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Parental Investment, Club Membership, and Youth Sexual Risk Behavior in Cape Town

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Abstract

This study examines whether parental investment and membership in social clubs are associated with safer sexual behaviors among South African youth. Participants comprised 4,800 randomly selected adolescents age 14 to 22 living in the Cape Town area in 2002. Logistic regression was used to examine associations between measures of parental investment and associational membership with reported condom use at first and most recent sexual intercourse, net of effects of HIV knowledge, age, education, population group, parental coresidence, and household income. Interaction terms were used to examine gender differences in associations between risk behavior and parental investment and between risk behavior and group membership. Participation in clubs and community groups is associated with safer behaviors. A mother's financial support (for clothing, school fees and uniforms, and pocket money) is negatively associated with condom use, particularly among young women, suggesting that material need impels vulnerability to higher risk behaviors. Social resources in households and communities mediate HIV risk behaviors among youth in Cape Town.

Keywords

HIV; AIDS; prevention; control; adolescence; adolescent behavior; Africa; South Africa

This article examines the extent to which family and community resources, specifically parental investments of time and money and membership in social clubs, confer protection against sexual risk taking among young people in Cape Town, South Africa. Although there has been substantial examination of the importance of HIV knowledge, attitudes, and educational attainment to HIV-related sexual risk behavior in adolescents in diverse settings, few studies have examined both the family and peer group contexts of HIV risk behavior for African adolescents. Studies from the United States have provided strong indications of the importance of family and peer group relationships to adolescent risk taking, warranting closer examination of these factors elsewhere. For this purpose, we analyzed 2002 baseline data from the Cape Area Panel Study (CAPS), a longitudinal study of the lives of young adults in metropolitan Cape Town, South Africa. The study covers a wide range of youth outcomes, including schooling, the transition from school to work, family living arrangements, family formation, and reproductive health.

Further examination of the family and community resources that affect young people's sexual risk taking remains an urgent need in the South African setting given the enormity of South Africa's HIV/AIDS epidemic. South Africa has the world's fifth highest prevalence, at 21.5% of the adult population, and it has higher absolute numbers of HIV-infected persons than any

other country (UNAIDS, 2004). Population-based survey data from 2005 indicate that more than 10% of 15- to 24-year-olds nationally (16.9% of women, 4.4% of men) are infected with HIV (Shisana et al., 2005). Risks increase quickly for both genders throughout young adulthood, peaking at 33.3% for women age 25 to 29 and at 23.3% for men age 30 to 34 (Shisana et al., 2005). Hence, the risks incurred by unprotected sex among young people are substantial, and there is a continuing struggle to enhance the effectiveness of interventions that will reduce sexual risk, particularly for young women.

Knowledge of HIV risks and of condom effectiveness is high among South Africa's young people but perceived personal susceptibility and condom use is low, and knowledge and attitudes continue to explain little of the variance in sexual behavior (Harrison, Xaba, & Kunene, 2000,2001;Macintyre, Rutenberg, Brown, & Karim, 2004;MacPhail & Campbell, 2001). The 1998 South African Demographic and Health Survey (SADHS) found condom use during the last sexual intercourse to be 19.5% among 15- to 19-year-old women and 7.6% among 20- to 24-year-olds (Department of Health, 2002). Although South African adolescents' sexual decision making is influenced by the same desires for romance and attachment (Harrison et al., 2001) common to adolescents across many cultures, their sexual relationships also are influenced by the conditions of poverty and social dis cohesion engendered by South Africa's legacies of colonialism and Apartheid and its continued development challenges. Where other forms of capital are limited, sexual relationships hold a more important, and possibly transactional, value, especially for young women, who may exchange sex for basic subsistence and school fees or for consumer goods (Hallman, 2004;Hunter, 2002). In addition, although knowledge of HIV/AIDS and the benefits of condom use is widespread, HIV-related stigma reinforces social power inequities, silence, and shame surrounding the epidemic, hampering prevention efforts (Campbell, Foulis, Maimane, & Sibiyi, 2005).

The literature on stress, risk, and resilience in adolescents has increasingly examined the processes by which children and adolescents cope with adverse life experiences, examining why some young people do "beat the odds" (Haggerty, Sherrod, Garnezy, & Rutter, 1994). Although in the public health literature we may refer to behaviors such as unprotected intercourse or sex with multiple partners directly as risk behavior (as they are indeed associated with a heightened risk of infection with HIV and other sexually transmitted diseases [STDs]), this literature more often conceptualizes these practices as specific behavioral consequences of broader environmental risks to adolescent health and development. Concerned with examining the processes by which stressful events and transitions produce negative behavioral and health outcomes, this literature has shown that global indicators of disadvantage, such as poverty and a single-parent environment, are often intercorrelated. In addition, individuals from disadvantaged environments are both more likely to be exposed to chronic and acute stress and to lack the protective factors shown to buffer their effects. Models of stress and resilience generally classify these protective factors into two groups: personal (including factors such as self-esteem and mastery) and environmental (including factors such as family income and ties to a community of supportive social relationships), yet these groups of resources are interrelated. Specifically, a supportive, intimate attachment to parents has been shown to be important for the formation of positive self-concept, which is in turn associated with health-enhancing behaviors. Whereas self-esteem influences one's ability to garner social support, social support can further protect an individual against environmental insults to one's self-esteem. Following this literature, we posit that the social support provided through memberships in social clubs and the experience of parental investments work together to promote resiliency and buffer against the stressors to which youth in Cape Town are subjected. We cannot directly measure the mechanism by which these resources help to promote safer sexual behaviors among adolescents in Cape Town; however, the developmental literature points to their importance to the development of a positive self-concept, which would be tantamount for the adoption of safer behaviors such as condom use.

Furthermore, an extensive U.S.-based literature suggests that parental characteristics, including marital and cohabitation patterns, attitudes, coresidence and closeness (Axinn & Thornton, 1992, 1993; Donenberg, Wilson, Emerson, & Bryant, 2002; Thornton & Camburn, 1987); communication (Hutchinson, Jemmott, Jemmott, Braverman, & Fong, 2003; Miller, Levin, Whitaker, & Xu, 1998); and monitoring (Donenberg et al., 2002; Li, Stanton, & Feigelman, 2000; Rai et al., 2003; Romer et al., 1994), influence adolescent attitudes toward intimate relationships and sexual risk taking. Family and household influences on adolescent risk behavior in South Africa have only recently been explored (Brook, Morojele, Zhang, & Brook, 2006; Giles, Liddell, & Bydawell, 2005) and suggest the importance of parents and family in influencing adolescent sexual behavior, particularly in rural areas. Poverty has been found to be associated with a more fragile parent-child relationship, which influences risky sexual behavior (via vulnerable personality attributes and associations with deviant peers; Brook et al., 2006). Building on this literature, we have examined the direct role of parental coresidence, time spent with the child, and financial support of the child (controlling for household income) to sexual risk behaviors among urban South African adolescents. We further examine whether these social resources, termed parental investment in this article, are differentially associated with safer sexual behavior among young women and men; we hypothesize that the protective effects of parental investment may be more pronounced for young women.

This article also draws on a literature of social capital that posits that membership in a social group confers benefits and obligations on individuals (Bourdieu, 1986; Hawe & Shiell, 2000) and that behavioral norms circulating within social groups can influence health outcomes of members of those groups (Coleman, 1988; Kawachi, Kennedy, & Glass, 1999; Putnam, 1993). The concept is understood to have both a relational component residing in the social group of which the individual is a member and a material component that relates to the resources (e.g., favors, information, social support, opportunities) conferred to group members (Hawe & Shiell, 2000). In the public health literature on links between social capital and health outcomes, distinctions are made between bonding social capital (of individuals with similar characteristics) and bridging social capital (of individuals with different characteristics but usually a similar social status); an expansion of the concept includes linking social capital or the mechanisms by which links are produced between individuals interacting across power or authority gradients in a society (Szreter & Woolcock, 2004). Empirical studies in Africa in the public health literature have focused on social capital of the bonding type, operationalized as community or social group membership. Research on the importance of bonding social capital for safer sexual behavior is promising; in Zimbabwe, participation in local community groups was positively associated with women's successful avoidance of HIV (Gregson, Terceira, Mushati, Nyamukapa, & Campbell, 2004). Participation in groups may be linked to other opportunities, with enhanced effects; young women with secondary education participate disproportionately in well-functioning community groups and are more likely to avoid HIV when they do participate (Gregson et al., 2004). In this study, we use a measure of adolescents' associational membership (participation in social organizations, including sports and music clubs, church groups, and community organization) similar to measures of bonding social capital used in previous studies.

In the present analysis, we examine whether specific sexual behaviors among South African adolescents are associated not only with membership in peer networks (clubs and organizations) but also with the extent of their relationship with parents—the parental investments of time, intimacy, and emotional and financial support. We have examined whether use of condoms at (1) first sexual intercourse and (2) most recent sexual intercourse are a function of gender, age, population group, education level, household income, HIV knowledge, maternal coresidence and investment, paternal coresidence and investment, and associational membership. This study is the first, to our knowledge, to examine whether specific sexual behaviors among South African youth are associated not only with membership

in peer networks but also with specific dimensions of their relationship to parents, that is, parental investments of time, intimacy, and financial support.

METHOD

Study Participants and Procedures

The data analyzed for this article come from the first wave of data collected in the CAPS from August through December 2002 from interviews with approximately 4,800 randomly selected young people age 14 to 22 years. The CAPS used a two-stage stratified sample. The first stage of selection was to select the sample clusters, or Primary Sampling Units (PSUs), using the 1996 South African Census enumeration areas (EAs) as basic building blocks. The sample was stratified on the predominant population group of the census enumeration area, with strata for the three major population groups in Cape Town: African, colored, and White. A sample of PSUs was selected within each stratum, with probability proportional to size. The probability of selection was roughly twice as high in African and White areas as in colored areas based on a target of producing roughly equal numbers of African and colored young adults and about half as many White young adult respondents. Within each PSU, a sample of 25 screener households was drawn using aerial photographs combined with on-site inspection and updating. All screened households with members age 14 to 22 years were selected into the final sample of interviewed households. After obtaining informed consent from household heads, a household questionnaire was completed, followed by administration of the young adult questionnaire to up to three household members age 14 to 22 years. Three weighting factors have been added to the data to account for the sample design. For greater detail on the study's sample design and data collection procedures, please see Lam and Seekings (2005).

Measures

The dependent variables for the analyses are reported use of a condom at first sexual intercourse and at most recent sexual intercourse. Independent variables included the following 11 characteristics: gender; age (a continuous variable of age 14–22); population group, classified as White, colored, and African (Asians and others are excluded due to small numbers in the sample); educational attainment, classified as expected for age, 1 to 2 years below the grade expected for age, and 3 or more years below the grade expected for age; and household per capita income (from lowest coded as 0 to 3 coded as highest). The income variable was constructed by summing all reported monthly household income (from all sources) and dividing that sum by the number of persons in the household and then dividing the per capita range into quartiles (with lowest income equating South African Rands of 0–R233/month; low-to-middle income, R234–R467/month; middle-to-higher income, R468–R989/month; and highest income, R990–27,810/month). A dichotomous measure of low versus high knowledge of HIV was defined based on responses to three knowledge measures: an individual was coded as having high knowledge if, when prompted to list all of the possible ways that HIV can be prevented, they mentioned the three most important of a list of possible methods: (1) always using condoms, (2) abstaining from sex, and (3) limiting the number of sexual partners or having just one partner.

Coresidence was considered to be a potential proxy for presence of parental monitoring and/or support. From an original variable that measured whether the respondent lived in the same household with his or her mother or father all of his or her life *always*, *sometimes*, or *never*, a new variable was constructed with response categories collapsed to *sometimes* or *never* versus *always* for the mother and father, respectively.

A factor analysis was used on a set of original items to identify domains of parental involvement/investment. Three factors, with item loadings of .65 or higher, were identified:

mother slept under same roof and shared meals in past 12 months; father slept under same roof and shared meals in past 12 months; mother spent time alone with child and shared conversations about personal matters; father spent time alone with child and shared conversations about personal matters; mother spent money on child (for clothing or shoes and provided pocket money); and father spent money on child (for clothing or shoes and provided pocket money). The first domain (mother/father slept under roof in last 12 months) was highly correlated with lifetime parental coresidence, and because lifetime coresidence would be a more appropriate measure for analysis of behavioral risks that may have occurred earlier than the past year, only the lifetime coresidence measure was included in the multivariate models. The second domain, pertaining to intimacy with parents, was not associated with either of the outcomes in bivariate analyses, so this variable also was not included in the final models. The third domain, a measure of the degree to which parents financially support the respondent with small amounts of money (pocket money) and money for school fees and uniforms, was associated with behavioral risks in bivariate modeling, even when controlling for household socioeconomic status. This summary measure was included in the final multivariate model. From an original set of eight response categories for frequency of occurrence of this item (ranging from *daily or almost daily* to *once a week* to *once or twice a year* to *never*), dichotomous values of *never* versus *ever* were constructed.

Finally, matching previously used measures of associational membership (Gregson et al., 2004), a dichotomous variable was constructed for group organization (i.e., whether the respondent reported being a member of any of the following types of organizations or groups: a sports club or team; a study group; a religious group; a singing, music, or choir group; or other youth group). Because each of the items was highly intercorrelated, a collapsed, dichotomous measure was used for final modeling.

Statistical Analyses

We examined whether condom use (1) at first sexual intercourse and (2) at most recent sexual intercourse are a function of gender, age, population group, education level, household income, HIV knowledge, maternal coresidence and investment, paternal coresidence and investment, and associational membership. We also were interested in testing whether the above model is a significant improvement compared to a model that includes only the variables other than associational membership for prediction of the two outcomes. In other words, is parental investment alone (along with background characteristics) predictive of safer sexual behavior of adolescents or does membership in a club or association confer protective effects for adolescents above and beyond parental characteristics? Finally, does protection conferred by these factors vary by gender of the respondent? We used a third model to test whether returns on parental investment are different for men and women to examine whether less financial support from parents may have a differential effect on risk behaviors among men and women.

For two-tailed tests of the null hypothesis where odds ratio = 1, we used a multiple logistic regression model with 10 independent variables to predict each of the dichotomous outcomes (with condom use at first sex and at most recent sex coded as 1) represented as

$$\text{Logit} = \log \left[\frac{p_i}{1 - p_i} \right] = x_i' b$$

where $x_i' b = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + \beta_9 X_9 + \beta_{10} X_{10} + \beta_{11} X_{11}$, with β_1 through β_{11} representing the 11 independent variables in the model.

Because of the study's complex sampling design, we used a survey command in Stata (svylogit) to account for stratification, clustering, and weighting of the data. We carried out logistic regression analyses to examine factors associated with whether a condom was used at the first

sexual intercourse and whether a condom was used at the most recent sexual intercourse. Two models were initially run for each of the outcomes to determine whether including associational membership strengthens the predictive power of the models. A third pair of models was run to test whether gender interacts significantly with maternal and paternal investment, respectively, for the prediction of each of the two behavioral outcomes.

RESULTS

Background of the Adolescents

Table 1 shows sociodemographic characteristics, HIV knowledge, parental residence, and involvement for the sample, including the number and percentage of those who ever had sexual intercourse, used a condom at first intercourse, and used a condom at most recent intercourse within these groupings. Unweighted frequencies and weighted percentages are provided. As shown, women comprised the greater half of the sample, at 54.6%. The multistage sampling strategy used yielded a sample roughly representative of the Cape Town area, with a majority colored (56.1%) followed by African (33.9%) and a smaller proportion of White participants (9.4%); the number of Indian and Other population group members was so small that these groups were excluded from further analyses. The majority of the sample had some secondary education (59.5%); the mean age in the sample was 17.8 years and some 62% were currently in school (data not shown). Data on the expected level of education at age show significant educational disadvantage in the population: the majority (44.3%) is 1 to 2 years below their expected grade level given their current age and more than 26% are more than 2 years below their expected grade level. Poverty in the sample was high: household per capita income, shown in quantiles in Table 1, was highly skewed to the right, with a mean monthly income of R925 and a median of R500 (not shown).

Knowledge of HIV transmission was high, with 94.3% aware of at least one way that HIV is transmitted; 8.1% had high knowledge, having mentioned, when prompted to list all the possible ways HIV is transmitted: (1) always using condoms, (2) abstaining from sex, and (3) limiting the number of sexual partners or having just one partner (among other possible responses offered). A slight majority (51.4%) was involved in any social club or community group.

Coresidence patterns were markedly different by gender of the parent: 60.7% of youth had always lived with their mother, whereas 37.9% had always lived with their father. Whereas 39.3% *sometimes* or *never* resided with their mother during their lifetime, the majority of respondents (62.1%) had *sometimes* or *never* resided with their father in their lifetime. Some 15.7% of the youth were paternal orphans, and 5.6% were maternal orphans (data not shown). Of the 39.3% of adolescents who reported having *sometimes* or *never* resided with their mother, some 13% were maternal orphans (5% of the overall sample); of the 15.7% who *sometimes* or *never* resided with their father, 24% were paternal orphans (4% of the overall sample). Measures of parental involvement in the past year showed a similar pattern, with 72.5% reporting that their mother had slept under the same roof and shared meals in the past year and 49.4% reporting that their fathers had done so. A measure of intimacy with parents also revealed sharp differences between experiences with mothers and fathers, with only 27.4% reporting that their mother had *never* spent time with them alone and conversed about personal matters, whereas 55.9% reported the same with reference to fathers. Maternal and paternal differences narrowed somewhat with reference to items related to parent's financial expenditures for children. Some 60.4% reported that their mother had spent money on them for clothing or shoes and also provided pocket money in the past year; 42.7% reported that their father had done so.

Cross-tabulations of these characteristics with the report of ever having had sexual intercourse and with the condom use measures showed striking group-level differences. Although Africans

were more likely than colored respondents to report having had sex (61.5% vs. 34.2%), they were less likely to report condom use at first sex (30.7% vs. 53.7%) but more likely to report condom use at most recent sex (56.0% vs. 42.9%). Those with a high knowledge of HIV were more likely to have used condoms at first sex (56.4%) and most recent sex (62.7%), but risk perception did not appear to be associated with condom use. Condom use was more prevalent among those who were members of social clubs or community groups; 46.9% of members versus 42.5% of nonmembers reported condom use at first sex, and 59.5% versus 45.3%, respectively, used condoms at most recent sex.

Descriptive findings related to parental characteristics were suggestive of the importance of parental presence and involvement for sexual decision making: Young people whose parents had slept under the same roof and shared meals in the past year were more likely to have used a condom at first and most recent sex compared to those whose parents were often or always absent. Condom use also was greater among those who reported that their father or mother spent money on them for school fees and uniforms and gave them pocket money in the past year. As described in the Method section, a selected number of the variables shown in Table 1 were retained for tests of their associations with the two key outcomes in a series of multivariate logistic regression models.

Multivariate Modeling

We began with multivariate models to examine factors associated with use of a condom at first sex and most recent sex, respectively, including, as key explanatory variables, mother's and father's financial investment in the child but excluding the variable "membership in a social club or community group." We then reran the models with associational membership included to determine whether the addition of this variable suggested an advantage over the first model for predicting condom use at sexual debut and at most recent sex. The *t* test statistic of the associational membership variable in the second set of models was 1.94 for condom use at first sex and 2.22 for condom use at most recent sex, showing that these models provided a stronger prediction of condom use at first and most recent sex than did those that excluded the associational membership variable.

Finally, we examined, in a third set of models, whether gender interacts significantly with paternal or maternal investment in predicting condom use at first sex or at last sex, respectively. Paternal investment was not found to interact significantly with either of the outcomes (these results are not shown) but returns of maternal investment on condom use at first sex were found to vary significantly by gender. Thus, Table 2 shows the findings of the ultimate, most restricted models, with associational membership included in models of both outcomes and a gender interaction term for the modeling of predictors of condom use at first sex.

Predictors of Condom Use at First Sexual Intercourse

Six factors emerged as statistically significant predictors of early safer sex: first, age is negatively associated with condom use at sexual debut; for each additional year of age, the odds of condom use goes down by a factor of approximately .9 (i.e., at a 2-year increase in age, the odds of condom use reduces to .81; at a 3-year increase, the odds reduce to .73; and so on). A positive interpretation of this finding could be that social norms have changed toward acceptance of condom use or that condoms have become more accessible to adolescents over the years, matching the age range of the cohort (1994–2002). This interpretation is plausible given that these were the years in which the HIV/AIDS epidemic grew rapidly, AIDS mortality become widespread, and public response to the epidemic increased. On the other hand, the finding may reflect a greater social desirability bias (favoring report of condom use at first sex) among younger relative to older respondents.

Second, significant differences exist between population groups in condom use at sexual debut. The odds of condom use for the colored population were approximately 60% lower (odds ratio [OR] = 0.37) than for Whites as a reference group. The odds of condom use at sexual debut were even lower for Africans relative to Whites at 0.14.

Net of the effects of population group identity and other factors, household per capita income is positively associated with condom use at sexual debut, but only for the highest income quartile relative to the lowest (OR = 1.83). In other words, the odds of condom use were nearly double for those of highest income relative to the lowest income level group, reflecting the advantage that high income adolescents have in health-enhancing behaviors.

Of note is a finding that a higher versus lower knowledge of HIV prevention methods approached significance at $p = .081$. The finding is suggestive of an association between HIV prevention knowledge and condom use at sexual debut; the odds of condom use would be some 50% higher among those with high HIV knowledge (OR = 1.49). The association of HIV knowledge with condom use is somewhat less significant, however, in the models predicting condom use at most recent sexual intercourse.

Although the returns of paternal investment were nonsignificant, maternal investment appears important for supporting adolescents' safer behavior at first sex, independent of the effects of household income and other factors. The likelihood of condom use at first sex was lower among those for whom mothers did not spend money on clothing or shoes or provide any pocket money in the past year compared to those for whom the mother did provide these necessities. This effect varied significantly by the gender of the respondent. As shown, female gender interacted with maternal investment to decrease the likelihood of condom use at first sex. Controlling for covariates, the estimated odds of condom use at first sex for a woman with no maternal investment are $\exp(-.520) = .594$ times that of a man with maternal investment. Concomitantly, odds of condom use at first sex would be 1.15 for women with maternal investment and 0.90 for men with no maternal investment, relative to men with maternal investment. Thus, the returns on maternal investment for condom use at first sex are especially pronounced for girls and young women.

Finally, membership in a social club or community group was modestly associated with condom use at first sexual intercourse (at a p value of .053). The findings suggest that the odds of having used a condom at first sex may have been 30% higher among young people who participate in a social club or group (OR = 1.33).

Predictors of Condom Use at Most Recent Sexual Intercourse

Turning to the second column in Table 2, the findings of multiple logistic regression models using reported condom use at most recent sexual intercourse were somewhat consistent with the models using condom use at first sex as the dependent variable. A key difference is observed in the importance of sex for predicting recent condom use: women had approximately one third the odds of using a condom at last sex relative to men (OR = 0.323). As with condom use at sexual debut, odds of condom use at most recent sex decrease with age (OR = 0.93). Here, age cohort effects (and secular trends in social norms) would not account for this finding. Results show, unfortunately, that each additional year of age (and potentially, year of potential exposure to HIV) is associated with an almost 10% reduction in the odds of condom use. Findings for the effects of population group identity and household income also differed in the models predicting condom use at last sex. Although colored individuals were significantly less likely than Whites (OR = 0.38) to have used a condom at most recent sex, the findings for Africans were nonsignificant. Whereas findings related to income level were suggestive of a protective effect for the highest income quartile, the difference for this group relative to the lowest income group was nonsignificant. Instead, results show a lower odds of condom use among the low-

to-middle income level group relative to the poorest ($OR = 0.64$). In this model, educational disadvantage was negatively associated with condom use at most recent sex: Those whose grade level was 2 years less than expected given their age had 0.68 the odds of condom use, relative to those who had attained the expected grade level given their age.

As with the modeling of condom use at sexual debut, maternal investment appears to be associated with recent safer sexual behavior among adolescents and young people (as mentioned, preliminary modeling indicated that this did not vary significantly by gender; thus, no interaction term was used). Those whose mothers did not spend money on them for clothing or shoes or did not give pocket money in the past year had 25% lower odds of condom use ($OR = 0.74$) relative to those whose mothers did offer such fiscal support. Finally, in this model, the effect of associational membership was again statistically significant, at a p value of .027. Those who were members of a club or group had 1.38 the odds of those who were not using a condom at the most recent sexual intercourse.

DISCUSSION

In summary, key findings of these analyses were that condom use at last sex was positively associated with participation in community groups and with material support from the mother, and this latter effect was particularly pronounced for girls. These effects were net of lesser effects of racial group, income, and educational attainment.

These findings highlight the vulnerability of adolescents—particularly women—to higher risk behaviors and situations that may in part be engendered by material need. Literature from the United States (and Spain) indicates that among the various dimensions of family social support, positive family communication and connectedness is probably most important to adolescent sexual self-care or avoidance of risk (Dittus & Jaccard, 2000; Parera & Suris, 2004; Resnick, Harris, & Blum, 1993), and at least one study has found this influence to be more important for daughters than for sons (McNeely et al., 2002). Although our data did not find a significant association between time spent together to discuss personal matters and sexual risk taking, this may reflect, in part, the fact that we had no indicator of the quality of communication.

Our finding of a protective effect of club membership against sexual risk taking is consistent with findings from the United States (Oman, Vesely, & Aspy, 2005; Ramirez-Valles, Zimmerman, & Newcomb, 1998) and Zimbabwe (Gregson et al., 2004). In the United States, young people's participation in "prosocial activities," that is, group activities with school, church, or community, is found to be directly associated with a reduction in sexual risk behavior (Ramirez-Valles et al., 1998) or the odds of having sex (Oman et al., 2005). The findings of this study suggest that community groups and social clubs have a critical role to play in providing South Africa's youth a site for resistance to the social norms that reinforce young people's—particularly young women's—vulnerability to HIV infection.

Population group differences were significant: Africans were the least likely to use condoms at first sex, yet their condom use rates at most recent sex were significantly higher than those of colored respondents and were similar to Whites. The latter finding is consistent with recent evidence of higher reported condom use at last sex among Africans in South Africa, relative to those from the colored or White population (Shisana & Simbayi, 2002). It is possible that HIV prevention campaigns have had greater resonance among African than colored young people in the Cape Area, consistent with the higher population risk of HIV among Africans (Shisana & Simbayi, 2002). It is also possible that HIV prevention and condom promotion have been more effectively targeted and delivered to those at higher risk. However, these interpretations are speculative, pointing to the need for further research into the effectiveness of prevention messages in specific areas of the Western Cape.

Women were about as likely as men to report use of a condom at first sex but had approximately one third the odds of men of having used a condom at last sex. Because a condom is a male-controlled method and most studies in this literature show higher reported condom use among men than among women (Hulton & Falkingham, 1996), the finding on condom use at most recent sex is not surprising; however, this raises questions about the lack of a significant gender difference in reported condom use at first sex. Possibilities for greater social desirability bias for women relative to men cannot be ruled out, and neither can the possibility that there are greater obstacles for girls to negotiate condom use as they get older.

Study Limitations

This study is subject to some limitations related both to its design and to the measures used to address the questions addressed. First, as a cross-sectional study, criteria for causality, in terms of an effect of parental investments and club membership on reduced sexual risk behavior, cannot be met. Indeed, the structure of our study does not permit us to ascertain whether those who are predisposed to use condoms also would be more likely to be members of a social club or group, reflecting a prior disposition to self-efficacy. Participation in social clubs and community groups may be endogenous, but behavioral and learning theories (Bandura, 2001; Ramirez-Valles, 2002) suggest that involvement in a supportive peer social network could confer protection by enhancing self-esteem through identification with a peer network; by providing exposure to positive social norms and “vicarious self-efficacy” for health-enhancing behaviors such as condom use; or simply by enhancing access to information, resources, and peer advice. This study is suggestive of such an influence but more definitive conclusions can be drawn only after further research is undertaken. Our findings point to the need for a longitudinal study on whether the uptake of involvement in social clubs is beneficial for reduced risk behavior in South African youth, holding family and background factors constant.

Second, measures of condom use are suggestive but inevitably unconfirmed measures of risk behavior because all data on reported sexual behavior are subject to social desirability bias. The definitive measure of risk, of course, would be HIV test status, but such data were not collected as part of the CAPS study. However, a growing number of behavioral surveys that include both reported condom use and HIV status affirm the reliability of self-reported condom use. Recent studies confirm that nonuse of condoms is a risk factor for incident HIV infection among young people in South Africa (Rehle et al., 2007) and prevalent infection elsewhere in the region (Mmbaga et al., 2007; Voeten, Egesah, Varkevisser, & Habbema, 2007). The relationship between condom use and HIV infection can suffer from problems of bidirectionality (e.g., see Kajubi et al., 2005). However, longitudinal studies and meta-analyses of population-based studies have provided strong evidence of the association between condom use and declines in HIV prevalence (Kirungi et al., 2006; Sandoy, Michelo, Siziya, & Flykesnes, 2007; Stoneburner & Low-Beer, 2004). Future research studies would be strengthened by prospective examination of the associations between the key measures of parental investment and associational membership and direct measures of HIV infection among young men and women in South Africa and elsewhere.

Implications for Practice

Its limitations notwithstanding, this study’s findings have implications for HIV prevention programs and policies in South Africa, particularly for the Western Cape populations represented by the CAPS. Researchers have pointed to the positive role of collective action by socially marginalized groups, such as young people, in promoting positive social norms and combating the stigma surrounding HIV/AIDS (Campbell et al., 2005). This study reinforces theories that adolescent health behaviors can be improved in some settings by enhancing social and community opportunities for young people. The findings also suggest that bonding social

capital provided by associational membership is only one dimension of health-enhancing social capital for adolescents: Parents also have a crucial role to play in reducing risk behavior of youth. In the context of Cape Town, South Africa, the study underscores the significance of parental material support to adolescents associated with safer sexual behaviors among youth. The adage “talk to your children” may not, alone, be adequate in this context. Whether this observed effect measures the importance of parents being enabled to meet the practical needs or the psychosocial needs of their children is beyond the scope of this study. Overall, the findings reinforce the dual importance of HIV prevention programs that support youth both through the creation of social networks and also through programs that promote and enable family support.

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Table 1

Selected Sexual and Reproductive Health Outcomes by Sociodemographic Characteristics, HIV Knowledge, Social Group Membership, and Parental Characteristics (Unweighted Frequencies and Weighted Percentages)

Characteristic	Total		Ever Had Intercourse		Used a Condom at First Sex		Used a Condom at Last Sex	
	n	%	n	%	n	%	n	%
Sociodemographic characteristics								
Gender								
Male	2,095	45.4	947	43.4	421	49.0	617	64.7
Female	2,569	54.6	1,174	42.7	468	40.4	517	40.1
Population group								
African	2,116	33.9	1,297	61.5	398	30.7	729	56.0
Colored	1,943	56.1	656	34.2	351	53.7	285	42.9
Indian	22	0.5	5	23.5	2	49.2	2	49.2
White	568	9.4	158	29.7	134	82.5	115	74.5
Other	6	0.1	3	50.0	2	66.7	1	33.3
Education level								
None or some primary	448	8.8	147	32.5	52	38.1	71	49.1
Completed primary (<i>SD</i> = 5)	541	11.9	173	31.3	55	35.7	88	50.2
Some secondary	2,764	59.5	1,288	43.0	507	42.3	661	48.7
Completed secondary (<i>SD</i> = 10/matric)	716	15.6	405	55.5	214	53.9	242	56.6
Any tertiary	181	3.9	101	54.2	57	54.7	69	68.9
Other/don't know	14	0.3	7	45.1	4	57.1	3	42.9
Age-adjusted education level								
At expected grade	1,343	29.67	572	40.3	310	54.8	347	58.6
1–2 years below expected, for age	2,064	44.32	780	34.2	318	44.0	431	53.5
3 or more years below expected, for age	1,257	26.01	769	61.0	508	37.0	356	43.9
Household per capita income, in quartiles ^a								
Lowest income (R0–R233/month)	1,065	22.2	611	54.9	185	31.4	331	47.7
Low-to-middle income (R234–R467/month)	1,035	24.1	545	49.3	183	35.6	259	54.9
Middle-to-higher income (R468–R989/month)	945	26.5	402	39.8	177	47.0	191	55.8
Highest income (R990–R27,810/month)	1,081	27.3	357	33.2	236	65.8	226	38.0

Characteristic	Total		Ever Had Intercourse		Used a Condom at First Sex		Used a Condom at Last Sex	
	n	%	n	%	n	%	n	%
HIV knowledge								
Know at least one effective way to prevent HIV	4,410	94.3	2,031	43.6	868	45.2	1,103	52.2
Know to "always use condoms" can prevent HIV ^b	3,993	84.9	1,935	33.6	816	20.3	1,053	23.9
Know to "abstain from sex" can prevent HIV ^b	1,920	41.8	680	32.0	315	15.2	394	17.8
Know to "limit number of partners" or "have only one partner" can prevent HIV ^b	988	21.5	510	49.2	234	23.4	277	5.4
Know all three of the above methods: high knowledge	360	8.1	151	40.1	83	56.4	98	62.7
HIV risk perception ^c								
Believe himself/herself to be at no risk of HIV	2,622	55.9	1,095	39.6	466	44.5	601	51.8
Believe himself/herself to be at least some risk of HIV	1,758	38.4	877	46.9	379	45.7	479	53.4
Don't know	263	5.7	137	48.7	41	36.0	50	35.5
Participation in social groups ^d								
Participate in any social club or community group	2,505	51.4	984	35.8	436	46.9	595	59.5
Do not participate in any social club or group	2,159	48.6	1,137	50.7	453	42.5	539	45.3
Parental residence								
Coresided with mother during his/her life								
Always	2,612	60.7	892	33.3	455	52.7	520	55.2
Sometimes	1,884	36.9	1,138	58.0	402	37.1	573	48.2
Never	101	2.4	49	46.7	18	39.5	22	43.9
Coresided with father during his/her life								
Always	1,606	37.9	473	29.2	258	56.8	289	58.3
Sometimes	1,785	36.6	983	52.7	385	40.8	508	49.0
Never	1,178	25.5	609	48.5	229	39.9	312	49.4
Parental connection, past 12 months								
Mother slept under same roof and shared meals								
Daily or almost daily	3,078	72.5	1,166	36.2	548	49.2	665	54.6
Once or twice a year to once a week	824	16.8	506	59.6	194	40.7	272	51.9
Never	484	10.7	300	57.9	95	34.2	129	40.8
Father slept under same roof and shared meals								
Daily or almost daily	1,869	49.4	630	32.1	301	50.0	373	57.2

Characteristic	Total		Ever Had Intercourse		Used a Condom at First Sex		Used a Condom at Last Sex	
	n	%	n	%	n	%	n	%
Once or twice a year to once a week	665	15.4	342	49.3	153	46.8	191	53.7
Never	1,341	35.2	677	47.5	268	42.3	335	46.8
Mother spent time with him/her alone and had conversations with him/her about personal matters								
Daily or almost daily	879	19.7	372	40.5	159	44.4	204	51.5
Once or twice a year to once a week	2,305	52.9	1,019	41.7	466	48.3	557	52.7
Never	1,191	27.4	577	45.7	213	39.8	303	50.9
Father spent time with him/her alone and had conversations with him/her about personal matters								
Daily or almost daily	419	10.1	166	37.5	66	43.2	95	55.2
Once or twice a year to once a week	1,331	34.1	509	36.3	255	51.4	297	56.1
Never	2,100	55.9	959	43.1	397	44.2	501	49.9
Mother spent money on him/her for clothing or shoes and gave him/her any pocket money								
Yes	2,663	60.4	971	33.2	458	50.0	580	58.8
No	1,717	39.6	1,000	56.9	382	40.8	488	45.9
Father spent money on him/her for clothing or shoes and gave him/her any pocket money								
Yes	1,694	42.7	553	29.9	266	50.2	331	59.1
No	2,156	57.3	1,084	47.9	455	44.6	565	49.2

NOTE: Data are row percentages adjusted for sample design effects. Unless otherwise shown or noted, responses coded as "don't know," refusal/nonresponse, or missing are excluded from analysis. Data on the number and percentage of individuals who used a condom at first and most recent sex are restricted to the sexually active population ($n = 2,121$).

^aHousehold income data are missing for 538 individuals.

^bRow percentages account for missing data (i.e., the percentages shown are among the total number sexually active, not just of the total that provided a response to the item) because multiple responses were possible for questionnaire items on ways to prevent HIV.

^cVariable excludes eight missing, seven nonresponse/refusals, and six reported HIV-positive.

^dIncludes membership in a sports club or team, study group, religious group, dancing/singing, music or choir group, or other youth group.

Table 2
Multivariate Logistic Regression Analyses of Associations Between Sociodemographic Characteristics and Lower Risk Sexual Behavior: Use of a Condom at First and Most Recent Sexual Intercourse

Independent Variable	Condom Used at First Sexual Intercourse		Condom Used at Most Recent Sexual Intercourse	
	OR	95% CI	OR	95% CI
Gender (Female)	1.145	0.774 1.695	0.325***	0.246 0.429
Age	0.909**	0.849 0.973	0.927*	0.865 0.992
Population group				
White				
Colored	0.365**	0.180 0.740	0.381***	0.216 0.670
African	0.140***	0.066 0.298	0.826	0.453 1.508
Age-adjusted education level				
At expected grade				
1-2 years below expected grade	0.936	0.673 1.301	0.853	0.611 1.190
≥3 years below expected grade	0.817	0.599 1.113	0.675*	0.458 0.995
Household per capita income				
Lowest income level				
Low-to-middle level	0.884	0.639 1.223	0.638**	0.459 0.885
Middle-to-higher level	1.262	0.842 1.891	0.856	0.586 1.251
Highest income level	1.831**	1.157 2.897	1.302	0.797 2.128
High HIV prevention knowledge (vs. lower)	1.486	0.952 2.318	1.503	0.938 2.408
Coresided with father: Always				
Sometimes or never	0.950	0.643 1.403	0.791	0.562 1.112
Coresided with mother: Always				
Sometimes or never	0.857	0.604 1.215	0.865	0.624 1.198
Father did not spend money on him/her for clothing or shoes/gave pocket money (vs. spent money)	1.011	0.750 1.363	1.159	0.875 1.535
Mother did not spend money on him/her for clothing or shoes/gave pocket money (vs. spent money)	0.900	0.614 1.320	0.744*	0.562 0.984
Member of any social club or community group	1.329*	0.996 1.773	1.377*	1.038 1.827

Independent Variable	Condom Used at First Sexual Intercourse		Condom Used at Most Recent Sexual Intercourse	
	OR	95% CI	OR	95% CI
Female × Mother did not spend money on her	0.594 [*]	0.363	0.974	—

NOTE: OR = odds ratio; CI = confidence interval.

^{*} $p \leq .05$.

^{**} $p \leq .01$.

^{***} $p \leq .001$.