

Norms Governing Urban African American Adolescents' Sexual and Substance-Using
Behavior

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Validity and Dimensions of Norms

Urban African American youth are at high risk for STIs (e.g., Ellen et al., 2005; Valleroy, MacKellar, Karon, Janssen, & Hayman, 1998) and are more likely to be represented among adolescent HIV/AIDS cases (Centers for Disease Control and Prevention, 2012). To date, the impact of HIV/STI public health programs in these communities has been modest. A potential weakness of past programs and the theories that underlie them is a lack of conceptual work on the complexities of social norms within the context of social development and community social structure.

Social norms are important to adolescent health (e.g., Benda & Diblasio, 1994; Brechwald & Prinstein, 2011; Romer et al., 1994; Valente, 2010) and the modification of social norms is central to community-level health promotion (Catania, Coates, & Kegeles, 1994; Crosnoe & McNeely, 2008; Lapinski & Rimal, 2005; Latkin et al., 2009). HIV/STI interventions frequently focus on changing social norms that govern sexual risk and related behaviors (Dolcini, Harper, Boyer, & Pollack, 2010; Feldman, O'Hara, Baboo, Chitalu, & Lu, 1997; Fisher, Kimble, Misovich, & Weinstein, 1998; Kirby, 2001; Rothenberg & Holmes, 2001; Stanton et al., 2002). Consequently, it is important to gain a better understand the norms that influence health risk behaviors. The present study examined the validity, interconnectedness, homogeneity, strength, stability, and community variation in friendship-based norms governing risk behaviors for African American adolescents living in a poor urban neighborhood. The long-term goal of this work is to develop tailored interventions that modify norms and reduce risk behavior.

Defining and Measuring Norms

Although norm-related concepts are integral to most health promotion models, the complexity of norms is infrequently considered (see Donnelly, Vaske, Whittaker, & Shelby, 2000; Etzioni, 2000; Hechter & Opp, 2001a, 2001b; Rimal, 2008; Risjord, 1998; Verkooijen, de Vries, & Nielsen, 2007), and there is little empirical work to guide the selection of concepts and measurement strategies. Norms may operate on multiple social psychological levels (i.e., expectations, values, social rules; Horne, 2001; Lapinski & Rimal, 2005) and with respect to different levels of social connectedness (e.g., reference group norms at the friendship, neighborhood, or societal levels). Moreover, norm assessments may include either descriptive (i.e., perceptions of what is) or injunctive (i.e., what ought-to-be) approaches, and may be conducted at individual or network levels. Finally, there is some uncertainty about the extent to which social norms govern behaviors that occur almost entirely under private circumstances (e.g., sexual behavior).

Typically, studies that address sensitive or private behaviors assess individual-level perceptions of an assumed reference group norm (e.g., Arrow & Burns, 2004; Borsari & Carey, 2001; Fishbein et al., 2001; Lapinski & Rimal, 2005; Norris & Ford, 1998; Richard, Bell, & Montoya, 2000; Stanton et al., 2002). However, perceived norms may reflect a false consensus; that is, perceptions of group activity may simply be products of one's own behavior, rather than reflecting the social norm (Ross, Greene, & House, 1977). Alternately, an individual may fail to perceive an existing norm (Rimal, 2008), such that a group member does not consciously recognize a norm, but his or her behavior is affected by norm-related social rewards or sanctions. These shortcomings may be addressed by obtaining norm data from multiple members of a given reference-group (Latkin et al., 2009; Rothenberg & Holmes, 2001).

Research on reference group norms should focus on norms associated with meaningful relationships (Campo et al., 2003; Dolcini & Adler, 1994; Dolcini et al., 2010). Friendship groups are important during adolescence (Brown, Dolcini, & Leventhal, 1997; Savin-Williams & Berndt, 1990) and urban African American youth report close longstanding friendships (Dolcini, Catania, & Harper, 2005). Thus, the current examination of norms is focused on friendship groups.

Norm Properties and Health Promotion

Norm relatedness/sets. Building on earlier theorists, Rahav (1984) hypothesized that sets of inter-related norms converge to pattern behavior. For example, a set of related norms for acceptable public behavior is seen in how North Americans queue in public; individuals form a single line, do not push or cut in, and save places for individuals who have to temporarily exit. From a health promotion perspective, it is important to understand whether targeted behavior is governed by sets of related norms; Interventions may have a diminished impact if they are directed at only part of the relevant normative set. Norms governing adolescent sexual behavior maybe independent or may reflect an inter-related normative set that includes substance use norms. A set perspective is suggested by the frequent co-occurrence of adolescent sex and substance use. For instance, adolescent substance use may occur in conjunction with sex to enhance sexual pleasure or cope with life stressors (He, Kramer, Houser, Chomitz, & Hacker, 2004). Thus, norms governing sexual behavior and substance use are likely to be correlated and associated with similar outcomes. However, not all drug or alcohol use occur in the

context of sex. Thus, we anticipated that drug and sexual norms would be more strongly associated with their domain specific outcomes than with the co-occurring behavior.

Norm homogeneity and strength. Norm homogeneity reflects the extent to which reference group members hold similar normative expectations. Norm strength reflects the intensity with which members adhere to normative positions (e.g., a strongly pro-drug norm). Greater norm homogeneity and strength should be related to greater behavioral conformity among friends. For instance, when group members uniformly support a strongly pro-condom norm, it is likely that members use condoms regularly. Such norms would support sexual health promotion programs. Conversely, condom norms that are highly homogeneous and negative would pose barriers to condom use interventions.

Community-level norms. Community-level norms are relevant because sexual health programs often target community-level change through diffusion (Latkin et al., 2009; Rogers, 1995). Information about community-level norms can be obtained by aggregating friendship group norms. High levels of norm homogeneity across friendship groups suggest a strong community-level norm, whereas high variability reflects a weaker community norm. Understanding homogeneity across reference groups is important because adolescents may have multiple reference groups (Brown, 1990; Dolcini & Adler, 1994; Verkooijen et al., 2007) and the norms of all these groups may be relevant. Additionally, adolescents are in a period of exploration that may heighten the impact of “out-group” norms. Taken as a whole, the degree of homogeneity in norms across friendship networks is viewed as representing the strength of community-level normative influences.

Norm stability. Norm stability reflects the extent to which norm homogeneity and strength remain constant over time. Changes in friendship group membership may influence norm stability, but prior research has not directly addressed this issue. Highly fluid groups may experience norm change, thus reducing norm stability. Alternatively, norms may be resistant to changes in composition. For instance, incoming group members may be subject to the same expectations as existing members. In addition, new group members may be selected by or attracted to groups on the basis of shared values (e.g., Kandel, 1978; Matsueda & Anderson, 1998).

Thus, the fluidity observed in adolescent friendship networks (Savin-Williams & Berndt, 1990) may impact health promotion efforts that rely on norm change. For instance, difficulties in sustaining gains in condom use (e.g., Fisher, Fisher, Bryan, & Misovich, 2002; Johnson, Carey, Marsh, Levin, & Scott-Sheldon, 2003) may reflect changes in adolescent reference groups, and subsequent diminishment of group-level pro-condom norms. In their longitudinal investigation, Fang and colleagues (Fang, Stanton, Li, Feigelman, & Baldwin, 1998) found lower stability in expectations around use of condoms at follow-up, suggesting an erosion of pro-condom norms. However, they did not examine friendship group mobility, so it is unclear if group change lead to norm instability.

Norms and Social Stratification

Finally, social stratification of norms may be relevant to health promotion. Sociologists describe three societal stratifications regarding sexual behavior and values, that they label traditional (e.g. conservative), relational, and recreational (Lauman,

Gagnon, Michaels, and Michael, 1994). And, research on African American youth found that sex related norms vary in strength across different social strata (Reed et al., 2012). Thus, interventions may need to be tailored to community segments (Brown et al., 1997; Latkin et al., 2009). For example, youth who regularly attend school and church represent a different social segment than youth who are truant, non-church attendees; their risk behaviors differ (McCree, Wingood, DiClemente, Davies, & Harrington, 2003; Wallace & Williams, 1997) and they probably hold differing norms.

The Current Study

The current investigation examined friendship-based reference group norms that govern sexual health and substance use (i.e., sexual recreation, condom, and drug norms) and are relevant to HIV/STI transmission. Specifically, the current study examined perceptions of norms by friendship group members, addressed the validity of network norms (i.e., Do they predict the behavior of individuals in the group?), and describes properties of norms relevant to sexual health promotion (e.g., inter-relatedness, stability). In addition, we examined the extension of reference group norms to community-level norms.

Based on prior work and parallel to larger societal divisions in sexual behavior and values (Laumann, Gagnon, Michael, & Michaels, 1994) we expected to observe two large strata, reflecting (1) low and (2) moderate endorsement of sex and drugs, and (3) a smaller strata with high endorsement of sex and drug use. We hypothesized that the three behavioral strata would reflect traditional, moderate, and highly positive (i.e., recreational) sex and drug use norms, respectively. Further, we hypothesized that condom norms would be strong only among groups moderate on the recreation norm scale. That

is, traditional groups would not use condoms because, in general, they are more sex negative, while the highly positive sex groups might view condoms as counter to their focus on recreation and pleasure.

In summary, the present study aims to address relevant issues concerning norms and norm properties in a longitudinal sample of urban African American friendship groups. To the best of our knowledge, despite considerable attention to the issues of norms in health promotion, no studies to date have examined sexual and substance use norm properties among adolescents.

Method

Recruitment and Procedure

The present investigation was part of a longitudinal study examining social development and risk behavior among urban African American youth. The institutional review board (IRB) at the sponsoring institution approved study procedures. Participants were recruited through random digit dialing from a specific zip code defining an urban neighborhood in San Francisco to obtain a representative sample of African Americans aged 14 to 18. African American adolescents in this neighborhood have the highest rates of sexually transmitted infections in the city (Ellen et al., 2005; STD Control Section, 2009).

In the initial screening, 70% of contacted households agreed to cooperate (see Dolcini et al., 2005). This cooperation rate is in line with studies of ethnic minority urban households using similar techniques (e.g., Duncan, Strycker, Duncan, He, & Stark, 2002; Ellen et al., 2005). Participants over age 18 and parents, for those under 18, provided

informed consent, and all youth under 18 assented. Youth received remuneration for participation in the study. Of the 119 individuals recruited via telephone from the initial probability sample, 91 (76%) subsequently completed an interview with a gender-matched interviewer. These friendship-network seeds identified 333 close friends, 111 of whom were successfully recruited for the study. Friends qualified for participation if they were aged 13-21 years and lived in or near the study neighborhood. Initial eligibility was determined by the seed, and confirmed by recruited friends. The 91 seeds and 111 friends completed an in person baseline interview and 81% participated in a 1-year follow-up interview (163/202).

Sample Characteristics

Descriptive data on the initial probability sample of youth (seeds), the enumerated friendship networks, and of the close friends sample (subsample of enumerated friends) have been reported previously (Dolcini et al., 2005). In general, the close friend sample parallels the enumerated list of friends in terms of age, place of residence, gender, friendship length and quality, and proportion of friends spending time together on weekends. On average, friendship groups included about four youth and over 90% were same gender, as is typical for adolescents (Ennett & Bauman, 1996; Urberg, Değirmencioğlu, Tolson, & Halliday-Scher, 1995).

For the present analyses, we limited the sample to friendship groups for which we had a seed and corresponding data on at least one friend. This reduced the baseline sample from 202 to 167 respondents, representing 57 friendship clusters. The respondents in the 57 friendship groups did not significantly differ from the original sample on gender, employment status, neighborhood residence, mean age, relationship length, the

proportion of friends youth hang out with on weekends, network size, or friendship quality (see Table 1). The demographic, norm, and behavioral measures were embedded in a larger interview on health and sexual health (available from the authors).

Norm scales. The items for the norm measures were scored or reverse scored so that higher scores reflected supporting more risky practices and then summed to produce a total score. Table 2 presents psychometric data, which support the reliability and validity of the three scales reflecting recreation norms, condom norms, and drug norms. The recreation scale was so named to reflect a greater normative emphasis on personal pleasure to the exclusion of sexual health.

Friendship characteristics. Friendship characteristics included network size, average length of friendships, and days of the week that friends spent time together. Friendship quality was assessed with a 7-item measure (Dolcini et al., 2005) (Cronbach's Alpha = 0.76).

Substance use. We examined cigarette, alcohol, and other drug use. We dichotomized substance use items because a relatively small proportion of the sample reported high levels of use,

Cigarette smoking was categorized into regular use (weekly/daily smoking, 12%) vs. irregular/nonuse (1/month or less, 88%) to distinguish smokers from experimenters and nonusers.

The drug and alcohol use variable was categorized to reflect regular use and problematic use patterns vs. experimentation/nonuse (alcohol use with friends and alcohol use alone 1/month to almost every day vs. a few times in lifetime to nonuse; smoked marijuana/weed 1/month to almost every day vs. a few times in lifetime to

nonuse). For potentially more dangerous drugs (e.g., crack/cocaine, speed, LSD), any use was considered problematic (almost every day to at least once vs. never). We aggregated across drug/alcohol use; users were scored as 1 (44% of respondents) while the reference category was zero drug use or very low experimental marijuana or alcohol use (56% of respondents). Self-report measures of substance use are valid and reliable assessments of adolescent behavior when confidentiality is assured, the instrument is well constructed, and privacy is adequate, as was the case here (see Fisher et al., 2002; Johnston & O'Malley, 1985).

Sexual behaviors. For the present analyses we selected the most broadly relevant indicators of sexual transition (virginity status), and sexual risk for HIV/STIs (condom use during vaginal or anal intercourse, numbers of sexual partners).

Virginity status was defined as nonvirgin (67%) vs. virgin (33%, reference group = 0) reflecting experience with vaginal or anal intercourse.

We assessed frequency of condom use during vaginal and anal intercourse, and frequency of vaginal and anal intercourse in the past year for each of participants' three most recent sexual partners. We aggregated across partners and computed the overall percent condom use. For analytic purposes, we categorized condom use into inconsistent/nonuse (31% of sexually active participants) vs. consistent use (all the time, reference group = 0; 69% of sexually active participants) during vaginal and/or anal intercourse.

Multiple sexual partners was defined as having two or more sexual partners (involving anal or vaginal intercourse) in the past year; 35% reported multiple partners. We categorized sexually active respondents into those with multiple vs. only one sexual

partner (reference group = 0). Prior work has shown, that within the limits of self-reported behavior, measures of adolescent sexual behavior are reliable (Catania, Gibson, Marin, Coates, & Greenblatt, 1990).

Results

Norm Relatedness/Sets

Scale characteristics. We conducted exploratory factor analyses using Oblimin rotation to allow for correlated factors to examine the extent to which the three norm measures reflected independent norms at the item level. The results (Table 2) indicated that items hypothesized to be indicators for each norm loaded on three distinct factors. One minor exception was an item from the condom norm measure (loading > 0.30 on the drug norm factor). However, this item has a substantially larger loading on the condom norm factor. The factor analyses suggest that the three norm scales measured correlated, but independent constructs.

Table 2 also shows the scale means, standard deviations, and the Cronbach's Alphas for each scale at baseline. All three scales evidence good internal reliability at baseline and 12 months, (Cronbach's Alphas at follow-up; recreation norm = .83, condom norm = .76, and drug norm = .84, suggesting they are psychometrically stable over one year.

Next we examined the inter-norm correlations. The drug and sexual recreation norm scales were moderately correlated ($r = .51, p = .001$), while more modest correlations were found for the condom and recreation norm scales ($r = .29, p = .01$) and the condom and drug norm scales ($r = .26, p = .01$). These results suggest that, as anticipated, the three norms form a moderately inter-related normative set.

Scale validity. To examine the validity of the norm scales, we investigated the relationship between group-level norms and individual-level behavior. We computed the relationship of the friendship group norms to sexual and substance using behavior of each group's seed (i.e., index case). We selected the seeds' baseline behavior as the methodologically appropriate target for analytic purposes because these respondents were selected from a probability sample and therefore, are most likely to be unbiased representatives of the community. We examined smoking, drug/alcohol use, virginity status, multiple sex partners, and inconsistent condom use (see Table 3). The mean norm score for each friendship group was used to represent the group norm. An Empirical Bayes estimation was used to correct for differences in group size in computing group means for recreation and drug norms. In contrast, group mean values for the condom norm were extremely homogeneous and did not require adjustment.

Univariate logistic models. At the univariate level, sexual recreation, condom, and drug norms all had significant behavioral outcomes in common, as well as unique relationships to other outcomes (see Table 3). For instance, all three norms were correlated with virginity status: more positive recreation, drug, and condom norms were associated with being sexually experienced. In contrast, only the drug norm was related to cigarette smoking, with more positive drug norms associated with higher use. And, only the condom norm was associated with condom use; higher anti-condom norms were correlated with inconsistent condom use. At least two of the norms were significantly associated with each one of the other behavioral outcomes (i.e., drug and alcohol use, multiple sexual partners).

Multivariate logistic models. In instances where multiple norms were significantly correlated with an outcome (i.e., virginity status, multiple partners, and substance use, we examined their relative contributions using multivariate logistic regression. Condom use was not examined in a multivariate model because only the condom norm was related to that outcome, and a multivariate model was unwarranted.

In the multivariate models, independent variables were entered with more theoretically proximal causes entered last in order to control for the less proximal variables (e.g., the drug norm measure was entered last in the substance use model). All models included all three norm measures. For virginity status and multiple sexual partners, only the recreation norm was statistically significant (ORs [95% CI], respectively = 1.3 [1.05,1.64], $p = .01$; 1.5 [1.1,1.9], $p = .002$) relative to other norms in the models (all p values $> .10$). In the substance use model, only the drug norm was significant (OR [95% CI] = 1.7,[1.29, 2.27], $p = .001$).

Norm Homogeneity and Strength (Level)

Table 4 provides data on the homogeneity (Intra Class Correlations [ICC]) and strength (mean level) of the three norms for the friendship groups ($n = 57$ groups).

We were interested in the homogeneity of mean scores for norms *between* the clusters in our sample, as opposed to the more typical assessment of variability in scores among members within clusters. Since ICC values, which vary from 0 to 1, represent the within group variation over the total variation (McGraw & Wong, 1996), in this study they reflect the degree of homogeneity between friendship groups (e.g., a value of 0 = complete homogeneity). The ICC values and corresponding 95% confidence intervals were computed using STATA (StataCorp, 2001). P-values were obtained by dividing the

ICC by the asymptotic standard error to obtain large sample Z statistics that test whether the ICC is zero in the population from which the sample was drawn.

Although we can test ICC values for statistical significance, there are not guidelines for interpreting whether the ICC values reflect high, moderate, or low homogeneity. To compensate for the lack of guidelines for categorizing ICC values, we constructed four equal interval ICC categories that provide a working metric: very homogenous (ICC range .00 - .25), moderately homogenous (ICC range .26 - .50), low homogeneity (ICC range .51 - .75), and very low homogeneity (ICC range .76 – 1.00).

Condom norms. The condom norm ICC values were not statistically significant from zero, reflecting a strong degree of homogeneity. That is, friendship groups held similar beliefs regarding condom use. In terms of normative strength, friendship groups were strongly pro-condom. Overall, scores fell within one standard deviation (SD) of the mean and ranged from a very pro-condom value of 1.02 to a moderately pro-condom value of 2.04. Thus, friendship groups reflected consistently homogeneous norms that were generally pro-condom, indicating a high degree of conformity at the community level.

Recreation norm and drug norm. In contrast to the condom norms, the ICC values for the recreation and drug norms were both significant.(Table 4), reflecting moderate homogeneity. In terms of norm strength, mean drug norm scores within 1 SD of the grand mean (across groups) range from a strongly anti-drug mean score of 1.21 to a weaker anti-drug mean score of 2.95. Mean recreation norm scores within 1 SD of the grand mean range from a strong anti-recreation value of 1.34 to a moderate anti-recreation value of 2.26. Thus, the recreation and drug norms have somewhat greater

variability in normative strength and homogeneity than the condom norm (see Figure 1). In total, these findings suggest that, at the community level, there is less conformity on sexual recreation and drug using norms compared to the condom norm.

Gender differences in group norms. We also examined norm homogeneity separately for male and female friendship groups, excluding mixed gender groups (10% of friendship groups were mixed gender). Males and females were similar in terms of norm homogeneity on the condom and drug norm (data available from authors), but appeared to differ on the recreation norm. Female friendship groups evidenced a very homogeneous sexual recreation norm ($ICC = .17, p > .10$) and male friendship groups showed more moderate homogeneity ($ICC = .40, p < .05$). There was also a significant gender on mean values for the sexual recreation norm ($t = 5.84, p < .0001$; M 's [SD] respectively = 2.29 [.49], and 1.52 [.46]), with males expressing a stronger sexual recreation norm.

Norm Stability

The longitudinal nature of the study allowed us to examine ICC values for all three norm measures at baseline and 12 months later. The values showed either minimal or no change, evidencing stability (see Table 4). This stability is confirmed by comparing mean norm levels; all mean differences were non-significant ($p > .10$).

We also conducted an exploratory analysis to examine stability in norm homogeneity over time as function of group continuity. First, we identified; 1) a restricted longitudinal sample including only intact friendship groups across the 12 month period, and 2) an all groups longitudinal sample that included all friendship groups regardless of whether they were intact or had changed over time. This comparison does

not directly contrast intact vs. changed groups, but addresses the broader question of whether changes in group membership influence overall community norms. We then contrasted the ICC values over time for the two longitudinal sample constructions. The results indicated that the inclusion of changed friendship groups had little impact on the ICC values. ICC values varied by .07 or less from baseline to follow-up in both samples (Table 4). Our results suggest that movement of friends into and out of the close friend sample did not substantially influence norm stability.

Norm Structure

Finally, we examined whether the friendships formed meaningful clusters based on the patterns observed among the three norm measures. Using cluster analysis, we examined how norms clustered by friendship group (i.e., the cluster units were the 57 friendship groups). We hypothesized three general clusters based on norms: conservative, moderate, and recreation clusters. We hypothesized that these three groups would reflect, respectively, increasingly greater conformity to pro-drug and recreation norms, and that condom norms would be strong only among groups moderate on the sexual recreation norm (see scale validity section for information on use of Empirical Bayes estimation).

Cluster analysis was conducted using three different clustering methods (Ward's Method; Average Linkage Within Group and K-Means Methods). We used Ward's method as an exploratory approach to identify clusters and assign cases to subgroups, and the other two methods were used as a confirmatory approach to validate typology. All three methods consistently identified 3 clusters in our sample; recreation seekers, moderates, and conservatives. Unexpectedly, but consistent with our findings on homogeneity of the condom norm at the community level, we found that for all three

clusters the condom scales reflected pro-condom use norms (see Table 5). Thus, although the drug and recreation norms produced clusters as expected, the condom norm did not differentiate the clusters.

Groups identified as recreation seekers had higher scores on all three norms. All three clustering methods identified the same nine friendship groups in this cluster (16% of the groups). Moderates composed a cluster of groups with moderate scores on recreation and drug norms. Ward's Method identified 15 groups as a moderate cluster (26% of the groups). Of those groups identified as moderate by Ward's Method, 87% were subsequently identified by the two confirmatory methods as moderate (> 70% is considered adequate confirmation). The final cluster of friendship groups, conservatives, had lower scores on recreation and drug norms. Ward's Method identified 33 groups in this cluster (58% of the groups), and of these groups, 94% were identified by the two confirmatory methods as a conservative cluster.

Discussion

This study sought to investigate social norms at the group and community levels for sexual behavior and substance use among African American adolescent friendship groups living in an urban neighborhood. Additionally, we examined properties of norms that have relevance to HIV/STI prevention among adolescents (homogeneity, strength, stability, inter-relatedness, stratification).

Norm Validity

Our findings support the validity of the norms examined. All three reference group norms (i.e., recreation, condom use, drug use) were significantly associated with

individual-level behavior in friendship groups; relevant reference group norms predicted condom use, multiple partnerships, and substance use by individuals. These results support findings from prior work using individual level perceived norm measures (Borsari & Carey, 2001; Fishbein et al., 2001). Thus, our findings do not support the false consensus hypothesis.

Our focus on norms that impact behaviors that are typically private (e.g., sex) enabled us to address validity of group norms on such behaviors. Although sex is usually unobserved by friends, our findings suggest that group norms generalize to sexual activities. Sexual norms, as measured at the friendship group level, predicted individual-level sexual behavior, confirming the proposition that social sanctions impact private sexual acts. Findings also suggest that research addressing the social elements of reference group norm processes, such as reputation-based sanctions (e.g., snubbing, avoiding a person; Brown, 1990; Eder, 1985), may require investigation at both group and individual levels.

Although our findings contribute to the literature on adolescent norms, there are aspects of norm validity that we were unable to address. We were unable to examine how norms develop and how their impact may change across adolescence. Prior work shows that perceived condom use norms significantly impacted new sexual relationships among young adults, but had little effect on condom use in more established relationships (Catania et al., 1994). Additional work is needed to examine the extent to which norms govern sexual behaviors of adolescents over the course of their romantic and sexual relationships.

Norm Properties and Social Stratification

This investigation offers an initial foray into the concept of normative sets as applied to adolescent sexual behavior and substance use. We found that the three norms examined are inter-related, but do not have a simple additive effect on individual-level behavior (i.e., only one norm was significant in each multivariate model testing multiple norms). As anticipated, each norm had primarily unique effects, but norms may converge at the situational level. For instance, friends who use drugs together may find themselves in situations that increase the chances that they will have sex (e.g., as part of the “party scene” Bachanas et al., 2002). However, the choice to have sex is more directly determined by expectations regarding appropriate sexual behavior, as opposed to drug use.

Despite the inter-relatedness of substance use and sexual behavior norms, we do not assume that they reflect one overarching norm (e.g., a deviance norm), in part because the norms each have some unique behavioral relationships. At the same time, it may be important to direct interventions at the entire norm set. Positive outcomes in HIV/STI interventions for urban ethnic minority youth may be related in part to the attention given to the role of substance use in unsafe sexual behavior (Dolcini et al., 2010; Jemmott, Jemmott, Braverman, & Fong, 2005).

In terms of norm homogeneity and strength, our finding of a strong pro-condom norm across friendship groups suggests a community-level norm. Other work with African Americans has shown that adults have relatively positive condom attitudes and high condom use (Anderson, 1999; Catania et al., 2001; Thorburn, Harvey, & Ryan, 2005), and youth have relatively high condom use and perceive their friends to be using

condoms (Centers for Disease Control and Prevention, 2010b; Romer et al., 1994; Stanton et al., 2002). Thus, African American adolescents may be embedded in a pro-condom social environment. The extensive HIV/STI prevention conducted in African American communities in California, including the community in our study, has led to high levels of safe-sex awareness. However, along with pro-condom norms, we also found small clusters of youth with generally pleasure-focused or recreational norms. Thus, there may continue to be small, but highly sexually active subpopulations of youth (e.g., with high levels of sexual mixing and sexual partner concurrency) that continue to contribute disproportionately to STI spread (Fichtenberg, Jennings, Glass, & Ellen, 2010). Nevertheless, strong and consistent condom norms provide a useful base for further behavior change.

In contrast to the condom norm, we did not observe norm strength and homogeneity for the drug and recreation norms. We found larger differences between friendship groups on both these norms, and observed gender differences on the recreation norm. The present data suggest that, with regard to sex, females conform to a less pleasure-focused norm and have greater homogeneity in their normative expectations regarding sexual recreation than do males. Although the results indicate that males are more “recreational” in their sexual values than females, their sexual values are more diverse than stereotypes would suggest (e.g., Anderson, 1999). In fact, the majority of male friendship groups were sexually traditional. These findings support qualitative studies indicating that African American adolescent males are not uniformly accepting of recreational sexual behavior (Dolcini, Harper, & Coe, 2007; Giordano, Longmore, Manning, & Northcutt, 2009; Reed et al., 2012; Towner, Dolcini, & Harper).

Community-level norm stability was another focus of the present study. In general, norm stability is important to consider in the context of health promotion because stable norms may be resistant to change efforts, while transient norms may lack the power to maintain programmatic changes over time. In this study, all three norms were found to be highly to moderately stable over time at the community level, and there was no observable impact on homogeneity (across groups) due to changes in group membership over time. This suggests that friendship groups either remain sufficiently intact to preserve norms or that new friends already share or quickly acquire similar values. Both selection and influence contribute to similarities in behavior among adolescent friends (Crosnoe & McNeely, 2008; Kandel, 1978; Savin-Williams & Berndt, 1990) and future work should further explore these processes with regard to norms.

We also examined how norms may form more “macro-level” structures at the community level. Past work confirms that, among adolescents, social stratification is evident and has consequences for health behaviors (e.g., crowds; Brown, 1990; Brown, Von Bank, & Steinberg, 2008; Dolcini & Adler, 1994; La Greca, Prinstein, & Fetter, 2001). Social stratification was also evident in the present study. The cluster analysis partially supported the hypothesis that we would find three social strata with differing norms regarding substance use, sexual recreation, and condoms. The largest of the three strata is relatively traditional, followed by a more moderate group, and a smaller but still substantial stratum of more recreationally focused friendship groups (16% of groups). However, contrary to prediction, all three social strata had similar normative values around condom use, reflecting the broad pro-condom attitudes noted earlier. Given the variation in norms across friendship groups, these findings suggest that tailoring

adolescent interventions to specific population segments or social groups will provide productive avenues for HIV/STI prevention. One approach includes friendship based interventions that are designed to incorporate social and cultural factors into the structure and the content of programs and to influence behavior through the engagement of the social group in the intervention process (Dolcini et al., 2010; Stanton et al., 1996). Another approach might involve programs tailored to different school-based crowds where norms and behavior show substantial variation (see Brown et al., 1997).

Limitations and Summary

Our study is based on a single neighborhood, and generalization may be limited. The present study is limited by our reliance on self-reports; sexual behavior and substance use are misreported to different degrees. However, our goal is not to estimate the prevalence of behaviors, but is focused on the relationships between norms and behavior.

Our research focused on close friends because one would expect norms to be highly salient in friendship networks. Nevertheless, it will be relevant to recruit a broader sampling of friendship networks in future studies. Studies based on wider network coverage are also needed to address how variations in reference group and community-level factors might impact group norms over longer time periods.

Some friendship groups in our study were relatively small. Although we took steps to statistically correct for variations in group size when computing mean norm values, means based on two values may not be sufficient indicators of the total group. However, the correlation between norm scores for dyads was on average greater than .80

indicating a strong correspondence between dyad members. Strengths of the study include the use of a household probability sample in a low-income community, obtaining network-level data on close friends, and maintaining high retention across time. These strengths add to the generalizability and relevance of the current investigation.

In brief, the present results suggest that group norms governing condom use and sexual recreation and drug use may need to be considered in conducting HIV/STI prevention that seeks to change community-level norms. Furthermore, sexual health promotion programs may need to the normative values of friendship groups. The durability of the norms over time suggests that they may be relatively resistant to change, at least in the short term. However, once norms have been modified, existing social structures may be sufficient to maintain the changes over time. Extending this work to other communities and ethnic groups of adolescents is warranted.

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Table 1

Validity and Dimensions of Norms

Table 1
Demographic and Relationship Variables for Study Sample

Variable	Total (n=167)	Seeds (n=57)	Close friends (n=110)
	%		
Male	55.7	56.1	55.5
African American	95.1	100	92.5
Currently in school	87.4	89.5	86.4
Employed	45.5	42.1	47.3
Reside in study neighborhood	83.5	100	75.0
	M (SD)		
Age	16.7 (1.5)	16.5 (1.4)	16.8 (1.5)
Length of relationship (years)	6.4 (2.8)	6.1 (2.8)	6.5 (2.8)
Weekend association ^a	72 (31)	74 (30)	68 (31)
Friendship quality score	6.2 (0.9)	6.2 (0.8)	6.2 (1.0)
Network size ^b	4.0 (1.5)	3.9 (1.5)	4.0 (1.5)

Note. First six items are demographic variables; last four items are relationship variables.

^a Average percent of friends within group that the seed/friends hang out with on the weekends. ^b Number of enumerated friends.

Table 2
Norm Scales: Items, Reliability, and Factor Structure

Scale	Factor loading			Scale M (SD)	Cronbach's Alpha
	1	2	3		
Recreation Norm ^a				1.95 (.61)	.82
...that it is okay to have sex with someone they just met. (R)	.79	—	—		
...that it is okay to say “no” when they do not want to have sex.	.59	—	—		
... that it is okay to have sex with lots of people. (R)	.74	—	—		
...that it is not okay to have sex with someone else when they have a main boyfriend or girlfriend.	.52	—	—		
...that it is okay to for teenagers to get pregnant. (R)	.30	—	—		
...that it is not cool to be going out with someone and not have sex. (R)	.55	—	—		
...that it is okay to pressure someone to have sex with them. (R)	.65	—	—		
Condom Norm ^{a,b,c}				1.53 (.51)	.78
...that people should always use a condom when having sex with a new person. ^a	—	.60	—		
...that people should use condoms whenever they have sex, even when they have sex with a main girlfriend or boyfriend. ^a	—	.72	—		
...use condoms when they have sex with a new person. ^b	—	.67	—		
...use condoms whenever they have sex, even when they have sex with a main boyfriend or girlfriend. ^b	—	.77	.34		
Drug Norm ^d				2.08 (.87)	.82
...are high on alcohol or drugs when they have sex.	—	—	.66		
...get drunk or high at least once a week.	—	—	.79		
...that it is cool to get drunk or high. (R)	—	—	.72		

Note. Factor Analysis, Eigen values: Factor 1 = 4.54, Factor 2 = 2.15, Factor 3 = 1.65 with Oblimin Rotation; loadings $\geq .30$ shown in table, total % variance accounted for by 3 factors = 60%. Mean scale scores range from 1-4. (R) = Item reverse scored.

^a Item(s) stem = “Most of your close friends think...” ^b Item(s) stem = “Most of your close friends...”

^c Condom items based on both stems and were examined with and without z-transformation which, as expected, had no effect on correlations. ^d First two items stem = “How many of your close friends are...”; third item stem = “Most of your closest friends think...”

Table 3

Table 3
Friendship Group Norms as a Correlate of Seed Behavior (n = 57 groups)

Seed behavior ^a	Group norm								
	Recreation			Condom			Drug		
	OR	[95% CI]	p-value	OR	[95% CI]	p-value	OR	[95% CI]	p-value
Sexual									
Nonvirgin	1.4	[1.1, 1.7]	**	1.2	[1.0, 1.5]	*	1.2	[1.0, 1.3]	**
Multiple partners/year	1.5	[1.2, 2.0]	***	1.1	[1.0, 1.4]	ns	1.1	[1.0, 1.3]	*
Inconsistent condom use	1.1	[0.9, 1.2]	ns	1.3	[1.1, 1.7]	**	1.1	[1.0, 1.3]	ns
Drugs/Alcohol									
Smoking	1.0	[0.8, 1.3]	ns	1.3	[1.0, 1.9]	ns	1.3	[1.1, 1.7]	**
Drug/Alcohol	1.2	[1.0, 1.4]	ns	1.4	[1.1, 1.8]	**	1.6	[1.3, 2.0]	***

Note. To correct for cluster size, recreation and drug norms utilize an Empirical Bayes estimation of the group mean. Condom norms are based on the observed group mean because cluster values are extremely homogeneous obviating the need for the Empirical Bayes estimation method. OR: Odds ratio. The norm scores are adjusted to a unit value of 0.1 for all logit models; CI: confidence interval.

^aSeed reported behavior at baseline interview and coded as Yes = 1, No = 0.
p < .05*, .01**, .001***; ns = *p* > .06.

Table 4

The Validity and Dimensions of Norms

Table 4
Stability and Homogeneity of Norm Scales

	All friendship groups		Longitudinal friendship groups	
	ICC [95% CI], <i>p</i> -value	M (SD)	ICC [95% CI], <i>p</i> -value	M (SD)
Baseline				
Recreation norm	.49 [.33, .65], <0.001	1.95 (.61)	.56 [.39, .73], <0.001	1.98 (.62)
Condom norm	.04 [.00, .20], > .10	1.53 (.51)	.05 [.00, .23], 0.291	1.49 (.49)
Drug norm	.48 [.32, .64], <0.001	2.08 (.87)	.41 [.21, .60], <0.001	2.07 (.83)
12 Months				
Recreation norm	.47 [.28, .66], <0.001	1.96 (.59)	.54 [.35, .73], <0.001	1.98 (.62)
Condom norm	.03 [.00, .25], > .10	1.64 (.49)	.10 [.00, .31], > .10	1.62 (.51)
Drug norm	.46 [.27, .65], <0.001	2.15 (.85)	.49 [.29, .69], <0.001	2.14 (.85)

Note. ICC values range from 0 to 1, and reflect the percent of total variation due to between-cluster variation. ICC values of zero reflect high homogeneity with heterogeneity increasing to a maximum at ICC value of 1. Groups = 2 or more close friends including seed. All friendship groups = 167 respondents (57 groups) at baseline and 127 (55 groups) at 12 months. Longitudinal friendship groups (models effect of change in group membership over time) = 123 respondents at baseline and 105 respondents at 12 months (38 friendship groups at both time points). A small proportion of the friendship groups (10%) in our sample included both males and females. We examined ICC values for groups with and without mixed gender members and the results were extremely similar. Unless otherwise noted, data for all groups are reported.

Table 5
Norm Cluster Analysis: Profile Summary (Ward's Method)

Cluster	Norm		
	Recreation M ^a (SD)	Condom M(SD)	Drug M ^a (SD)
Recreationists	2.55 (.22)	1.67 (.31)	3.22 (.39)
Moderates	1.98 (.39)	1.62 (.30)	2.45 (.25)
Conservatives	1.71 (.41)	1.45 (.30)	1.50 (.34)

^a Bayes estimators used for recreation and drug norm.

Figure 1 Caption

Figure 1. Friendship group measures for recreation, condom, and drug norms.

Figure 1

