997 by Heckathorn attempts to access a "hidden" population, where there is no sampling frame and public acknowledgment of membership in a given population can be threatening. It also attempts to address some shortcomings (i.e., biases) of other chain-referral samples, such as snowball sampling. The data was collected in the third wave of a serial cross-sectional, multi-panel study. Existing studies utilizing this data has primarily been used to examine structural factors that promote/inhibit condom use among female sex workers in Andhra Pradesh, India. For the purposes of our study, we are utilizing the same data to determine associations between social capital and condom use among FSWs and their non-client sex partners.

Measurements of Variables

For the primary dependent variables in this analysis, we have defined risk behavior on two dimensions, engaging in sexual intercourse and condom use. We combined responses from two questions to create the dependent variables.

First we created a dependent variable in order to assess whether there were effects of social capital on sexual contact. This was a binary dummy variable comprised of those who did and did not have sex with their husband, temporary husband or lover in the past 7 days. We used this dummy variable for the logistical regression.

Then, for the regular OLS regression, we created our primary dependent variable by combining responses from those with a husband, a temporary husband or a lover who

Table 1. Survey Items Measuring Social Capital, and Risk Behavior, and Control Variables in Our Regression Analyses

Variable	*Items*	*Responses*
Dependent		
Risk behavior	1. Overall in the last 7 days, about how often did you use condoms with your husband?	Never, Rarely, Sometimes, Usually, Always, NA/RF
	2. Overall in the last 7 days, about how often did you use condoms with your (temporary husband or lover)?	Never, Rarely, Sometimes, Usually, Always, NA/RF
Independent		
Community Participation	3. Are you a member of a sex worker collective?	No, Yes, NA/RF
	4. In the last year have you participated in political rallies?	No, Yes, NA/RF
	5. In the last year have you participated in meetings with other sex workers?	No, Yes, NA/RF
"Prosocial" attitude/trust in people & institutions	6. You can rely on someone to help when you have a serious problem?	Never, Rarely, Sometimes, Usually, Always, Not a problem for me, NA/RF
	7. If I said that local officials are trying to solve your problems would you agree or disagree?	Agree a little, Agree a lot, Disagree a little, Disagree a lot, NA/RF, dk
Control		
Literacy	8. Can you read?	No, Yes, NA/RF
	9. Can you write?	No, Yes, NA/RF
Debt	10. Please tell me, yes or no, are you currently in debt?	No, Yes
Household security	11. In the last 5 years, how many times were you evicted or thrown out of your home?	None, Once, Between 2 and 5 times, More than 5 times
Parenting	12. How many of your sons/daughters live in the same house with you?	Number of children
Marital status	13. What is your current marital status?	Not married, Currently married (first time), Currently married (remarried), Separated/deserted, Divorced, Widowed, NA/RF
Religion	14. What is your religion?	Hindu, Muslim, Christian, No religion, dk

had sex with these non-client partners in the past 7 days. We dropped 415 cases where the respondent had not engaged in sexual contact with their husband, temporary husband or lover therefore they were not at risk and thus omitting them from the sample was not problematic. We measured condom use for the remaining cases based on frequency of condom use in the 7 days prior to the survey (Table 1).

Social capital is conceptualized as community participation and 'prosocial' behavior or trust in individuals & institutions. The index of overall community participation was a combination of three binary variables (Table 1) that addressed the type and number of activities each respondent engaged in. 'Prosocial' behavior or trust in individuals & institutions was assessed by the responses from two different survey questions (Table 1). Without an a priori reason to assume this was a cohesive concept we did not run a reliability analysis on the index and elected to analyze each dimension separately. These are the primary independent variables in this study.

Besides the above variables, this study also controls for literacy, household security and family members in one's household, all linked to HIV risk behavior (Harpham et al., 2002). We selected biological children as the only household members to include for the added responsibilities associated with childrearing. Debt (Blankenship, West, Kershaw and Biradavolu, 2008; Reed, Biradavolu, Devireddy, and Blankenship, 2010), marital status (Bhattacharya, 2003), and religion (Groetzinger, 2004; Coleman and Testa, 2008) were also included to control for their effects.

Validity and Reliability

Cronbach's alpha for a composite value that attempted to bring together indicators of community participation and 'prosocial' behavior was very low (0.01). Analyses, therefore, examined relationships with each dimension separately.

As there was nothing in the literature to suggest otherwise, we relied on a priori assumptions that the type of participation was irrelevant for the community participation dimension of social capital so we combined all three types of participation into an index of overall activity.

With regard to the 'prosocial' behavior and trust in institutions/people variable, we ran a factor analysis to see if these variables could be combined. Based on the low scale reliability (0.045) and covariance (0.110), each factor was measuring different dimensions and as a result was also analyzed separately.

Regression Models

OLS regression

Condom use (frequency) = constant + social capital (community participation + "prosocial" behavior) + literacy – debt + household security + parenting + marital status – religion

Logistic regression

Risk behavior (log of likelihood) = constant – social capital (community participation + "prosocial" behavior) – literacy + debt - household security – parenting + marital status + religion

All statistical analyses were conducted using Stata version 11.2

CHAPTER 5

RESULTS

Multivariate OLS Regression

There was a significant relationship between community participation and condom use, with a standardized coefficient of 0.133 (Table 2). The more active our study participants were in the community, the more frequently they were to use condoms with their non-client partners.

However, neither measure of "prosocial" behavior was significant. This means that having trust in people or institutions and people to rely on when in need did not impact condom use. Since one dimension of our social capital measure is associated with condom use, we partial support for our hypothesis that social capital is associated with condom use.

The only significant control variable was being a Christian ($p = 0.040$) (Table 2). As we hypothesized these beliefs were positively associated with condom use. This means that Christians used condoms more often than did Hindus and those that fell in the 'other' category (seven out of these twelve were Muslims). Although not significant, literacy and marital status were as we expected, positively associated with condom use. Women who could read and write and those who were married were more likely to use condoms. Conversely, debt, household security, parenting, other religious beliefs were

Table 2. Multivariate OLS & Logistical Regression Weights on Key Variables

Variable	Multivariate OLS[a]	Logistical regression[b]
Social capital		
Community participation	0.133*	1.476*
"Prosocial" behavior		
Rely on someone	0.014	0.982
Officials are trying to help	-0.005	0.967
Control		
Literacy	0.020	0.958
Debt	0.024	1.995*
Household security	-0.012	1.276
Parenting	-0.063	1.070
Marital status	0.085	14.845*
Hindu	0.099	0.719*
Other religion	0.002*	0.123*

[a] *Standardized regression coefficient*

[b] *Odds ratio*

$p < 0.05$

not significant and opposite the direction we expected. Finally, the adjusted R^2 for our model was 0.0184 meaning our model does not explain much of the variance of condom use (about 1.8%). Our model may not have measured social capital adequately or social capital may have less of an impact on condom use than was hypothesized.

Logistical Regression

Again, community participation dimension of social capital showed a significant impact. Those who were more active in the community were 48% more likely to have had sex than those who were less active. This could be due to an increase in exposure to potential partners through social networks. Neither measure of "prosocial" behavior had significant effects. These measures were not related to our participants engaging in risk

behavior. As with our multivariate OLS regression, we only have partial support for our hypothesis that social capital is associated with risk behavior.

For our control variables, women who were in debt were 99% ($p = 0.001$) (Table 2) more likely to engage in risk behavior than those who were not. As we hypothesized, married women were fourteen ($p = 0.000$) times more likely to have had sex as unmarried women, a common sense finding. Women with consistent sex partners would be expected to engage in intercourse more frequently. Christians were 28% ($p = 0.039$) less likely than Hindus to have engaged in sexual contact and those with 'other' beliefs (primarily comprised of Muslims) were 87% ($p = 0.017$) (Table 2) less likely to have engaged in sex with their husbands, temporary husbands or lovers in the 7 days before the survey. All of these control variables were significantly associated with risk behavior.

Several of our control variables however were not significant. Literacy was negatively associated with risk behavior, as we hypothesized. Household security and parenting were not significant and their coefficients were not in the direction we hypothesized. Finally, the pseudo R^2 for our model was 0.1936 but it is important to consider that the magnitude of the marital status variable was highly influential. Had the marital status variable been excluded our model would have had much less explanatory power.

CHAPTER 6

DISCUSSION AND CONCLUSIONS

The community participation dimension of social capital was significant for both statistical analyses as well as other studies we have reviewed (Pronyk et al., 2008; Campbell et al., 2010). Our results thus show that community participation indeed influences both safety-enhancing and risk-promoting sexual behaviors. These results are similar to the findings in the literature on social capital and risk behavior (Bhattacharya, 2005; Pronyk et al., 2008). Since those involved in community participation events are more likely to engage in risk behavior it is important to complement events with HIV education and/or prevention information dissemination and condom promotion. Despite the fact that we cannot infer causation between these constructs the significant relationship between community participation, condom use, and risk behavior does warrant further study. For instance, it may be valuable to explore the specific avenues through which social capital influences behavior. Is it through role modelling, increased social cohesion, collective action or something else?

The 'prosocial' behavior or trust in people and institutions dimension of social capital was not significant for either statistical analysis in our study. This could be for a number of reasons. First, these findings could be correct and this dimension is not associated with condom use or risk behavior. However, findings from Veenstra (2000) and Crosby et al. (2003) would suggest otherwise. More likely, we can consider that this

dimension may not have been adequately defined by the questions we utilized from the survey, which may have failed to capture this dimension. Another study may be warranted with a revised model of the 'prosocial' dimension. It is important to establish whether or not there is a causal relationship between this dimension and HIV risk taking behaviors before implementation of theoretically driven social capital enhancing intervention strategies.

Affiliation with Christian religious beliefs was significantly associated with condom use and they were less likely than Hindus to have engaged in risk behavior in the week prior to the survey (although the least likely group was 'other' – comprised mostly of Muslims). Without a great deal more cultural or religious understanding, it is difficult to make suggestions as to why these differences exist. Could they be related to a respondent's general world outlook as may be suggested by Groetzinger (2005) or some other difference? Other studies have found that condom use was lower for Christians and Muslims than Hindus while risk behavior was higher for Christians (Coleman and Testa, 2008). Inconsistent findings like these suggest we should be guarded in drawing conclusions from these results.

We also found that debt was associated with risk behavior. Although our study did not find a similar relationship to condom use, other studies have successfully demonstrated the link between the two (Reed et al., 2010). This has implications for interventions and strategies for reducing HIV that involve an economic aspect. Our study showed that married women were more likely to have sex. Simple availability and proximity to potential sex partners as well as being in a socially sanctioned position to engage in such behavior probably influenced this finding. But we must consider that if

they are engaging in sexual intercourse with their partners, they may be at risk for HIV. Although this is a common sense finding it does however, have important implications for education on condom use and HIV intervention strategies. It is important that these strategies are targeted toward both married and unmarried women.

Household security was also not associated with risk behavior but this does not mean we can discount this variable. In our sample, most respondents (764 out of 850) lived in secure households. Had our sample included more women who lived in less secure situations we may have seen a relationship. This study cannot rule out an association between living situation and HIV risk behavior. Finally, having children in the household was not a significant factor. As this is a fixed factor that could not reasonably be changed to affect rates of HIV, it is less important than some of the other factors that can be addressed through intervention efforts.

To conclude, this study found partial support for the relationship between social capital and health-related risk behavior. Findings like these further illustrate the need for theoretical clarity and consistency for scholars studying social capital and its impact on health and risk behavior. These results also have potential policy implications. HIV prevention policies can incorporate a social capital building aspect while considering both the health-promoting and risk-enhancing consequences of community participation.

Due to the cross-sectional nature of the dataset this study uses, and that there is no unified theoretically based method for building (Kawachi, Kennedy, Lochner, and Prothrow-Stith, 1997) or measuring (Macinko and Starfield, 2001) the effects of social capital on health, we do call for caution in interpreting our findings. Also, the intent of the original questionnaire was not to measure social capital and the translation from

English to the local language Telugu may confound this fact (Tuan and Harpham, 2005). Future research should further investigate the relationship between social capital and health-related risk behavior by using a more carefully designed questionnaire that takes into account the complexity of social capital. Expanded research could include additional dimensions of social capital such as reciprocity norms and social relationships at the family, peer and community levels.

It is also important not to overstate the value of participation and empowerment or ignore the material conditions under which FSWs live. Economic insecurity and debt have been linked to HIV risk behavior (Reed et al., 2010) and there are economic and political implications of overemphasizing sociability over lack of material resources and instances when government intervention is needed (Portes and Landolt, 1996). Though outside the realm of this study, findings like these should be considered when incorporating social capital into HIV prevention programs. Future research is needed to theoretically refine the concept, analyze its utility in health research, develop specific culturally relevant surveys targeted at assessing social capital, and most importantly to determine the economic and political implications of social capital research with vulnerable populations.

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