Increasingly during the past two decades, demographers and public health specialists have emphasized the importance of research on risky behaviors and vulnerabilities of adolescents with regard to reproductive health. A large number of studies have examined aspects of adolescent girls’ sexual and reproductive health, such as their knowledge, attitudes, and risky behaviors. Fewer studies have focused on young men’s sexual behaviors, in part because of the more limited data available about them. Moreover, the HIV pandemic has led public health researchers to place greater priority on the study of sexual behaviors. Much of their work has focused on high-risk groups—sex workers, injecting drug users, men who have sex with men, and others—notwithstanding the comparatively high infection rates now observed among the general heterosexual populations of some societies. As a consequence, relatively little is known about teen-aged boys’ behaviors and about how to incorporate such knowledge into programs aiming to improve the reproductive health of young people.

Policies and interventions promoting the reproductive health of both adolescent boys and girls would benefit from advances in the mapping of the sexual behaviors of boys. The comparative lack of attention paid to this area of research represents a missed opportunity for reducing the number of unwanted pregnancies and containing the HIV pandemic. Adolescence is a time of physiological and emotional maturation and cognitive development, and it is also a time when preventive actions grounded in a solid understanding of the sexual attitudes and risk-taking behavior of young men and women potentially can have large impacts on their long-term welfare. It is a critical period, when identities are being formed and romantic and sexual bonds are first being established, and it is a time of ongoing learning and experimentation (Bongaarts and Cohen 1998; Gage 1998; Florez and Nuñez 2003; Lloyd 2005). This is a stage of social, economic, and biological transition between childhood and adulthood, of passage from school to work, and of increasing autonomy and separation from parents.

The first sexual relations of adolescents differ in important ways from those occurring in later years (Bozon and Kontula 1998; Hughes and McCauley 1998). Adolescent boys on the verge of their first sexual experience tend to be quite young, and their limited knowledge and experience make them less confident and skilled at planning ahead and at taking the measures needed to avoid unsafe sex. Moreover, their growing independence from their parents makes adolescents more susceptible to peer pressures and norms, especially at younger ages. The likelihood of their engaging in risky sexual practices is
further enhanced by the often distorted perceptions of such risks and a sense of infallibility that characterizes this age group (Gage 1998). Although Brazilian teenagers are generally well aware of the risks of contracting HIV or causing an unwanted pregnancy, they may view themselves as being largely invulnerable to these risks (Mota 1998; UNAIDS 2003). Inadequate information about sexual risk-taking, combined with limited access to reproductive health services acceptable to adolescents, contributes to these attitudes and to adolescents’ engaging in unsafe sexual practices (Santos et al. 2001).

The circumstances in which first sexual intercourse occurs—age, use of protection, partners’ characteristics, and type of relationship—have been shown to be important markers for the long-term well-being of young people with regard to their reproductive health, subsequent sexual behaviors, and psychological welfare (St. Laurence and Scott 1996; Bozon and Kontula 1998). Efforts to encourage safe sexual practices and improve the conditions of early sexual relations are of importance for their immediate benefits. Also, because sexual and romantic attitudes and behaviors have yet to be firmly entrenched, they are a relatively easy way to influence long-term behaviors and well-being positively (Hughes and McCauley 1998; UNICEF / UNAIDS / WHO 2002; Schutt-Aine and Maddaleno 2003).

Most demographic and health-belief behavioral models (Rosenstock 1966 and 1988) focus on rational individual decisionmaking. These models typically treat risky sexual behavior as being a function of an individual’s subjective values, for which motivations and perceptions of risk are central. Sexual relations, by definition, involve two people, however, and should not be viewed solely in this way. More precisely, these models neglect the relevant factors related to the characteristics of both partners—their attitudes, desires, and aspirations, and their knowledge and perceptions of the consequences of sexual behaviors in the short and longer term—and how these affect sexual decisions (Gage 1998; Juarez 2003). The nature of the relationship between partners is also a key element for understanding sexual behaviors (Rademakers et al. 1992; Ingham and Van Zessen 1997; Van Campenhoudt et al. 1997). Different types of relationships—for example, committed young couples, casual partners who may engage in spontaneous sexual experimentation, and client–sex worker arrangements—are characterized by different levels of emotional involvement and communication and by different motivations, attitudes, and perceptions of the risks and rewards of sexual decisions (Bastard et al. 1997; Juarez and Castro 2003).

Partnerships are formed and exist within specific environments, and contextual factors influence the type of relationship that occurs and both partners’ attitudes, motivations, decisions, and capacity to act. Prevailing gender roles and the power relations they incur are central to understanding the dynamics of partnership formation and to young people’s decisions to have intercourse and to use protection. In societies such as that of Brazil, which are characterized by traditional male values that place great emphasis on expressions of virility, men tend to take the lead in initiating sex and deciding on whether to use protection (Leal and Boff 1996; Parker 1997; Zanotta 1998; Rehun 1999; Goldstein 2003; Juarez and Castro 2003; Miranda-Ribeiro and Moore 2003; Hill et al. 2004). Teenaged boys and girls often have dissimilar goals and expectations with regard to sexual relations. For boys in Recife, early sexual experiences are the norm, and they may seek out a first sexual relation to affirm their manhood to peers as well as to satisfy their curiosity. Girls may, instead, feel stronger social and family pressures to delay their first sexual intercourse, and place greater emphasis on sexual relations that occur within a stable relationship. When both partners are young and inexperienced, pronounced gender roles and poor communication may increase the likelihood that they will engage in unsafe sex.

The nature of parents’ relationships with their children—their success in transmitting social and religious values and their ability and willingness to guide and oversee their children’s activities—also influences early sexual behaviors. The decisions young boys in Recife face concerning sex are occurring in a context of significant ongoing social transformations affecting both gender norms and the role of parents. Hugely popular television shows (novelas) depict the new social behaviors of a modern, more permissive Brazil, prompting recent changes in social and sexual norms (Rebouças 2002). Such changes have weakened parents’ ability to monitor and influence their children’s sexual attitudes and experiences during adolescence. Especially in the shantytowns, the difficulties adolescents and their parents face are exacerbated by problems related to poverty: long working hours leading to physical exhaustion, broken families, and the proximity of other, unsupervised, young people.

In this study, we use detailed data recently collected for an experimental project targeting adolescent boys living in two shantytowns (favelas) areas of the city of Recife in Northeastern Brazil to examine the correlates of boys’ age at first sexual intercourse and concomitant use of condoms. The questionnaire design and analytic approach were guided by the theory of sexual interaction, which stresses the importance of cultural context and social interactions, including the expected and perceived actions of one’s partner, for explaining safe (or risky) sexual behaviors. For this study, in addition to the effects of the usual socioeconomic and demographic variables,
we also examine factors that capture aspects of the family environment and interpersonal relations, including some characteristics of the sexual relationship for the study of condom use. These factors include the reported quality of boys’ relationships with their parents during childhood, whether parents require that their sons request permission to go out at night, boys’ self-reported assertiveness (or shyness) with girls (a potential influence on their ability to initiate a first relationship or to use a condom, if desired), their sociability (measured by the number of their male and female friends), and, for the study of condom use, their partner’s age and the type of relationship the couple has.

The Brazilian Context

Of the Brazilian population, roughly one-fifth (35 million people) are aged 10–19, and the government estimates that four million young people become sexually active every year (Ministério da Saúde 1999; UN 2003). The two major reproductive health risks related to adolescent sexual activity are exposure to sexually transmitted infections (STIs) (especially HIV) and unwanted pregnancy. The government has developed a number of initiatives to address these problems, which, on the whole, have been only marginally successful.

Since the 1980s, Brazil has experienced high prevalence rates of HIV/AIDS. About 57 percent of all HIV infections in Latin America and the Caribbean are found in this country. At the end of 2001, some 610,000 Brazilians were estimated to be infected (UNAIDS 2002a; Ministério da Saúde 2003), a large proportion of whom are adolescents (UNAIDS 2002a; see also Dhalia et al. 2000 and Rebouças 2002). Rates of infection resulting from heterosexual relations have grown rapidly since 1990; such transmission now accounts for more than half of new cases (Ministério da Saúde 1997; Juarez 2002). In Recife, HIV transmission occurs primarily through sexual relations. Illicit use of injectable drugs remains limited (Ministério da Saúde 1997 and 2002).

The government of Brazil is recognized as a world leader in addressing the HIV pandemic. In recent years, it has made consistently strong efforts to control the transmission of the infection and to give adequate treatment to and protect the rights of those who are infected. Among the most visible proofs of this concern is the government’s policy of providing free antiretroviral therapy to those who are infected; 135,000 Brazilians benefited from this initiative in 2003. Considerable public resources also have been committed to fighting the pandemic by means of information campaigns and infection-prevention services (including youth-oriented programs), which emphasize the promotion and distribution of condoms (UNAIDS 2000; Ministério da Saúde 2003). On the whole, these efforts have been successful and, during the four years prior to 2002, the infection rate showed clear signs of stabilizing (Ministério da Saúde 2002; UNAIDS 2002a). Despite some changes in adolescents’ sexual knowledge and behavior, however, their HIV incidence rates have continued to rise. HIV infections in Brazil are increasingly concentrated in poor and marginalized sectors of society and in large cities (Parker 1997; UNAIDS 2002a; Ministério da Saúde 2003; see also Bastos and Szwarcwald 2000).

Although fertility has fallen continuously since the mid-1960s in Brazil, and total fertility is now estimated at about 2.2 children per woman of reproductive age (UN 2003), this decline has been concentrated among women aged 20 and older. In marked contrast, adolescent fertility rates have remained relatively high in recent decades and appear to have increased between the 1980s and 1990s (Vieira de Melo 1993; Gupta and Leite 1999; ORC Macro 2003; UN 2004). This increase has occurred among the very young (girls aged 10–14) and among those aged 15–19; it is especially pronounced in the poorer parts of the country, including the northeast region (Camarano 1998; Pinto e Silva 1998; Domingues 1999). Approximately 20–25 percent of pregnant women in Brazil are younger than 20 (Domingues 1999). Many adolescent pregnancies have been identified as occurring to unmarried girls and as unplanned (Cabral et al. 1985; BEMFAM 1999; Gupta and Leite 1999).

Effective interventions to reduce the number of unplanned pregnancies must aim to influence the knowledge, attitudes, and behaviors of both boys and girls. Although Brazilian teenagers are generally well aware of contraceptive methods, only about 25 percent of girls aged 15–19 currently use a method, compared with more than 55 percent of women of all reproductive ages (PNDS 1997; ORC Macro 2003). Many unplanned adolescent pregnancies result in induced abortions, which, in Brazil, are usually performed under conditions that endanger women’s health. Access to legal abortion in Brazil is highly restricted. As a consequence, the country has one of the highest illegal abortion rates in the world, estimated at 40 per 1,000 women of reproductive age (Henshaw et al. 1999). In 2001, more than 51,000 adolescent girls presented at public hospitals for postabortion complications (Rebouças 2002).

Data

The main source of data for this study is a baseline survey fielded in Recife in the spring of 2000 for an experimental peer-based project aiming to promote condom
use among teenaged boys. In order to guide the project intervention and evaluate its impact, detailed information was collected on boys’ past and present sexual behaviors, the characteristics of their sexual partners, their reproductive attitudes and knowledge, and a large number of related factors including family structure and relations, household living conditions, and boys’ perceptions of their own personality traits. An advantage of these data compared with most other available data sets (for example, the Demographic and Health Survey) is that they contain a substantial number of observations on the recent experiences of boys residing in broadly homogeneous settings. Moreover, the survey questions were designed to allow for an investigation of the relations between early sexual behaviors and several factors commonly thought to influence them that are not usually considered in reproductive health surveys, such as the degree of families’ direct involvement in guiding their sons’ activities and influencing their personality traits.

A disadvantage of these data is that their focus on low-income areas in only one city limits our ability to generalize the findings of this study to other segments of Brazilian society. In addition, retrospective surveys place demands on the abilities of respondents to recall their past behaviors accurately. Retrospective surveys have often been used in reproductive health research, and several evaluations of surveys on sexual behavior in both developed and developing countries have concluded that the data gathered are generally reliable and merit serious analysis (Morris 1993; Cleland and Ferry 1995). The data used here were collected from boys aged 13–19 at the time of the survey who were reporting their experiences in the recent past. A gender gap has been described that affects reports concerning sexual issues in Latin America and that may result in biased responses: Men tend purposely to misreport higher levels of sexual activity than they experience (Mensch et al. 1998). Juarez et al. (2004) found, however, that large differences in reported sexual activity according to gender are observed in all countries in the region except for Brazil, a finding suggesting that this type of bias may be relatively unimportant in the Brazilian context.

In designing the survey, considerable effort was made to ensure that questions were culturally sensitive (including issues relating to gender) and to facilitate informants’ recall. Survey tools were pretested several times to obtain the best-possible data quality. Qualitative data—from focus-group discussions and in-depth interviews—were also collected and used in the design and refinement of the survey instrument, and questions were phrased using adolescents’ own terminology, when inquiring about partnership and sexual issues (Santos et al. 2002). The interviewers were young men in their 20s having at least two years of university study in psychology or sociology and who were experienced in fieldwork. These men were carefully trained and were also involved in the qualitative fieldwork for the project. For the survey, they were instructed to spend time building rapport with respondents before conducting interviews. Finally, a series of internal checks were made on the survey data that showed them to be internally consistent across questionnaire modules. Moreover, no evidence was found that boys exaggerated their sexual experiences, a problem considered common in data concerning adolescent sexuality.

The survey questionnaire was addressed to all unmarried adolescent boys aged 13–19 living in two low-income areas in Recife: the contiguous bairros of Campina do Barreto, Cajueiro, and Arruda and, in another part of the city, the area of Bultrins (Olinda). These areas were selected based on their socioeconomic conditions. The Instituto Brasileiro de Geografia e Estatística (the Brazilian equivalent of the Census Bureau) produces city maps showing the socioeconomic levels of census tracts. Using this information, two separate, relatively large, contiguous areas were identified that were wholly composed of zones of the lowest socioeconomic strata and that were located in relative proximity to clinics that could be used, if necessary, for medical tests during the intervention. These sites are similar to the other low-income areas of Recife—typical shantytown settings. A household census was conducted in the selected sites in order to identify for subsequent interviews all eligible boys residing in the areas. To maximize response rates, the survey interviewers scheduled data collection for the hours at which young people were most likely to be at home. In order to seek out eligible boys, interviewers returned to households for a maximum of six times; the nonresponse rate was approximately 20 percent.

In this study, we examine the sexual activity of boys occurring between the ages of nine and 17. In all, responses from 1,425 boys, 770 (54 percent) of whom declared that they had had their first sexual intercourse between the ages of nine and 17, are included in the data. Thirteen observations were omitted; these are responses from boys with missing data for key variables and those reporting first sexual intercourse occurring at implausibly young ages—likely miscodes or possibly rapes. Table 1 presents the frequencies of variables used in the multivariate analysis. Although the study areas are clearly impoverished, nevertheless, relative differentials exist within this socioeconomic group. A household living standards index was created based on 18 variables, composed of 15 consumer durables (for example, a radio or a refrigerator) and three other amenities (electricity and the presence of a maid or a cook). Households were grouped into three
categories, with the poorest households having fewer than eight assets and amenities (15 percent of the sample), the medium-low category having eight to 11 assets or amenities (66 percent), and the medium category having 12 or more assets or amenities (19 percent). The difficult living conditions of the areas are also reflected by the high prevalence of broken families: Fewer than half of boys in the sample were living with both parents at the time of the survey. The low-income areas studied reflect the diversity that exists in northeastern Brazil: 52 percent report being of mixed race and 54 percent of respondents are Catholic (versus 31 percent nonreligious and 15 percent other religions).

For the study of changes over time, these data are compared with information collected ten years earlier by the Pesquisa sobre saúde reproductiva et sexualidade do jovem (survey on reproductive health and sexuality of youth), fielded in the cities of Recife, Rio de Janeiro, and Curitiba in 1989–90 by BEMFAM (Brazil) and the Centers for Disease Control (United States). This survey obtained information on sexual and reproductive health for men and women aged 15–25. The two surveys (1989–90 and 2000) provide similar information for age and use of protection at first sexual intercourse. To focus the analysis on similar populations, the BEMFAM / CDC data are limited to the reported behaviors of 637 unmarried boys living in Recife who were 15–19 years old at the time of the survey (no data were collected from younger boys). Statistics are also calculated for the 402 boys living in poor households in 1989–90 as defined by a household wealth index constructed from variables capturing household living standards, because these boys resided in households that are most similar to those found in the data for the year 2000.

### Table 1

#### Table 1 continued

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Percent (N)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Partners’ ages (years)</td>
<td></td>
</tr>
<tr>
<td>Boy and girl ≤14</td>
<td>23.5 (181)</td>
</tr>
<tr>
<td>Boy 15+, girl ≤14</td>
<td>5.1 (39)</td>
</tr>
<tr>
<td>Boy ≤14, girl 15+</td>
<td>31.0 (239)</td>
</tr>
<tr>
<td>Boy and girl 15+</td>
<td>29.2 (225)</td>
</tr>
<tr>
<td>Girl’s age missing</td>
<td>11.2 (86)</td>
</tr>
<tr>
<td>Type of relationship with partner</td>
<td></td>
</tr>
<tr>
<td>Girlfriend</td>
<td>27.4 (210)</td>
</tr>
<tr>
<td>Acquaintance or relative</td>
<td>69.4 (532)</td>
</tr>
<tr>
<td>Prostitute</td>
<td>3.2 (25)</td>
</tr>
</tbody>
</table>

---

* = Not applicable.

* The variables “parents’ permission required to go out at night,” “has courage to declare feelings to a girl,” and “mean number of friends” are used only in Model 2 of Table 5 (timing of first intercourse) and Models 2 and 3 of Table 6 (condom use). For these variables, data for four cases were missing, so that the percentages for them are based on 1,421 observations. The “type of relationship with partner” variable is used only in Model 3 of Table 6. For this variable, data for three cases were missing, so that the percentages are based on 767 observations.

*Parents* includes guardians.
Time Trends in Boys’ First Sexual Activity

The age pattern of boys’ first sexual intercourse in 1989–90 and 2000 are presented in Table 2. These statistics were calculated using life-table methods designed to handle censored data, such as the unobserved first sexual experiences that will occur at age 16 for boys aged 14 at the time of the survey. Boys in Recife begin their sexual lives early. Both surveys show that the median age at first intercourse for boys is 15. Similarly, data from a national survey fielded in 1997–98 shows that early sexual initiation is common throughout Brazil: 47 percent of boys and 32 percent of girls were found to become sexually active before age 15 for the country as a whole (CEBRAP 2000). Boys’ age at first sex in Recife also seems to have decreased slightly during the past decade. Very early first sexual experiences appear to have become more frequent in recent years: 10 percent of boys were sexually active by their thirteenth birthday in 2000 compared with approximately 5 percent a decade earlier, a differential that remains roughly constant thereafter as boys become older. Although the two data sets are based on different samples and, therefore, are not fully comparable, the fact that the relatively disadvantaged boys observed in the 1989–90 sample report somewhat later ages at first intercourse compared with others suggests that the pattern of differences observed between the full 1989–90 sample and the 2000 data is likely to underestimate the extent of changes over time.

Table 3 shows how use of family planning methods at first sexual intercourse has changed during the 1990s. Use of contraceptive protection increased substantially, although it remains low, especially for boys younger than 15. As use of family planning methods has grown, condoms have gone from being one of several methods employed in 1989–90 to being essentially the only method used in 2000.² This change surely has emerged from a growing perception of the risks of HIV and other STIs, resulting, in part, from the Brazilian government’s efforts to increase people’s awareness of this threat (UNAIDS 2002b). Evidence of this effect can be seen in Table 4, which presents the reasons that boys interviewed in the 2000 survey reported for using protection. Of those who said that they used a condom at first sex, 73 percent did so as protection against HIV and other STIs, often in addition to the desire to avoid a pregnancy. Moreover, 93 percent of the boys surveyed said (without probing) that HIV/AIDS was a disease that could be transmitted during sex, and 90 percent said that condoms protected against STIs. Their answers to other questions concerning reproductive health and sexually transmitted infections (for example, precisely who is at risk of catching HIV), however, show that their understanding of reproductive health issues is often highly inaccurate beyond these basic facts.

Timing of First Sexual Intercourse

The determinants of a boy’s age at first intercourse are examined using a discrete-hazard logit regression model estimated with data from the 2000 survey. This approach is appropriate when events are observed to occur over time in discrete time intervals; in this case, first sex is measured for boys aged in full (completed) years. This model can be viewed as a multivariate extension of a life
As with life tables, the discrete-time approach entails a replication of records for boys surveyed who did not have first sex during the first age period under study (≤10), and observations in the data thus represent time periods (ages) at risk of having first sex for boys who were celibate until the beginning of the interval. The Huber/White formula is used to compute robust standard errors, and the multiple records for individual boys are linked together to control for the effects of autocorrelation, in order to produce consistent estimates of statistical significance.

The regression results are shown in Table 5. Two models are estimated, with the first one restricted to variables that are unlikely to be problematic and the second one including additional variables that may well be endogenous. Endogeneity is most obvious when the possibility exists of reverse causation. For example, although a boy’s innate shyness may hinder his ease of entering into a sexual relationship, in the opposite direction his sexual “success” may influence his self-esteem and ease in speaking with girls—his courage to tell a girl that he is attracted to her. Early sexual experiences also may affect a boy’s subsequent social success (in terms of the numbers of his male and female friends) and his parents’ desire to control his movements (in terms of his requiring their permission to go out at night). These three independent variables were measured at the date of the survey, subsequent to the time of first sex, and therefore, they must be considered endogenous. As a result, their estimated coefficients must be interpreted with care, because they may not reflect the true causal impact of these factors on boys’ age at first sex. The quality of relationships with parents or guardians, included in the first model, was ascertained by specific questions referring to the past, when the boy was a child. Similarly, as progress in school at higher levels and sexual behaviors (or, more broadly, social activities) may be jointly determined, the educational attainment variable used in the regressions was limited to having passed beyond the first four grades of school. Nearly 70 percent of boys surveyed reported having attained this level of schooling.

The last column of the table shows the predicted probability of having first sexual intercourse before age 15 for boys of different characteristics, after controlling for the effects of all other variables, based on the Model 2 coefficients. Relative risks can be calculated by figuring the ratio of two predicted probabilities in the table.

**Findings**

As they grow older, a monotonic increase is found among still-celibate boys in the likelihood of their having sexual intercourse during the upcoming 12-month interval. The apparent exception to this increase at ages ≤10 is not real; it occurs because this age span effectively covers a two-year risk period—ages nine and ten—compared with the one-year periods for the other age variables. This pattern was expected and was already evident in the life tables.
that underlie the statistics presented in Table 2 for both
the 1989–90 and 2000 data sets. The increase in the like-
lihood of having a first sexual encounter is seen to be
especially strong between ages 11 and 14.

Boys from relatively less-impoverished households
and those with five or more years of schooling are signifi-
cantly more likely to become sexually active at early ages.
In the study sites, early sexual experiences are clearly the
norm and are desired by most boys who have reached
puberty. Boys from low-income households frequently
need to work long hours to help support their families,
often in addition to going to school. Boys from some-
what better-off households may be less likely to work
or, if they do, more likely to work fewer hours, and they
may, therefore, have more time and energy than poorer
boys to seek out a first sexual experience. Moreover, boys
from relatively wealthier households and those who do
not drop out of school at an early age may tend to be more
self-assured, better dressed, and generally better able to
attract a willing partner for a first sexual experience than
are other boys.

Race, religion, and neighborhood of residence are con-
trol variables in the regressions that are not the focus of
our attention here. The race variable, which acts as a proxy
for unobserved differences in culture and socioeconomic
class, does not significantly affect a boy’s age at first sex.
In contrast, boys of the “other” religion category, mostly
those in evangelical sects, are found to have their first
sexual experience significantly later than Catholics and
those reporting that they are not religious.

Family characteristics are captured by family struc-
ture, the quality of boys’ relationships with their par-
ents (or guardians) during childhood, and the need for
boys generally to ask for permission to go out at night.
Family structure is defined by the presence of mothers
and fathers in the household. Boys residing in traditional
mother-and-father families—47 percent of those inter-
viewed—tend to begin their sexual lives considerably
later than those from other sorts of families. The esti-
mated coefficients for all other family structures are simi-
lar in size and are not significantly different from one
another. A regression that collapses family structure into
mother-and-father families versus all others combined
produces a difference at the 10 percent level (not shown).
Based on its estimated coefficients, the predicted prob-
ability of boys’ becoming sexually active before they are
15 is 0.35 for boys in mother-and-father families in com-
parison with 0.46 for those in all other types of families.
One possible explanation for this result is that adoles-
cent boys living with both their parents at the time of
the survey are likely to have been living in a stable fam-
ily unit for many years. Other family types are more like-
ly to have undergone significant changes (for example,
breakups) in the recent past, which could affect parents’
relations with their children and their ability to guide
them and oversee their activities. Moreover, mothers and
fathers living together simply have more time available
to spend with their children and guide their activities.

Boys who report that they need to ask for permission
to go out at night are also less likely than others to have
first intercourse at an early age.10 The explanation pro-
posed for family structure is also viable here: Permission
to go out at night and lasting mother-and-father unions
may both be capturing the degree of sustained parental
guidance and efforts to oversee the activities of their ado-
lescent sons. In contrast, the reported quality of the rela-
tionship that a boy has had with his parents (or guard-
ians) earlier in childhood does not affect his age at first
sex significantly.

Boys’ personality traits are represented by two vari-
ables: self-reported shyness with girls and sociability,
that is, the numbers of their close male and female friends.
Shy boys, those who say that they would not have the
courage to tell a girl that they like her or are attracted to
her, tend to have first sexual intercourse at later ages
than do others. The results show that a shy boy’s pre-
dicted probability of having sex before age 15 is just 0.27,
compared with 0.44 for other boys. This finding surely
overstates the true impact of shyness because of reverse
causality, whereby sexual success enhances a boy’s sub-
sequent ease in relating to girls. Several male researchers
who have commented on this study have, nevertheless,
found this result to be entirely plausible in light of their
own experiences and observations. Shyness may, in fact,
be an important personality trait that acts as a barrier to
early first sex by limiting a boy’s ability to approach a
girl or succeed in finding a partner. The number of a
boy’s male and female friends, however, is found to be
insignificantly related to the timing of first sex. The argu-
ment that boys with many male friends may be goaded
into approaching girls and thus be more likely to have
early sex is not supported by the regression estimates.

Condom Use at First Sexual Intercourse

Simple logistic regressions are used to study the covari-
ates for whether boys use a condom at their first sexual
intercourse. As noted above, few cases are found in which
other types of family planning methods are used during
boys’ first sexual encounter; therefore, the results should
also reflect use of any type of protection. Data are drawn
from the responses of the 770 boys who reported hav-
ing had their first sexual intercourse between the ages
of nine and 17. The first two regression models shown
in Table 6 include essentially the same variables used in
the regressions for first sexual intercourse presented above. The main difference is that some age groups have been merged because they contribute a smaller number of observations. The third model includes the age of a boy’s first sexual partner (interacted with his age) and the type of relationship—with a girlfriend, acquaintance or relative, or prostitute. For this regression, boys’ and girls’ ages are aggregated to younger than 15 compared with 15 and older. Because a substantial number of boys did not know their partner’s age, a category for “girl’s age missing” is included as a separate variable. Mean predicted probabilities of using a condom at first sex are calculated for Models 2 and 3 for boys of different characteristics and after controlling for the effects of the other variables.

**Findings**

As boys grow older, the likelihood of their using a condom at first sex increases sharply and monotonically. The ages of both the boy and his first partner also appear independently to affect the decision to use condoms. From Model 3, the predicted probability of using a condom at boy’s first sexual intercourse is seen to be 0.20 when both partners are younger than 15 and 0.38 when they are both 15 or older, with probabilities on the order of 0.31–0.33 when just one partner is at least 15.12 This finding suggests that girls play an important role in the partners’ decision to use protection despite the traditional gender roles that prevail in Recife.

Although family structure has a pronounced effect on the timing of a boy’s first sexual intercourse, once it occurs, this factor has no significant effect on use of condoms. The reported quality of boys’ relationships with their parents in the past is, again, found to have no significant effect on their sexual behavior. Interestingly, boys who say that they need permission to go out at night are much more likely to use condoms at first sex. This result suggests that the “permission” variable is capturing more than just parents’ direct influence over a boy’s movements, which could affect his probability of having a relationship but not his use of condoms. The estimated impact of the permission variable is likely to encompass as well the effects of other factors, including parents’ degree of involvement in their son’s upbringing and, more generally, in guiding his behavior.

Once sexual intercourse occurs, a boy’s shyness and his number of male friends are not significantly associated with the likelihood of his using condoms. Boys with a number of female friends may be more likely to use condoms than other boys, an effect that is not quite significant at the 5 percent level. The size of this estimated

<table>
<thead>
<tr>
<th>Table 6</th>
<th>Logistic regression models of the probability of boys’ using a condom at first sexual intercourse, Recife, Brazil</th>
</tr>
</thead>
<tbody>
<tr>
<td>Characteristic</td>
<td>Coeficient</td>
</tr>
<tr>
<td>Age at time of survey</td>
<td></td>
</tr>
<tr>
<td>&lt;12</td>
<td>–0.81**</td>
</tr>
<tr>
<td>13</td>
<td>–0.79**</td>
</tr>
<tr>
<td>14 (r)</td>
<td>0.00</td>
</tr>
<tr>
<td>15</td>
<td>–0.19</td>
</tr>
<tr>
<td>16–17</td>
<td>0.42</td>
</tr>
<tr>
<td>Partners’ ages</td>
<td></td>
</tr>
<tr>
<td>Boy and girl both ≤14 (r)</td>
<td>–</td>
</tr>
<tr>
<td>Boy 15+, girl ≤14</td>
<td>–</td>
</tr>
<tr>
<td>Boy ≤14, girl 15+</td>
<td>–</td>
</tr>
<tr>
<td>Boy and girl 15+</td>
<td>–</td>
</tr>
<tr>
<td>Girl’s age missing</td>
<td>–</td>
</tr>
<tr>
<td>Neighborhood of residence</td>
<td></td>
</tr>
<tr>
<td>Olinda</td>
<td>0.11</td>
</tr>
<tr>
<td>Campina do Barreto (r)</td>
<td>0.00</td>
</tr>
<tr>
<td>Household living standards index</td>
<td></td>
</tr>
<tr>
<td>Very low (r)</td>
<td>0.00</td>
</tr>
<tr>
<td>Medium-low</td>
<td>0.40</td>
</tr>
<tr>
<td>Medium</td>
<td>0.77*</td>
</tr>
<tr>
<td>Schooling completed (years)</td>
<td></td>
</tr>
<tr>
<td>0–4</td>
<td>–0.23</td>
</tr>
<tr>
<td>&gt;4 (r)</td>
<td>0.00</td>
</tr>
<tr>
<td>Race</td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>0.40*</td>
</tr>
<tr>
<td>Black</td>
<td>0.43</td>
</tr>
<tr>
<td>Mixed (r)</td>
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</tr>
<tr>
<td>Other, unknown</td>
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</tr>
<tr>
<td>Religion</td>
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<tr>
<td>Roman Catholic (r)</td>
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</tr>
<tr>
<td>Other</td>
<td>–0.08</td>
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<tr>
<td>Not religious</td>
<td>0.25</td>
</tr>
<tr>
<td>Family type</td>
<td></td>
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<tr>
<td>Mother and father (r)</td>
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<tr>
<td>Mother alone</td>
<td>–0.07</td>
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<tr>
<td>Mother and new partner</td>
<td>–0.36</td>
</tr>
<tr>
<td>Father alone or with partner</td>
<td>–0.20</td>
</tr>
<tr>
<td>Other: parents not present</td>
<td>–0.19</td>
</tr>
<tr>
<td>Relations with parents in childhood</td>
<td></td>
</tr>
<tr>
<td>Excellent</td>
<td>0.10</td>
</tr>
<tr>
<td>Less good (r)</td>
<td>0.00</td>
</tr>
<tr>
<td>Parents’ permission required to go out at nighta</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>–0.49**</td>
</tr>
<tr>
<td>No (r)</td>
<td>–0.00</td>
</tr>
<tr>
<td>Has courage to declare feelings to a girl</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>–0.19</td>
</tr>
<tr>
<td>No (r)</td>
<td>1.00</td>
</tr>
<tr>
<td>Boys’ number of friends</td>
<td></td>
</tr>
<tr>
<td>Boys</td>
<td>–0.00</td>
</tr>
<tr>
<td>Girls</td>
<td>–0.08</td>
</tr>
<tr>
<td>Type of relationship with partner</td>
<td></td>
</tr>
<tr>
<td>Girlfriend (r)</td>
<td>–</td>
</tr>
<tr>
<td>Acquaintance or relative</td>
<td>–</td>
</tr>
<tr>
<td>Prostitute</td>
<td>–</td>
</tr>
<tr>
<td>Constant</td>
<td>–1.25**</td>
</tr>
<tr>
<td>Number of observations</td>
<td>(766)</td>
</tr>
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</table>

*aSignificant at p<0.05; **p<0.01. (r) = Reference category. — = Not applicable.
**Parents includes guardians.
effect, however, is small: The predicted probability that a boy will use a condom at first sex is 0.31 if he has one female friend, compared with 0.37 if he has five female friends (not shown).

Boys from better-off households are more likely than others to use condoms at first sex. Schooling is also associated with greater condom use, although its effect is not statistically significant. Thus, higher socioeconomic status appears to have two contradictory effects on risky sexual behavior for boys: It is conducive both to earlier sexual relations (which in turn are strongly associated with less frequent use of condoms) and to a greater likelihood of using condoms during first sex after controlling for age and a host of other factors.

Boys who define themselves to be of white or black race are significantly more likely to use condoms than are those of mixed or other races. We see no obvious explanation for this result. In contrast, religious affiliation has no significant effect on condom use.

The regression results show that boys are not significantly more likely to use condoms with girlfriends than with acquaintances or relatives. Several other recent studies have found that boys are both more likely to use some type of family planning method and less likely to use condoms with a steady girlfriend than with a partner in a casual encounter, because girlfriends are viewed as being less “risky,” that is, less likely to carry and transmit an STI (Juarez and Castro 2003). In the areas of Recife studied here, however, condoms are essentially the only family planning method teenaged boys use. The survey asked boys why they used protection at their first intercourse. They mentioned their desire to prevent an unplanned pregnancy much more frequently in speaking of relationships with girlfriends than for other types of relationships. When first sexual encounters occur between friends, they may be more spontaneous and less planned, and condoms may not be on hand when the encounter takes place.

Although the experience of first intercourse rarely occurs with a prostitute, representing just 3.3 percent of first sexual relations reported in the survey, the boy is much more likely to use a condom when it happens. This use reflects an awareness of the risks of STI/HIV transmission—by far the main reason reported for using a condom with a prostitute—and the need to plan ahead for such an encounter. Interestingly, the great majority of boys (14 out of 17) who had had a first sexual encounter with a prostitute stated that they alone made the decision to use protection. In contrast, about half of boys who experienced their first intercourse with girlfriends or with acquaintances or relatives reported that they were responsible for the decision to use a condom.

Discussion

This study uses unusual data collected from teenaged boys in two shantytown areas of Recife to analyze the correlates of boys’ age and use of condoms at first sex. Boys’ first experiences with sexual intercourse occur early in Recife and, notwithstanding clear improvements over the past decade, their use of protection at first sex remains low. Most adolescent boys do not use condoms in their early sexual relations, despite considerable efforts made by the government to raise awareness about the risks of HIV transmission and to promote condom use, and despite many adolescent boys’ personal knowledge of someone infected with the disease (see Juarez and Freitas Santos 2002). Use of protection was found to be particularly low among adolescents younger than 16, and especially among those younger than 14.

Although condom use has grown rapidly in Brazil during the past decade (Ministério da Saúde 2003), for many adolescents, access to condoms remains limited. The government distributes condoms without charge as part of its program to combat HIV/AIDS, but only at health clinics (fixed points) to people who have registered and received a medical examination. Most family planning services in Brazil (including condom distribution) are provided by nongovernmental organizations that require clients to register. For a variety of reasons, the medicalized approach of clinic-based programs has proved to be largely inadequate globally for reaching young people and influencing their sexual behaviors (Peersman et al. 1996; Hughes and McCauley 1998). In Recife, clinics have weekday working hours and are closed at night and on weekends. Because adolescents are less likely than adults to plan ahead, even if they are registered for services, condoms are often unavailable when they need them. Condoms can be purchased at pharmacies, but such stores are usually closed at night and are infrequently located in shantytowns. Condoms, although inexpensive, may be prohibitively costly for many impoverished teenagers. In the 2000 survey, of the 520 boys who reported that they had not used a condom at first intercourse (occurring between the ages of 9 and 17), nearly half said that they had not expected the sexual encounter or that a condom was not available.13 Efforts to increase adolescents’ use of condoms should aim to make them easier to obtain by making them available locally without registration and at any time of day or night.

The young ages at which boys become sexually active in Recife, as revealed by the study data and, more generally, across Brazil must be understood in terms of the traditional norms of masculinity that are particularly strong in the Northeast where young men are expected
to be strong, dominant, and aggressive and young women more passive in romantic and sexual relationships. Young men in Recife are under considerable social pressure to prove themselves by becoming sexually active and demonstrating their knowledge of sexual matters. Relatively higher household living standards and boys’ higher educational attainment, both of which are estimated to lead to earlier first sex, must be understood in a context where most inexperienced adolescent boys are keenly interested in having sexual experience. As noted above, boys living in relatively wealthier households are probably less likely to have to work long hours to support their families, allowing them more time and energy to seek out a sexual encounter; they may also be more attractive to potential partners. Although this finding is based on data collected from impoverished neighborhoods and thus does not include responses from boys of higher socioeconomic status, the same result was reported by Juarez and Castro (1997) in a study of the 1989–90 survey data for the entire city (Recife) and is also evident in Table 2. Interestingly, research on Northeastern Brazil (and elsewhere) typically has found the opposite result for young women, for whom later ages at first sexual intercourse are associated with higher educational attainment and, presumably, also with higher household economic status (Juarez and Castro 1997; Singh 1998; Gupta 2000). Gender differences in the social significance of virginity, sexual experience, and behavior are issues that merit additional research.

The results of both regressions point to the importance of sustained parental involvement in children’s upbringing (reflected in the family structure and permission variables) both for postponing first sexual intercourse and for promoting condom use when it occurs. Notwithstanding parents’ declining influence over their children’s behavior in recent years, mothers and fathers continue to play important roles in promoting their sons’ responsible sexual behavior. Reproductive health programs and media campaigns should emphasize to parents the value of their remaining heavily involved in rearing their children, and should seek ways to enable them to stay involved. This task is not a simple one in the shantytown environment of Recife, where parents often are obliged to work long hours outside the home and fathers are frequently absent, leaving mothers to bear the prime responsibility for rearing children. Many parents may be unable to increase the time they spend with their children in light of their difficult living conditions.

Public and nongovernmental programs should aim to provide adolescents with adult supervision and guidance, especially important for those who lack solid support from their families. Spaces and occasions should be developed where teenagers can observe and interact with positive adult and peer role models, and where they can obtain advice and condoms readily in a supportive environment (for example, see Hughes and McCauley 1998). More broadly, programs should be implemented that devise ways to provide boys and girls with greater awareness of the risks of unsafe sexual practices and to enable them to take control over their sexual lives in a responsible manner.

Notes
1. Within Brazil, the Northeast region where Recife is located is known to be relatively more traditional (Rebhun 1999).
2. See Rani et al. (2003) for a description of such gender differences in adolescents’ sexual attitudes in Nicaragua.
3. This project was developed by the first author of this study and funded by the Department for International Development (United Kingdom). Project partners in Brazil are the Fundação Joaquim Nabuco and BEMFAM.
4. Such exaggeration would have led to young boys’ claiming to have had sex when they have not, resulting, for example, in a greater proportion of boys aged 15 who report early first sex (at <15) compared with older boys—a difference not found in the data.
5. The few cases of first sexual intercourse reported as occurring at ages 18 and 19 are not taken into account (that is, they are right-censored) so as to focus the study on the behaviors of younger adolescents. As a consequence of the sample design and of the high level of sexual activity occurring at younger ages, only 12 instances of first intercourse at 18 or 19 are found in the data. Moreover, at these ages, young men are marrying or entering into other long-term unions, thereby selectively removing themselves from the data and potentially biasing the results. For example, the behavior of an older teenager who has a first sexual experience with his girlfriend at age 18 and is married during the next year would not be captured by the survey if his marriage occurred before the survey date.
6. These two data sets are the most similar sources of information available that can be used for an exploration of trends in boys’ sexual behaviors during the 1990s, a decade during which the Brazilian government made great efforts to control the HIV/AIDS epidemic. These data also exhibit some fundamental differences, however: The first (1990) data set is drawn from a survey sample, whereas the second (2000) is effectively drawn from a small-area census. The definitions of low-income populations used in the two surveys are also different: The first is based on individual and household criteria and the second on community criteria (low-income zones). Although we have made every effort to render these data as similar in nature as possible, these differences should be kept in mind when examining changes over time.
7. Of the boys interviewed in the 2000 survey who reported using a family planning method at first intercourse, 245 used condoms; in two cases, the pill was used; and in one case, the IUD was used. One reported that he had practiced withdrawal.
8. For this column, the predicted probability of having first sex before age 15 is first estimated for each boy surveyed for each age through 14, given the regression coefficients and his own characteristics—the values of the independent variables. These characteristics are then modified one by one, keeping all other charac-
teristics of the boy constant, and the probabilities are recalculated. For example, all boys surveyed are defined first to be of low socioeconomic status and are redefined as being in the medium-low living standards category, and finally are redefined to medium status, keeping all their other characteristics as they are recorded by the survey. At each stage, the individual probabilities of having first sex are recalculated for each age for each boy. The individual predicted probabilities are averaged for each age group, and the probability of having first sex before the boy’s fifteenth birthday is derived from these averages using life-table methods.

9 Brazilians tend to define their race partly in terms of how they view themselves with regard to their position in society. For this reason, the boundaries of race are flexible and not solely a function of ethnic background.

10 The “permission” variable would be affected by reverse causality if parents are attempting to impose discipline on “wild” adolescents, who are likely to have started having sexual relations at an early age. In this situation, endogeneity biases would act to link boys’ earlier age at first intercourse with their having to gain permission to go out at night. To the extent that this endogeneity occurs, the estimated effect of the permission variable will tend to be small: Its causal impact typically would be understated.

11 The method used to calculate predicted probabilities is similar to that described for the discrete-hazard logit regressions. Because the condom regressions are simple bivariate logit models, however, probabilities need not be aggregated across age categories (as in the last step presented above).

12 Although the estimated coefficient for boys aged 15 and older and girls younger than 15 is not statistically significant, only 39 cases appear in the data. Given the sample design, the majority of these boys are 15.


References


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