Community group participation: can it help young women to avoid HIV? An exploratory study of social capital and school education in rural Zimbabwe

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Abstract

The lifetime risks of acquiring HIV infection in many rural as well as urban areas of southern Africa are currently as high as two-in-three. For women, much of this risk still accrues rapidly at young ages despite high levels of knowledge about HIV/AIDS. Thus, programmes that are more participatory and address underlying structural and community-level factors appear to be essential. We use cross-sectional data from a large-scale, population-based survey in rural eastern Zimbabwe to describe the relationships between membership of different forms of community group and young women's chances of avoiding HIV. Our results show that participation in local community groups is often positively associated with successful avoidance of HIV, which, in turn, is positively associated with psychosocial determinants of safer behaviour. However, whether or not these relationships hold depends on a range of factors that include how well the group functions, the purpose of the group, and the education level of the individual participant. We identify factors that may influence the social capital value of community groups in relation to HIV prevention at the individual, group, and community levels. Young women with secondary education participate disproportionately in well-functioning community groups and are more likely to avoid HIV when they do participate. Of the types of group identified, youth groups appear most beneficial: membership of a well-run group is associated with enhanced sense of personal vulnerability, self-efficacy, and increased chance of having avoided HIV. Youth groups are also most likely to have the characteristics thought to increase social capital value. i.e.: diverse membership, frequent, formal and cooperative meetings, external sponsorship, and assistance for non-members. Longitudinal studies are needed: (i) to establish whether community group membership supports the development of safer lifestyles or merely has greater appeal to individuals already predisposed towards such lifestyles, and (ii) to pinpoint directions of causality between hypothesized mediating factors. In-depth research is needed on the specific qualities of community groups that enhance their contribution to HIV control. However, our findings suggest that promotion of and organisational development and training among community groups could well be an effective HIV control strategy.

Introduction

In this paper, we describe patterns of social capital (characterized here by civic engagement) in rural communities in eastern Zimbabwe and present results from an exploratory analysis into whether community group participation is helping young women to avoid HIV infection.

Recent studies have shown that female HIV incidence is extremely high in the teens and early twenties in sub-Saharan African countries with widely disseminated epidemics (Fylkesnes et al., 1998; Zaba, Boerma & White, 2000). Identification of strategies that support young women in avoiding HIV infection is widely recognised as being an urgent priority. Until recently, most strategies had an information-based, individual-level focus. However, there is now a growing consensus that these strategies must be complemented by more participatory approaches that work through and address broader underlying social and economic influences (Beeker, Guenther-Gray & Raj, 1998).

It has been argued that an important determinant of the success of health-promotion interventions is the extent to which they mobilize existing sources of social capital or encourage the development of new sources of social capital (Campbell, forthcoming 2003). More specifically, in a study on the role of group activities in HIV prevention among youth in South Africa, Campbell and MacPhail (2002) proposed that health-enabling community contexts characterized by the presence of social capital can facilitate HIV avoidance in a given cultural, socio-economic and epidemiological context by promoting three psycho-social processes which play a key role in facilitating safe sexual behaviour: (i) collective negotiation of identities at the peer level (group norms); (ii) empowerment or self-efficacy associated with skills building and confidence; and (iii) empowerment or self-efficacy in terms of critical thinking skills.

At the same time, evidence is emerging which suggests that communities and individuals with greater school education may be better placed to avoid HIV infection (Kilian et al., 1999; Fylkesnes et al., 2001; Hargreaves & Glynn, 2000) through the adoption of protective lifestyles and behaviours (Blanc, 2000). This may be increasingly so at more advanced stages of HIV epidemics (Gregson, Waddell & Chandiwana, 2001). However, little is known about the community and individual-level mechanisms through which greater school education facilitates and promotes HIV avoidance. One possibility is that interactions between social capital and education create more favourable conditions for the adoption of safer behaviours. However, we are aware of no previous studies which have examined such interactions.

In part, this may be because such interactions are complex and difficult to isolate in statistical analyses. Ultimately, longitudinal and in-depth studies are needed so that directions of causality can be inferred. For example, a statistical association between membership of a community or education group and HIV avoidance observed in a cross-sectional survey could be because participation in this group facilitates adoption of safer lifestyles. However, it could also reflect circumstances wherein people with safer lifestyles are more likely to join or remain within such a group. Nonetheless, studies using cross-sectional survey data can be a useful first step in that they are relatively inexpensive and can be used to screen for the presence of hypothesized relationships between socio-economic factors, HIV avoidance and mediating mechanisms.

In this study, we use data from a large-scale, cross-sectional, population survey in rural Zimbabwe where HIV prevalence rates in women aged 15-19 and 20-24 years were 7% and 26%, respectively, to address three key questions: First, are young women who participate in community groups more likely to avoid HIV infection? Second, which group and individual member characteristics facilitate this process? In particular, do factors such as a group's *raison d'être*, its socio-demographic composition, its member's satisfaction with its

performance, and their educational status influence its protective effect[1]? Finally, what are the mediating psychosocial and behavioural mechanisms through which young women who participate in social groups increase their chances of avoiding HIV infection?

Theoretical framework

We utilize a simplified theoretical model (Campbell, Wood & Kelly, 1999) to explore the role that social capital may play in facilitating the adoption of behaviours protective against HIV infection in sub-Saharan African countries subject to widely disseminated epidemics. The model is summarized in Figure 1. It is suggested that cultural and socio-economic factors influence the development and character of social capital within a community (as well as *vice versa*). In turn, social capital can serve to promote psychosocial attributes that support the adoption and maintenance of behaviours that are protective against HIV infection. This is achieved through the provision of health-enabling community contexts within which social identities can be renegotiated and health-enhancing empowerment and critical consciousness promoted (Campbell & MacPhail, 2002).

Social Capital

Much interest is currently being devoted to the hypothesis that people might be healthier in communities characterised by high levels of social capital (Blaxter, 2000). While the

[1] In a previous study using the same data set, we found that young women with secondary school education typically become sexually active at older ages and are less likely to engage in unprotected casual sex than those with less education (Gregson, Waddell, & Chandiwana, 2001). As a consequence, these women were more likely to have avoided contracting HIV infection (age- and socio-economic stratum-adjusted OR, 2.52 ($P<0.001$) and 1.75 ($P<0.001$) in women aged 15-19 and 20-24, respectively). Here, we proceed to examine the association between social group membership and HIV avoidance and the possible interaction with the effect of greater education.

concept of social capital has been defined by a number of theorists (see Schuller et al., 2000 for a discussion of these), it is Putnam's definition that has captured the most attention in the health field. Putnam (1993) defines social capital in terms of both networks (high levels of participation in local community groupings) and norms (high levels of trust and reciprocity amongst community members). More recently however, Putnam (1999) has argued that the 'network' concept of associational membership is a more powerful marker of social capital than the 'norm' dimensions of trust and reciprocity (see also Foley and Edwards, 1999). Against this background, our own research focuses specifically on the network dimensions of social capital, defining social capital in terms of participation or 'civic engagement' in local community networks.

Mediating links between social capital and avoidance of HIV infection

Adoption of safe sexual behaviour is assumed to be predicated on a number of psychosocial attributes. These include factors such as knowledge about HIV/AIDS, perceived personal vulnerability (Linden et al., 1991), peer influence and a generalised sense of empowerment or self efficacy (given that people who feel they are in control of their lives in general are more likely to feel that they can take control of their sexual health) (Bandura, 1977)

How may group memberships facilitate the psychosocial attributes associated with HIV avoidance? At the most obvious level, community networks may provide the contexts for the diffusion of health-related information (Veenstra, 2000). Group memberships may also provide contexts for the development of a sense of comradeship and solidarity which may boost members' confidence, social skills and sense of perceived self-efficacy. Cohesive social networks may also provide supportive contexts within which peers can make collectively negotiated decisions to change their behaviour in response to health-related information, given the key role of peer identities in shaping sexual behaviour (Campbell &

MacPhail, 2002). In particular, intra- and inter-group dynamics may play an important part in this process. Some groups provide “bridging” social capital in that they put young people in touch with diverse and more powerful social groupings whose support and assistance might increase the likelihood of programme success (Campbell & Mzaidume, 2001). For example, local health department officials may attend youth group meetings and thereby become more conscious of the need for youth-friendly STD clinics. Other groups (e.g.: women’s groups), owe the very basis for their existence to the opportunities they offer to interact and share experiences with peers. In this sense, they provide “bonding” social capital that can be a powerful tool in applying collectively negotiated decisions. In some cases, these decisions may be based on information and ideas gleaned by members who also participate in groups with more heterogeneous memberships. Thus, communities in which heterogeneous and homogeneous groups exist side-by-side and have overlapping memberships may be especially conducive to the development of new social norms that support more positive psychosocial attributes and safer behaviour.

Campbell and MacPhail (2002) suggest that in ideal situations social groups may also provide contexts wherein young people collectively can develop insight into how, for example, gender relations, constructed within conditions of poverty, tend to undermine their sexual health. Freire (1993a, b) argues that critical understandings of obstacles to behaviour change facilitate the development of effective strategies to overcome such obstacles. In combination, processes such as these have the potential to lead to a social environment that supports individuals in assimilating a deeper understanding of the nature of their vulnerability to HIV and AIDS, making collectively negotiated decisions to change their behaviour and in attaining a qualitatively more meaningful and realistic sense of self efficacy which is more likely to be translated into effective action.

However we should not forget that the impact of group memberships on sexual behaviour is not always a positive one. Tight and inward-looking associations and networks can be

damaging; they may be exclusionary, or exert downward levelling pressures (e.g. Mafia and youth gangs) (Portes and Landolt, 1996; Collier, 1998). In some contexts, strong social networks of young men might reinforce macho attitudes to sexuality, and perpetuate the unequal gender relations which are believed to facilitate HIV transmission in many contexts. Social networks that operate in this way have been described as constituting "anti-social capital" (Baum, 1999; Portes and Landolt, 1996) and could foster norms and identities that obstruct the development of the psychosocial qualities and behaviours needed to successfully avoid HIV infection.

School education and social capital: a synergistic relationship?

School education should equip individuals with a number of advantages in avoiding HIV infection (Gregson, Waddell & Chandiwana, 2001). Formal instruction in school and easier access to information in the media should increase exposure to the facts about HIV/AIDS (Gregson et al., 1998; Kelly, 2000). This information together with the confidence, skills and more extensive employment opportunities associated with educational qualifications should contribute to empowerment and thereby reduce fatalism and inadvertent involvement in high-risk relationships. Exposure to western ideas through the school curriculum should raise take-up of modern health services including effective treatment for STDs and condoms (Blanc, 2000) and may result in the development of different social norms and identities within more educated peer groups.

At a practical level, schools provide convenient settings for meetings, resources for group activities, and training in organisational skills. Specific times set aside for group activities obviate the problem of competing obligations. Group activities within schools provide forums within which information and ideas can be disseminated and shared and therefore contribute to the greater knowledge and social skills found amongst the more educated. The school setting can therefore both facilitate the development of social capital and provide

students with easy access to it. Thus, school education could be an example of access to the benefits of social capital varying within a community (Campbell, Wood & Kelly, 1999) according to socio-demographic characteristics (Campbell, Williams & Gilgen, 2001).

Participation in school groups may instil a greater sense of the value of collective action that is carried over to out-of-school activities. More educated individuals may join intrinsically more viable and beneficial types of groups and make more effective use of the opportunities provided. Equally, their participation in out-of-school groups with heterogeneous educational membership could provide bridging social capital that facilitates the wider dissemination of psychosocial attributes acquired in school that help young people to avoid HIV. This could be through improvements in organisational structure, increased access to external resources including training opportunities, sharing of new information and ideas, and provision of positive role models.

In the remainder of this paper, we investigate the inter-relationships posited in this model using data from predominantly rural areas of Zimbabwe.

Methods

Data

Quantitative data were collected in a stratified population-based survey conducted in Manicaland, Zimbabwe's eastern province between July 1998 and January 2000. Prior ethical approval for the study was granted by the Research Council of Zimbabwe - Number 02187 - and the Applied and Qualitative Research Ethics Committee, Oxford, United Kingdom - N97.039. Population strata comprised roadside trading centres, plantations, and subsistence farming areas. Community consent was sought in each area through meetings with local leaders and the general public. Individual local residents eligible for the survey –

17-54 year-old men and 15-44 year-old women - were identified in a preliminary household census. Written informed consent was sought as a condition for enrolment. Full details of the benefits and risks associated with participation in the study were provided. As in other similar surveys undertaken in resource-poor settings, collection of results from HIV tests carried out in the survey was not a requirement for participation. However, a separate free voluntary HIV counselling and testing service was made available and the issues involved in making use of this service were discussed with survey participants at interview and during pre-test counselling. Ninety-eight per cent (8,233/8,386) of households were enumerated and 9,843 adults (80% of those eligible) including 2,268 young women aged 15-24 years (73%) joined the study.

Individual participants were interviewed using a structured questionnaire on socio-demographic characteristics (including education), social group membership, psychosocial attributes (including knowledge about HIV/AIDS) and experience of sexual relationships. Each participant was asked whether he/she knew of the existence of a number of different types (i.e.: youth, church, women, etc. – see Table 1 for a complete list) of groups in their home area. The categories of group were selected to reflect local conditions and to facilitate comparison with results from earlier studies (Narayan & Pritchett, 1997; Campbell, Williams & Gilgen, 2001). For each type of group recognized, participants were asked to indicate whether they were members of such a group and, if so, to state whether they were satisfied with the group's performance.

An informal confidential voting interview (ICVI) method was used to reduce social desirability bias in responses to questions on sexual relationships in three-quarters of the interviews (selected at random) with literate respondents (Gregson, Zhuwau et al., 2002; Aral & Peterman, 1996). Non-literate respondents (8%) were enumerated using standard face-to-face interview methods throughout. On the basis of findings from prior qualitative research conducted in nearby communities, mature, social science graduates familiar with the local

culture but from outside the immediate study areas were employed as enumerators and were matched for sex with their respondents. Enumerators were trained to introduce themselves and the project thoroughly, to spend time building a good rapport with respondents, to adopt an informal, flexible and non-prejudicial approach, and to explain the confidentiality procedures carefully.

Dried blood spot specimens were collected for HIV testing. A dipstick-dot immunoassay with high sensitivity and specificity - 99.6 per cent in both cases (Ray et al., 1997) – was used to detect the presence of antibodies to HIV.

Statistical analyses

Data entry and validation were conducted using custom-made forms created in *SPSS-PC*. Data analysis was done in *STATA 7·0*. Multivariate logistic regression models were developed adjusting for age and socio-economic stratum to screen ($P<0.1$) for possible associations between membership of community groups and HIV avoidance. Separate models were constructed for well- and poorly-functioning groups, and the different categories of group; and to test for differential participation rates, satisfaction rates and effects of community group membership on chances of avoiding HIV by level of education.

An index of knowledge about HIV and AIDS (Gregson et al., 1998) was constructed based on responses to questions on modes of HIV transmission, cofactors in sexual and vertical transmission, and distinctions between HIV and AIDS. Perceived personal vulnerability to infection was assessed using responses to a direct question on whether participants felt in danger of becoming infected with HIV themselves. Two indicators of self-efficacy were employed: one based on responses to a question on whether survey participants felt they were able to avoid HIV infection; the other, for sexually active women, on whether they felt they could persuade their regular partner to avoid unprotected sex with casual

partners. Measures of sexual behaviour found to be associated with increased risk of HIV infection at young ages in a previous analysis (Gregson, Nyamukapa et al., 2002) were employed. Viz. age at first sex, lifetime partners (categorized here into one or more than one partner), and having a faithful partner.

Further logistic regression models were developed to test for psychosocial correlates of HIV avoidance and the measures of behaviour previously found to be associated with greater chance of having avoided HIV infection. Separate models were developed for never married and married women in order to establish whether marital status modifies the effects of the psychosocial factors. Age-adjusted Poisson regression coefficients were calculated to screen for effects of greater education on the posited psychosocial mediators of HIV avoidance. Finally, logistic regression was used to test for associations between social group membership and the psychosocial indicators among women with and without experience of secondary school education.

Results

Social group membership and avoidance of HIV infection

Overall, 83 percent (1,887/2,268) of the young women who participated in the survey reported membership of at least one social group (Table 1). Group membership *per se* was not associated with either increased or reduced chances of having avoided HIV infection.

Characteristics of social groups associated with HIV avoidance

Eighty-seven percent of young women who were members of groups were satisfied with their group's performance. Those who were members of at least one group that they felt

functioned well were more likely to have avoided HIV infection than those who were dissatisfied with the performance of all the groups of which they were members or who were not members of any group (adjusted OR, 1.33; *P=0.039*). Of the women who were not members of any well-functioning group, those in a group with which they were dissatisfied were less likely to have avoided HIV than those who were not in any group at all (adjusted OR, 0.61; *P=0.051*).

Young women were most likely to be participating in church groups (Table 1). However, there was also significant involvement in youth groups, savings clubs, burial societies, sports clubs, and women's groups. Church groups, youth groups and burial societies were most likely to be said to be functioning well whilst satisfaction levels were lowest in women's groups, cooperatives and farmers groups.

Membership of youth groups was positively associated with increased chances of having avoided HIV infection whilst membership of savings clubs and political parties showed negative associations. Membership of a well-functioning youth group was associated with an almost 3 times greater chance of having avoided HIV. However, membership of a poorly-functioning youth group was associated with a significant reduction in the chances of avoiding infection. Indeed, membership of poorly-functioning groups of all types - for which sufficient data were available – showed negative effects on the chances of avoiding HIV. In terms of the size of effect, well-functioning sports clubs, AIDS groups and women's groups appear to be most beneficial in relation to the chances of avoiding HIV compared to not being a member of a group at all. However, fewer young women were members of these groups and the associations were not statistically significant. In contrast, the smaller effect (OR, 1.25) associated with (the much more common) membership of a well-functioning church group was of borderline statistical significance[2].

[2] Over the wider age range, 15-44 years, the ORs for having avoided HIV given membership of the various types of well-functioning groups after adjusting for age group, socio-economic stratum and marital status (ever

Overall, the socio-demographic profiles of the memberships of community groups as a whole and of those that were said to be performing well closely reflect that of the general population (Table 2). However, the different types of community group varied substantially in their socio-demographic composition and distribution within urban and rural contexts. Marriage, in particular, appears to be a key delineator of membership of the different kinds of groups. For example, very few married women participated in youth groups but women's group membership was often restricted to those who were married. Social groups for which membership is positively associated with HIV avoidance (n.b.: ranking as per the order of magnitude of effects shown for well-functioning groups in Table 1) have disproportionately high representations of younger, more educated and single members and *vice versa*.

School education and the effects of social group membership

Young women's chances of having avoided HIV are strongly associated with both experience of secondary education (adjusted OR, 1.90; *P<0.001*) and having remained single (adjusted OR, 2.58; *P<0.001*). Up to now, we have ignored these characteristics because they may both influence and be influenced by the effect of group membership. Young women who are more educated or who have remained single may owe their increased chances of having avoided HIV to the effects of their greater education or of not having a husband or to a greater propensity to join or make more effective use of groups with protective qualities. In the case of marriage, group membership may influence the propensity to marry. Equally, as we have seen, marriage may be a precondition for or criteria for exclusion from membership of certain types of groups. Education and marital status are themselves also very closely

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married, divorced and widowed) were as follows: any group (1.27, *P=0.007*), youth groups (2.58, *0.004*), sports club (1.27, *0.305*), AIDS groups (1.35, *0.225*), women's groups (1.18, *0.159*), church groups (1.25, *0.004*), co-operatives and farmers groups (1.23, *0.099*), burial societies (1.19, *0.055*), savings clubs (1.00, *0.982*) and political parties (0.95, *0.806*), respectively (N=5,374).

inter-related (Gregson, Waddell & Chandiwana, 2001) so, to avoid further complexity, we focus here on education.

Overall, women with secondary education were more likely to report membership of a community group (age, socio-economic stratum and within-school-adjusted OR=1.34; *P=0.023*). There was no difference whilst in school (adjusted OR=0.56; *P=0.56*) but a significant contrast amongst young women who had left school (adjusted OR=1.56; *P=0.027*). More educated women were also more likely to report satisfaction with the groups they were in (age, socio-economic stratum and within-school-adjusted OR=1.44; *P=0.058*).

Amongst those who had left school, young women with secondary education were disproportionately highly represented in youth groups (age and socio-economic stratum adjusted OR=2.72; *P<0.001*), church groups (1.47; *0.002*), sports clubs (4.42; *0.006*) and AIDS clubs (5.22, *0.116*). Less educated women were over-represented within political parties (0.34; *0.014*), savings clubs (0.75; *0.077*[3]) and women's groups (0.71; *0.158*). Thus, women with secondary education appear to be concentrated within groups associated with HIV avoidance whilst those with less education tend to be in groups that show negative effects. To explore further the direction of causality, we disaggregate the data on HIV avoidance by level of education (Table 3).

Overall, young women with secondary education who belong to a community group they consider to be functioning well have been more successful in avoiding HIV infection than those not in such a group. This is particularly so in youth, women's and church groups. By contrast, only youth group membership shows any signs of a positive relationship with HIV

[3] Less educated women's relative preference for savings club membership becomes more strongly statistically significant (OR=0.72; *P=0.041*) if those still in school are included and school attendance is added as a control in the logistic regression.

avoidance for women with less education for whom membership of political parties shows a negative relationship.

Mediating psychosocial and behavioural mechanisms

In Table 4, we show the results of the tests for statistical association between the psychosocial variables and behaviours found to be associated with HIV avoidance at young ages (see footnote to Table 4 for details of the effects of these behaviours) and HIV avoidance. Young women with greater knowledge about HIV are more likely not to have started sex and to have avoided HIV. Those who perceive themselves to be at risk of acquiring HIV are more likely to have started sex. Of the young women who have started sex, those who perceive themselves to be vulnerable to infection are more likely to have had more than one partner. This is particularly so amongst the unmarried women. However, there is no sign of a relationship (positive or negative) between perceived personal vulnerability and HIV avoidance. Young women who stated that it was possible for them to avoid HIV were more likely not to have started sex. Those who had started were more likely to have remained faithful to one partner. Once again, there was no statistical evidence for an association between this indicator of self-efficacy and HIV avoidance. However, for young women with a current sexual partner, those who said they could persuade their partner to avoid unprotected casual relationships were more likely to report that their partners were faithful to them and also more likely to have avoided HIV infection. The latter association was most evident among young women who had not yet married.

Young women with higher levels of school education (none, primary, secondary, higher) had better knowledge about HIV (age and socio-economic stratum-adjusted Poisson regression co-efficient 0.15, $P<0.001$) and enhanced self-efficacy (adjusted OR for the possibilities of avoiding HIV and persuading partner to avoid unprotected casual sex, 2.69, $P<0.001$ and 1.44, $P=0.002$, respectively). Greater education was positively associated with

self-efficacy in both married (adjusted OR for possibility of avoiding HIV, 1.85, *P<0.001*) and unmarried (adjusted OR, 3.63, *P<0.001*) young women. However, level of education was not related to perceived vulnerability to infection (adjusted OR, 1.14, *P=0.186*).

Table 3 also shows the effects of different types of community group membership on the various possible psychosocial mediators by level of education. For women with secondary education, membership of community groups was associated with increased knowledge about HIV and greater perceived personal vulnerability to infection. Interestingly, membership of a youth group was not associated with increased knowledge but was positively associated with perceived personal vulnerability and self-efficacy. The other types of groups found earlier to be linked to increased chances of having avoided HIV were associated with greater knowledge and, in the case of church groups, perceived personal vulnerability. For the women with less education, group membership was associated with increased knowledge about HIV and, for women's groups, co-operatives and farmers' groups, with greater self-efficacy (ability to persuade partner to avoid unprotected casual sex).

Discussion

Community group membership and HIV avoidance

In this study, we used data from communities in eastern Zimbabwe to examine the role of social capital in providing supportive community contexts within which young women can improve their chances of avoiding HIV infection. The results in these predominantly rural settings are consistent with those from a recent study in a more urban mining community in South Africa which indicate that young women who participate in local community groups can have a better chance of avoiding HIV (Campbell, Williams & Gilgen, 2001). However, our results also suggest that whether or not this is the case depends on a range of factors that

include how well the group functions, the purpose of the group, and the education level of the individual participant.

Overall, young women who were satisfied with the performance of the groups in which they participated were more likely to have avoided HIV than other women. However, young women who were dissatisfied with their group's performance were less likely to have avoided HIV than those who were not in a group at all. Furthermore, whilst, young women in some types of group (e.g.: youth groups) were more likely to have avoided HIV, those in other categories (e.g.: political parties and saving clubs) were actually in greater danger of infection. Thus, social networks associated with anti-social capital (Baum, 1999) may also be present in our study communities. Interestingly, our results on patterns of HIV avoidance by type of group closely echo those found in the mining community in South Africa – a community with strongly contrasting levels of female alcohol consumption and involvement in casual sex. There, young women participating in youth groups and sports clubs were also more likely to have avoided HIV whilst those participating in savings clubs (*stokvels*) typically showed signs of having more risky lifestyles (Campbell, Williams & Gilgen, 2001).

An important limitation of our study and the one in South Africa is that they were both conducted using data from cross-sectional surveys so their results require caution in interpretation. Although the results are consistent with current theory on interactions between community-level and individual-level factors, cross-sectional data cannot provide conclusive evidence on directions of causality. Community group membership may assist young women in avoiding HIV but the results could equally well reflect selective participation by individuals who already have safer lifestyles. Similarly, groups whose members report dissatisfaction with the way they are run may not in fact operate any less effectively but may simply be ones that attract individuals who lack social skills, commitment etc.

In Manicaland, the beneficial effects of community group membership were only seen among women with secondary school education. However, this category comprises almost three-quarters (74%) of 15-24 year-olds even in these rural areas of Zimbabwe. Furthermore, young women with secondary education showed a greater propensity to join community groups, were more likely to be satisfied with their group's performance, and more likely to have chosen one of the types of group associated with HIV avoidance. In an earlier study, we found that young women with secondary education were more likely to have avoided HIV (Gregson, Waddell & Chandiwana, 2001). It seems plausible that they gain this advantage, in part, through their more extensive and more effective participation in community groups.

We also examined three possible psychosocial mediators of HIV avoidance. The results for better knowledge about HIV and self efficacy suggest that these attributes may indeed facilitate the adoption and maintenance of lifestyles positively associated with avoiding HIV. Each was found to be associated with experience of secondary education but only better knowledge about HIV was associated with community group membership (irrespective of education level). The cross-sectional design of the study makes it especially difficult to draw firm conclusions on the roles of these psychosocial mediators (Gregson et al., 1998). In the case of perceived personal vulnerability, there are counteracting influences on the relationships with HIV avoidance and associated behaviours. For example, the negative associations between perceived personal vulnerability, not having started sex, and, for those young women who have started sex, subsequent monogamy shown in Table 4 must reflect the fact that sexual activity promotes a sense of vulnerability. Overall, this effect masks the one we seek to isolate here – i.e.: greater perceived personal vulnerability providing increased motivation to adopt safer lifestyles. The observed positive associations between group membership, heightened sense of personal vulnerability and HIV avoidance in the more educated women could therefore be of some importance.

A further issue concerns the subjective basis for the responses to the questions on personal vulnerability and self efficacy. These may range from the superficial to the well considered. For example, the positive association observed between political party membership and self efficacy among less educated young women could reflect bravado rather that a well-founded belief that they could avoid contracting HIV. Finally, it is important to remember that the overall effects of social group participation within a community include influences on its predominant social norms (Campbell & MacPhail, 2002): an effect that is not captured in our simplified model. Thus, community group participation can also facilitate reduced exposure to HIV infection by influencing the behavioural opportunities open to young women and the wider social pressures to which they are subject.

Social capital value of community groups

At the community level, the social capital value of groups taken in combination is thought to depend upon the density of the social networks and the resulting degree of social cohesion (Putnam, 1993). The differences in the relationships between group membership, psychosocial status, and prospects for avoiding HIV seen here among groups according to how well they function, their purpose, and participant's socio-demographic characteristics suggest that the social capital "value" of groups in terms of their contribution to HIV prevention may also vary according to group and individual member characteristics. At the individual level, the social capital value of participation in any given group may depend on the characteristics of the community, the group, and the individual participant. In the context of rural Manicaland, secondary education appears to be a key individual level pre-requisite for effective social group participation for young women. Marital status may also be an important independent factor.

At the level of particular groups, rather than simply distinguishing between those that provide social capital and anti-social capital, it may be useful to consider the social capital

value or quality of any given group as lying on a continuum that ranges from the positive to the negative. It is interesting to speculate as to what might be the properties of particular groups that cause them to function more effectively and have greater social capital value (Table 5). The positive but contrasting aspects of bonding and bridging social capital are emphasised in the literature (Putnam, 2000; Saegert, Thompson & Warren, 2001). In terms of bonding social capital, the composition and degree of homogeneity of group membership would seem to be significant, for example, in the shaping of new social identities and critical consciousness (Campbell & MacPhail, 2002). Furthermore, the nature of intra-group interaction must be fundamental. Group structures and composition must be conducive to debate and argument. At the same time, a strong bond and spirit of co-operation between members will be needed if collective decisions are to be implemented effectively. In addition, Collier (1998) has suggested that differences may exist in the quality of social capital depending on whether interaction is horizontal or vertical. Vertical interaction is typically more highly organized, hierarchical, unidirectional, and characterized by unequal power differentials. The lower an individual falls within the hierarchy, the less power he or she has to influence the nature and outcome of the interaction. Horizontal interaction is more egalitarian and can be either formal or informal, the former providing infrastructure for collective decision-making and action.

External collaboration and sponsorship and diverse (e.g.: by education status) memberships that overlap with those of other groups would provide bridging social capital through access to new ideas, training and other resources. At the community level, collaboration among horizontally-based associations is thought more likely to increase the stocks of social capital (Putnam, 1993) and broader interaction between group members and the wider community would also seem to be important in regard to the diffusion of new social norms.

Data on these more detailed aspects of particular community group functioning are not available from the population survey in Manicaland. However, we conducted a small preliminary investigation into these aspects in a subsequent series of focus group discussions with different types of community groups and in in-depth interviews with group officials. In total, meetings and interviews were held with seventeen local community groups, ten being of the types for which a positive association with HIV avoidance had been found (i.e.: youth, sports, women's and farmer's groups) and seven of types for which there was a negative association (i.e.: savings clubs and burial societies). The results indicate that individual groups are frequently delineated not only by marriage but also by gender. For example, men and women often operate separate burial societies. Some youth groups do have male and female membership so it is possible that the positive associations between youth group membership and improved chances of avoiding HIV observed in the study reflect, in part, a process whereby these groups act as a mechanism by which young women meet men who share their values on faithfulness, condom use and so on.

We also found that there is a good deal of variation in the nature and activities of groups - even for groups of the same type. However, it was interesting to find that the youth groups, for which high proportions of members report satisfactory performance, which have a strong appeal to the more educated, and for which membership appears to have some protective effects against HIV infection irrespective of level of education, also frequently had the characteristics that we hypothesized might increase social capital value. e.g.: external sponsorship, frequent, formal and cooperative meetings, diverse membership, and assistance for non-members. In contrast, types of groups showing effects more consistent with anti-social capital in regard to HIV prevention, (i.e.: savings clubs and burial societies) had less favourable characteristics.

With the exception of those specializing in AIDS control, none of the groups included regular HIV/AIDS education within their routine formal activities but several had received

briefings from local AIDS support organisations or the Ministry of Health at their meetings. These talks may well have stimulated discussion and debate within and beyond the groups concerned.

Conclusion

Longitudinal and more in-depth studies are needed to establish whether the statistical associations observed between variables hypothesized to be inter-related in our theoretical model reflect the direction of causality implied by the model. More in-depth research on the determinants of community group quality and effectiveness is also warranted. Nonetheless, the results presented here add further strong *prima facie* evidence that community group membership can support young women in their efforts to avoid HIV infection in areas of high HIV prevalence. Furthermore, they add to our understanding of the role of social capital in relation to health by providing evidence for: (i) the importance of the quality of a group's functioning in determining its social capital value; (ii) the existence of negative patterns of social group membership that hamper attempts at HIV prevention; and (iii) differentials in access to and effective utilization of community group membership by socio-demographic status (in this case, by level of education and probably also by gender, age, and marital status).

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Figure 1: Theoretical model of the influence of social capital on young women's prospects of avoiding HIV infection in a widely disseminated epidemic

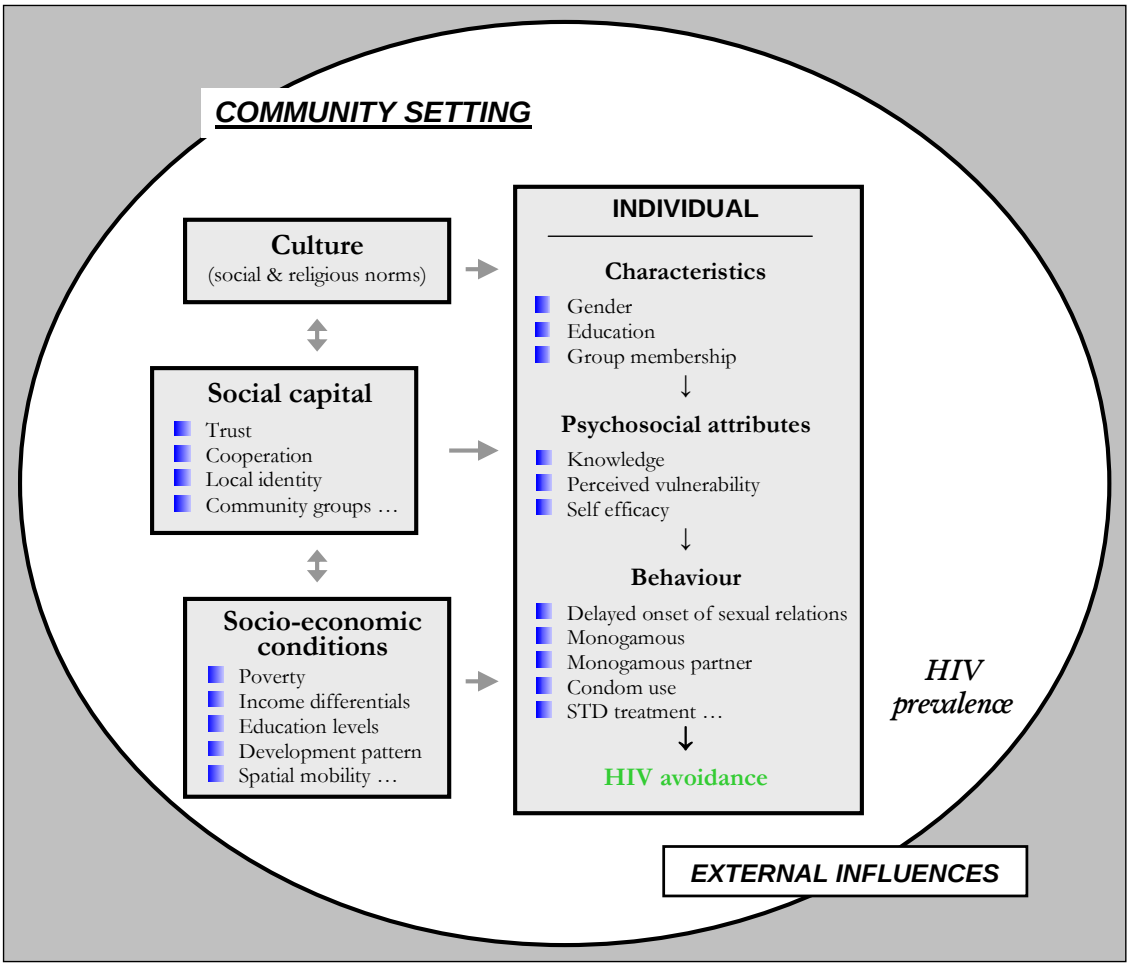

Table 1: Age and socio-economic stratum-adjusted odds ratios for having avoided HIV infection in 2,268 women aged 15-24 years, given membership of a community group and by type of group and quality of functioning of the group

	Group membership			Chances of having avoided HIV					
	Total		Well-functioning	All members		Quality of group functioning			
						Well		Poorly	
Type of community group:	N	%	%	OR *	*p*	OR **	*p*	OR ***	*p*
Any group	1.887	83	87	1,08	*0,665*	**1,33**	*0,039*	**0,61**	*0,051*
Youth groups	248	11	88	**1,90**	*0,036*	**2,82**	*0,006*	**0,16**	*0,027*
Sports clubs	137	6	81	1,37	*0,394*	1,97	*0,155*	0,27	*0,244*
AIDS groups	44	2	82	1,21	*0,758*	1,47	*0,611*	NA	-
Women's groups	82	4	67	1,27	*0,421*	1,41	*0,341*	NA	-
Church groups	1.799	79	90	1,17	*0,297*	**1,25**	*0,096*	0,70	*0,170*
Co-operatives & farmers groups	59	3	69	1,14	*0,702*	1,25	*0,576*	NA	-
Burial societies	159	7	86	0,72	*0,115*	0,82	*0,362*	0,42	*0,357*
Savings & rotating credit societies	205	9	79	**0,67**	*0,026*	0,79	*0,226*	**0,30**	*0,068*
Political parties	27	1	78	**0,30**	*0,006*	**0,32**	*0,017*	NA	-

* Compared to women who were not members of any group (N=2,268).
** Compared to women who were either not members of any group or who were dissatisfied with their groups' performance (N=2,268).
*** Women who were only in a poorly functioning group compared to those who were not members of any group (N=530).

NA: all members of these types of groups who reported that the group functioned poorly were members of another group that functioned well.

Table 2: Socio-demographic composition of community groups

Type of community group:	Characteristics of group members (%)				
	Aged <25	Female	More educated*	Ever married	Town/estate
All study participants	45	55	59	63	49
Any group	45	60	60	64	46
Well-functioning group	45	62	60	64	45
Youth groups	87	59	86	14	35
Sports clubs	64	24	81	36	58
AIDS groups	35	72	64	67	33
Women's groups	11	98	38	97	26
Church groups	46	64	60	63	43
Co-operatives & farmers groups	11	74	40	91	29
Burial societies	14	79	43	93	21
Savings & rotating credit societies	24	70	48	86	56
Political parties	15	45	50	84	47

N=9,806
* "More educated" refers to those with some secondary education.

Table 3: Age and socio-economic stratum-adjusted odds ratios for psychosocial attributes associated with avoidance of HIV infection given membership of a well-functioning community group by type of group in women aged 15-24 years: by level of school education

Psycho-social attribute:	Women with secondary education (n=1679)								Women with no secondary education (n=593)							
	HIV-		HIV knowledge		Personal vulnerability		Self efficacy:		HIV-		HIV knowledge		Personal vulnerability		Self efficacy:	
							Avoid HIV	Persuade partner							Avoid HIV	Persuade partner
Type of community group:	OR	*p*	Co-eff	*p*	OR	*p*	OR *p*	OR *p*	OR	*p*	Co-eff	*p*	OR	*p*	OR *p*	OR *p*
Any group	**1,51**	*0,02*	**+0.017**	*0,03*	**1,30**	*0,05*	0,96 *0,81*	0,87 *0,46*	0,95	*0,84*	**+0.029**	*0,02*	0,91	*0,63*	1,00 *0,98*	1,33 *0,22*
Youth groups	**2,17**	*0,06*	-0.005	*0,58*	**1,44**	*0,03*	**1,92** *0,02*	0,94 *0,91*	5,54	*0,11*	+0.032	*0,26*	0,95	*0,92*	2,13 *0,15*	2,69 *0,37*
Sports clubs	1,85	*0,25*	-0.000	*0,99*	**0,63**	*0,08*	1,14 *0,69*	1,04 *0,95*	1,19	*0,88*	**+0.229**	*<0.001*	1,27	*0,77*	2,80 *0,35*	0,94 *0,18*
AIDS groups	1,06	*0,94*	**+0.052**	*0,02*	1,57	*0,23*	1,09 *0,88*	0,43 *0,22*	-		-		-		-	-
Women's groups	**3,21**	*0,06*	**+0.054**	*0,01*	0,67	*0,27*	**0,49** *0,04*	1,31 *0,53*	0,71	*0,51*	**-0.064**	*0,06*	0,48	*0,17*	1,09 *0,87*	**4,85** *0,04*
Church groups	**1,47**	*0,02*	**+0.013**	*0,08*	**1,28**	*0,05*	1,03 *0,87*	0,85 *0,34*	0,82	*0,37*	**+0.036**	*0,002*	0,92	*0,65*	1,05 *0,80*	1,07 *0,78*
Co-operatives & farmers groups	1,19	*0,76*	-0.002	*0,94*	1,10	*0,83*	**0,43** *0,06*	0,81 *0,66*	1,63	*0,39*	-0.002	*0,95*	0,72	*0,54*	0,92 *0,87*	**3,56** *0,06*
Burial societies	0,82	*0,47*	-0.004	*0,76*	**1,46**	*0,09*	**0,47** *0,001*	0,76 *0,27*	0,87	*0,71*	**+0.045**	*0,06*	1,38	*0,38*	0,60 *0,16*	0,66 *0,27*
Savings & rotating credit societies	1,00	*1,00*	-0.005	*0,72*	1,42	*0,11*	**0,57** *0,02*	0,98 *0,95*	0,62	*0,12*	-0.011	*0,56*	0,84	*0,55*	0,71 *0,21*	1,01 *0,97*
Political parties	0,53	*0,41*	+0.056	*0,20*	1,40	*0,64*	**0,47** *0,32*	1,43 *0,66*	**0,27**	*0,04*	-0.000	*0,99*	0,54	*0,33*	**3,96** *0,08*	1,44 *0,57*

1 Poisson regression co-efficient after adjusting for the effects of age and socio-economic stratum.
Results highlighted in bold are statistically significant (*P*<*0.1*)

Table 4: Age-adjusted odds ratios for behaviours protective against HIV infection in women aged 15-24 years given selected psychosocial attributes

	Not started sex		Monogamous since started sex				Monogamous partner[2]		Avoided HIV infection			
			All[2]		Never married	Ever married[2]			All[2]		Never married	Ever married[2]
Psycho-social attribute:		*p*		*p*	*p*	*p*		*p*		*p*	*p*	*p*
Knowledge about HIV	**1,01**	*<0.001*	1,00	*0,701*	1,00 *0,991*	1,00 *0,649*	NA	-	**1,01**	*0,024*	1,01 *0,116*	1,01 *0,101*
Personal vulnerability	**0,62**	*<0.001*	**0,77**	*0,039*	**0,46** *0,003*	0,90 *0,455*	NA	-	0,91	*0,441*	0,89 *0,670*	0,94 *0,677*
Self-efficacy:												
Possible to avoid HIV	**2,99**	*<0.001*	**1,34**	*0,039*	**2,03** *0,033*	1,22 *0,214*	NA	-	1,23	*0,137*	1,33 *0,381*	1,18 *0,271*
Possible to persuade partner to avoid unprotected casual sex	NA	-	NA	-	NA -	NA -	1,66	*0,003*	**1,33**	*0,047*	**2,58** *0,010*	1,18 *0,300*
N	2.272		1.302		252	1.049	671		2.266		1.195	1.070

[1] Age-adjusted odds ratios for having avoided HIV infection in: (a) women reporting not having started sex *versus* those who have started; (b) women reporting only one sex partner since first becoming sexually active *versus* those reporting multiple partners; and (c) currently married women reporting a partner who does not have extra-marital relationships *versus* those reporting an unfaithful partner are 8.85 ($p<0.001$); 2.80 ($p<0.001$); and 1.77 ($p=0.007$), respectively.

[2] Odds ratio adjusted for age and current marital status: married, divorced or widowed.

NA: not applicable.

Results highlighted in bold are statistically significant ($P<0.1$).

Table 5: Possible determinants of the social capital value of particular community groups

Intra-group characteristics	Inter-group and beyond group characteristics
Composition & diversity of membership	Overlapping memberships
	Interactions with similar & different groups
Frequency and timing of meetings	
Horizontal *versus* hierarchical structure	
Co-operative *versus* conflictual meetings	
Formality of meeting structure	
Open or narrowly focussed meeting agenda	
Meeting setting & alcohol consumption	
External sponsorship	
	Assistance for non-members