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DETERMINANTS OF CONDOM USE AMONG YOUTH IN MADAGASCAR

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Summary. The objective of this study was to identify the key determinants of condom use with regular and casual partners among youth in Madagascar. Data stem from a reproductive health survey conducted in October–December 2000 among a representative sample of 2440 youth aged 15–24 living in Toamasina province. Following theoretical models of behaviour change, logistic regression was used to assess the effect of AIDS awareness, personal risk perception, condom access, perceived condom effectiveness, self-efficacy and social support on condom use. Among sexually experienced youth, only about four in ten males and two in ten females have ever used condoms. Fewer than 15% of youth used a condom in last intercourse with their regular partner. Whether youth will try condoms appears to depend largely on the perceived effectiveness of condoms for family planning, access to a nearby condom source, parental support for condom use, and patterns of risky sexual behaviour. Young males' likelihood of using a condom with a regular partner increases significantly if they perceive condoms to be effective for family planning (OR=11·4; p=0·019). For females, it increases with level of self-efficacy (OR=2·1; p=0·042) and having discussed HIV prevention with someone in the last year (OR=2·8; p=0·022). Among males, condom use with casual partners is significantly higher among those who perceive themselves to be at high risk of sexually transmitted infections (OR=2·3; p=0·014), who believe condoms are effective for family planning (OR=2·8; p=0·048), who have good access to condoms (OR=2·9; p=0·002) and who perceive their parents support condom use (OR=1·7; p=0·048). In conclusion, very few youth in Toamasina are using condoms, highlighting the need to continue and expand adolescent reproductive health interventions. In this low HIV prevalence setting, it is important for these programmes to emphasize that condoms are effective for both pregnancy prevention and STI/HIV prevention.

Introduction

Madagascar, unlike many other sub-Saharan African countries, has a relatively low, albeit rising, HIV prevalence rate. It is estimated that the HIV prevalence rate has increased from 0·002% in 1989 to 0·003% in 1992, to 0·007% in 1995, to an estimated 0·3% in 2001 (Behets *et al.*, 1996; Rasamindrakotroka *et al.*, 1996; Zeller *et al.*, 1997; Andriamahenina *et al.*, 1998; UNAIDS, 2002). Unofficial estimates put HIV prevalence at 1·5% for 2003 (L. Rabary, personal communication).

Despite these low HIV prevalence rates, several risk factors are present. Madagascar has high rates of infection with sexually transmitted infections (STIs), including syphilis and hepatitis B (Harms *et al.*, 1994a, b; Behets *et al.*, 1996, 1999, 2001; Rasamindrakotroka *et al.*, 1996; Gonzales *et al.*, 1998; Lanouette *et al.*, 2003; Leutscher *et al.*, 2003). For example, a 1995 survey of pregnant women, prostitutes and STI patients revealed an HIV prevalence rate of only 0·2%, but a syphilis prevalence rate of 17·7%. Extreme poverty, prostitution and tourism also favour the spread of HIV (Ravaorarimalala *et al.*, 1998; Nabakwe, 1999). Hence, there is concern that Madagascar may be on the verge of a major HIV epidemic (Xueref *et al.*, 2000; Behets *et al.*, 2001). Projections suggest that if Madagascar were to follow the epidemic trend of a country like Kenya, HIV prevalence could reach 15% by 2015 (Lanouette *et al.*, 2003).

Recent statistics on HIV prevalence among youth are not available. However, data from 1995–1996 put HIV prevalence among youth at 0·24% (Comité National de Lutte Contre le VIH/SIDA, 2003), which is substantially higher than the adult HIV prevalence rate of 0·007%. If an HIV epidemic does occur, projections indicate that young people will account for a large fraction of HIV infections (Andriamahenina *et al.*, 1998). An early age at first intercourse, high rates of partner exchange, and low condom use put many youth at risk of infection with HIV and other STIs (Gonzales *et al.*, 1998). Roughly one in five women is sexually active by age 15, and more than 60% by age 18 (Razanadrasara, 1998, p. 79). Among sexually experienced women, only 62% of those aged 15–19 and 74% of those aged 20–24 know about condoms. The majority of those who know about condoms do not know a condom source (Gonzales *et al.*, 1998, p. 177). Not surprisingly, even among women who are knowledgeable about acquired immunodeficiency syndrome (AIDS), only 6·9% of those aged 15–19 and 11·6% of those aged 20–24 report ever having used a condom (Gonzales *et al.*, 1998, p. 178). These levels of condom use are low in comparison with some other countries in sub-Saharan Africa. For example, a study of urban Cameroon found that 78% of males and 77% of females aged 15–24 had ever used a condom, and that 60% of males and 47% of females had used a condom in last intercourse with a casual partner (Meekers & Klein, 2002). In a study of Zimbabwe, 53% of males and 35% of females aged 15–24 reported consistently using condoms with non-marital partners (Adetunji & Meekers, 2001).

A national programme against STIs and AIDS was implemented in 1988, and since that time the Ministry of Health has mobilized to provide STI/AIDS information and to provide STI management (Gonzales *et al.*, 1998). Despite these efforts, the 1997 Demographic and Health Survey revealed that 45% of women aged 15–19 and 54% of those aged 20–24 had never heard of STIs. Likewise, 31% and 30%,

respectively, had never heard about AIDS (Gonzales *et al.*, 1998, pp. 164–170). Among young women who heard about AIDS, only about half were aware that a healthy-looking person can be infected (52% and 50% for ages 15–29 and 20–24, respectively). Risk perception was very low. Only 13·1% of women aged 15–19 and 14·3% of women aged 20–24 considered their personal risk of HIV infection to be moderate to high (Gonzales *et al.*, 1998, p. 172). Exposure to information about family planning was also low. For example, about 15% of women aged 15–24 had heard 'Sarivolana', a radio soap opera on family planning, and about half of those had heard more than five episodes of the programme (Razafimanjato, 1998, pp. 65–66).

To reduce the incidence of mistimed pregnancies and STIs, and to curtail the spread of HIV, both governmental and non-governmental organizations are implementing youth-oriented reproductive health programmes. Because condoms are effective for preventing both unplanned pregnancies and STIs, condom distribution and promotion programmes can play an important role in improving adolescent reproductive health. To facilitate the design of effective programmes and policies, programme managers and policymakers need to have comprehensive understanding of the factors that facilitate or deter condom use among the target population.

As yet, there is only limited information on the specific determinants of condom use among Malagache youth. Nevertheless, studies in other African countries indicate that condom use is determined by multiple factors and that these determinants may vary across societies (Abdool Karim *et al.*, 1992; Adih & Alexander, 1999; Meekers & Klein, 2002). Several studies on African youth indicate that condom use is associated with personal risk perception (Akande, 1994; Estrin, 1999); self-efficacy – the belief that one can design and execute a specific behaviour (Lahai & Ross, 1997; Estrin, 1999); perceptions about condoms – that they are effective, that they decrease sexual pleasure, that they suggest untrustworthiness of a partner (Abdool Karim *et al.,*1992; Maswanya *et al.*, 1999; Peltzer, 2000); and social support (Wilson & Lavelle, 1992; Akande, 1994; Estrin, 1999; MacPhail & Campbell, 2001).

These studies highlight that several factors may influence condom use, and that these factors may vary across societies and over time. Research findings from both the United States and Zambia further show that sexual behaviour and condom use may have multiple antecedents that each have a small impact, rather than a few antecedents with a large impact (Kirby, 1999; Magnani *et al.*, 2002b). In other words, it is likely that there is no simple 'magic bullet' solution to prevent reproductive health problems among youth. Hence, there is a clear need for comprehensive studies on the factors affecting protective behaviour.

This study uses survey data to examine the predictors of condom use among youth in Toamasina (formerly Tamatave) province. The study is part of a larger research project that aims to inform the design of the *TOP Réseau* youth-oriented reproductive health social marketing programme in Madagascar (Population Services International, 2003a, 2003b) and to measure its impact. The programme targets youth aged 15–24 living in peri-urban areas of Toamasina province, which has a total population of approximately 2·5 million (see Neukom & Ashford, 2003). Toamasina was selected for the programme because it is a high-risk area that accounts for one-third of all sexually transmitted infections nationwide. Although the survey used

for this analysis was conducted as part of this social marketing campaign, the results are relevant for other youth reproductive health programmes.

Data and Methods

Data

The analysis is based on the 2000 Madagascar Adolescent Reproductive Health Survey, which was commissioned by PSI and implemented by the Direction de la Demographie et des Statistiques Sociales (DDSS) between October 29th and December 2nd 2000 (Rabemanantsoa & Rabary, 2001). The survey contains information on a randomly selected sample of youth aged 15–24 living in Toamasina province. The survey questionnaire included a range of questions on reproductive health topics including STI/HIV risk behaviour and condom use, and was pre-tested among 55 male and female youth in Toamasina.

A multistage stratified sampling design was used with a targeted sample size of 2500 youth. In the first stage, 30 enumeration areas (*fokontany*) were selected in Toamasina II and 49 in Toamasina I, with probability of selection proportional to population size. Within the selected enumeration areas, 25 youth were selected using systematic sampling, with the sampling intervals proportional to the population size. One eligible person was randomly selected per household, and up to three interview attempts were made.

The interviews were conducted by a team of 29 interviewers and six supervisors who had participated in a five-day training workshop. All interviews were conducted in Malagasy, which is the *lingua franca*. Informed consent was obtained verbally, both from the head of the household and the respondent. There were 72 refusals. A total of 2440 interviews were completed. Analysis is restricted to the subsample of the 1915 unmarried, sexually experienced youth.

Measures

Outcome measures. Whether the respondent reports having ever used condoms, used a condom in the last sex act with a regular partner, or in the last sex act with a casual partner were measured (yes/no). Respondents were also asked how often they used condoms with their regular partners (never, sometimes, often, always) and with their casual partners. Respondents who reported 'always' using condoms were coded as consistent users.

Predictor variables. Predictor variables cover perceptions about the severity of the health threat, personal risk, condom attributes and access, self-efficacy and social support:

- *Perceived severity of the health threat*. Respondents were asked 'Do you believe that a person who has HIV/AIDS can survive?' and 'Do you believe that AIDS can be cured?' Indicators of perceptions of the health threat are two dummy variables indicating whether the respondent believes that someone infected with HIV/AIDS

can survive and whether s/he believes that AIDS can be cured (yes vs no/don't know).

- *Perceived risk*. To measure perceived risk of HIV infection, respondents were asked 'If you were to not use condoms, would you say your risk of contracting HIV/AIDS would be high, moderate, low, or there would be no risk?' The clause 'if you were to not use condoms' avoids the problem that some respondents may factor in condom use in their risk assessment while others may not. The variable measures whether respondents believe their risk to be high vs other. A similar question was asked about perceived risk of STI infection.
- *Perceived condom attributes and access*. Respondents were asked whether condoms are effective for pregnancy prevention and for HIV/AIDS prevention. These two variables were coded as 'yes' vs 'no/don't know.' Youth were also asked 'Do you believe that condom use reduces sexual pleasure for men?' A similar question was asked about sexual pleasure for women. The indicator is a dummy variable that equals one if the respondent perceives that condom use reduces sexual pleasure for at least one of the partners, zero otherwise. Finally, respondents were asked how long it would take to walk to the nearest condom outlet. This information was coded as 'more than 10 minutes/don't know source' vs 'less than 10 minutes'.
- *Self-efficacy*. Recognizing that self-efficacy is a multi-faceted concept (Parsons *et al.*, 2000; Meekers & Klein, 2002), several components of condom use self-efficacy were measured. Respondents' perceived ability to ask his/her partner's sexual history and to obtain condoms was focused on. To measure confidence in their ability to ask their partner's sexual history, respondents who had a regular and/or casual partner in the past year were asked 'Are you sure that you can ask him/her about his/her sexual history?' (yes vs no/not sure). Respondents were also asked 'Would you be shy to buy condoms in a shop near your home?' The indicator is a dummy variable that equals one for respondents who indicated they would not be shy, zero for all others.
- *Social support*. Questions pertaining to social support include 'Do your parents support condom use by youth?' and 'Do your friends support condom use by youth?' Both questions were coded as 'yes' vs 'no/don't know.' In addition, youth were asked whether they discussed the use of family planning, STI prevention, HIV/AIDS prevention in the past year (yes vs no).

Control variables. Control variables include number of sexual partners (a dummy variable indicating whether or not the respondent reported having two or more casual or regular partners in the past year), age (15–19 vs 20–24), highest level of education attained, school enrolment status (student vs other) and socioeconomic status (SES). Socioeconomic status is measured using a cumulative index of six household assets and amenities (car, radio, television, refrigerator, electricity, tap water). Respondents were rank-ordered by SES score and grouped into three roughly equal-sized groups (low, medium and high SES).

Methods

Logistic regression analyses were used to examine the influence of constructs in the behaviour change framework on having ever used condoms and condom use in last

intercourse with regular and casual partners. The results of the logistic regression models are converted to odds ratios (ORs), which represent the effect of a one-unit change in the explanatory variables on the indicator of condom use. Odds ratios larger than one indicate a greater likelihood of condom use than for the reference category; odds ratios smaller than one indicate a smaller likelihood compared with the reference category. Because sexual and preventive behaviour varies by socioeconomic and demographic factors, controls for such factors are included, as well as for number of sexual partners. All analyses are estimated separately for male and female respondents. However, because few females reported having casual partners ($n=98$), the determinants of condom use in last intercourse with a casual partner were limited to males.

Study limitations

This study is subject to several limitations. The behavioural outcomes are based on self-reported information, which is subject to reporting errors and biases. The type of data collection procedures used (personal interviews, in this case) may have contributed to such errors. For example, several studies have demonstrated that interviews conducted using personal interviews, computer-assisted self-interviews (CASI), and audio-computer-assisted self-interviews (audio-CASI) yield different estimates of levels of sensitive behaviours, although it remains to be determined which of these data collection approaches is most accurate (Turner *et al.*, 1997, 1998; Van de Wijgert *et al.*, 2000; Mensch *et al.*, 2001; Magnani *et al.*, 2002b). Finally, this study is based on cross-sectional data, implying that the direction of causal relationships cannot always be determined.

Sample description

Table 1 shows the characteristics of the working sample. The sample includes almost equal numbers of males and females, and all sociodemographic characteristics of the sample varied by gender. Because the sample is restricted to sexually experienced youth, just over half of the population surveyed was aged 20–24. Close to half of the surveyed youth (about 41% of females and 48% of males) had attended secondary or higher education, and only 8·5% of females and 15% of males were still in school. By definition, approximately one-third of youth respondents had low, medium or high SES. However, females, on average, had a lower SES than males.

Only 5% of females but 38% of males reported having multiple partners in the past year. Awareness that HIV/AIDS is fatal and cannot be cured is high. However, only 22% of females and 38% of males believe they have a high risk of HIV infection. Over one-quarter of youth question whether condoms are effective for family planning, HIV/AIDS prevention or STI prevention.

Condom access is poor. Only 52% of females and 64% of males report knowing a condom source within 10 minutes walking distance. Fifty-five per cent of males believe that condoms reduce sexual pleasure for men, as opposed to only 28% of females. Overall, 37% of females and 58% of males believe that condoms reduce sexual pleasure for at least one of the partners.

Table 1. Sample characteristics: sexually experienced, unmarried youth aged 15–24

	Females (%)	Males (%)	χ^2(df); p value
Sociodemographic characteristics			
Aged 15–19	46·8	40·8	7·03 (1); 0·008
Attended secondary school or higher	41·0	47·5	8·252 (1); 0·004
Enrolled in school	8·5	15·0	20·063 (1); 0·000
SES			
Low	43·1	32·5	40·253 (2); 0·000
Medium	35·0	33·3	
High	21·9	34·2	
Reported sexual risk behaviour			
Had two or more partners past year	4·7	37·8	313·96 (1); 0·000
Perceived severity (% 'yes')			
HIV-positive person can survive	6·5	11·0	12·179 (1); 0·000
AIDS can be cured	5·4	6·7	1·335 (1); 0·248
AIDS is a very serious problem	76·0	77·3	0·476 (1); 0·490
Perceived personal risk			
% High personal risk for HIV	21·9	38·3	109·793 (1); 0·000
% High personal risk for STI	15·8	31·8	123·78 (1); 0·000
Perceived barriers and solutions (% 'yes')			
Condoms effective for family planning	66·4	77·5	29·474 (1); 0·000
Condoms effective for HIV/AIDS prevention	71·1	82·1	32·595 (1); 0·000
Condoms effective for STI prevention	71·1	86·6	69·323 (1); 0·000
Condom source within 10 minutes	51·6	63·5	28·06 (1); 0·000
Condoms reduce pleasure	37·1	58·0	84·156 (1); 0·000
Perceived self-efficacy (% 'yes')			
Confident can ask regular partner's sexual history[a]	73·0	89·7	48·607 (1); 0·000
Confident can ask casual partner's sexual history[b]	45·9	85·9	76·897 (1); 0·000
Not shy to obtain condoms	39·6	66·4	137·94 (1); 0·000
Perceived social support (% 'yes')			
Parents support youth condom use	27·6	49·2	94·962 (1); 0·000
Peers support youth condom use	57·6	73·9	56·180 (1); 0·000
Discussed FP in past year	50·7	30·0	85·559 (1); 0·000
Respected person supports condom use	14·0	26·2	44·656 (1); 0·000
Discussed STI prevention in past year	35·0	40·1	5·429 (1); 0·020
Discussed AIDS prevention in past year	34·3	40·0	6·61 (1); 0·010
Total			
%	100	100	
N	958	957	

Source: Madagascar Adolescent Reproductive Health Survey, 2000.

[a]Restricted to respondents who reported having a regular partner in the past year (417 females and 600 males).

[b]Restricted to respondents who reported having a casual partner in the past year (98 females and 454 males).

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Perceived self-efficacy varies by partner type and by gender. Among youth with regular partners, 90% of males but only 73% of females report being comfortable asking their regular partner about his/her sexual history. Among youth who had a casual partner in the past year, 86% of males and 46% of females report being confident to ask their casual partners about their sexual history. Similarly, 66% of males report not being shy obtaining condoms, compared with 40% of females.

Perceived parental support for condom use is low, especially for females. Only 28% of females and 49% of males thought their parents would support adolescent condom use. On the other hand, most respondents thought their friends would support the use of condoms (58% of females and 74% of males). About half of all females (51%) and 30% of males discussed family planning in the past year. Similarly, 34% of females and 40% of males discussed HIV/AIDS in the previous year.

Results

Levels and consistency of condom use

Table 2 shows levels and consistency of condom use by age and gender. Only one-third of youth (42% of males and 21% of females) reported ever having used a condom. Among males, ever-use increases with age; among females, the age differential is not significant.

Condom use with regular partners is not common. About 13% and 10% of male and female respondents reported having used a condom in the last sexual act with regular partners. In either case, the percentage does not vary significantly by age. When asked if they always used condoms in every sexual act with regular partners, only 6% of males and 7% of females responded that they did. Again, there was no significant variation by age for either gender.

The levels of condom use at last sexual act with casual partners is also very low, although higher than for regular partners. About 24% of males and 20% of females reported using condoms at last act with such a partner. Among male respondents, use increases with age (17% for 15- to 19-year-olds and 29% for 20- to 24-year-olds). Females' reported use did not vary by age. Consistency of condom use with a casual partner is similarly low. Only 17% of both males and female respondents reported always using a condom with casual partners. Significant variation by age groups was only found for male respondents, where higher percentages of older respondents reported always using a condom with casual partners.

Determinants of ever-use of condoms

Table 3 shows the determinants of ever-use of condoms by gender. Male respondents were significantly more likely to ever have used a condom if they had a high perceived risk of STI (OR = 1·8), they perceived condoms as an effective form of family planning (OR = 2·5), knew of a condom source within 10 minutes walking distance (OR = 2·4) or perceived high levels of parental and peer support for condom use (OR = 2·1 and 1·7, respectively). Male youth who had discussed family planning and STIs with another person in the past year were each 1·5 times more likely to have ever used a condom. It is noteworthy that discussing HIV/AIDS had no effect. As

Table 2. Levels and consistency of condom use, by age and gender

	Males		Females	
	%	*N*	%	*N*
Ever used a condom				
Total	42·3	959	20·8	957
15–19	33·6	390	18·1	448
20–24	48·2	566	23·2	509
	$\chi^2(1)=20{\cdot}291$; $p=0{\cdot}000$		$\chi^2(1)=3{\cdot}766$; $p=0{\cdot}052$	
Used condom in last act with regular partner				
Total	13·3	602	10·3	418
15–19	12·9	249	10·0	260
20–24	13·6	353	10·8	158
	$\chi^2(1)=0{\cdot}071$; $p=0{\cdot}790$		$\chi^2(1)=0{\cdot}061$; $p=0{\cdot}804$	
Used condom in last act with casual partner				
Total	24·0	454	20·4	98
15–19	17·3	197	14·3	49
20–24	29·2	257	26·5	49
	$\chi^2(1)=8{\cdot}691$; $p=0{\cdot}003$		$\chi^2(1)=2{\cdot}262$; $p=0{\cdot}133$	
Always uses condoms with regular partner				
Total	5·8	602	6·9	418
15–19	7·2	249	8·1	260
20–24	4·8	353	5·1	158
	$\chi^2(1)=1{\cdot}552$; $p=0{\cdot}213$		$\chi^2(1)=1{\cdot}382$; $p=0{\cdot}240$	
Always uses condoms with casual partner				
Total	17·4	454	17·3	98
15–19	13·2	197	18·4	49
20–24	20·6	257	16·3	49
	$\chi^2(1)=4{\cdot}277$; $p=0{\cdot}039$		$\chi^2(1)=0{\cdot}071$; $p=0{\cdot}790$	

Note: The χ^2 results test age differences in condom use for respondents of each sex. Data pertaining to condom use with regular and casual partners are restricted to those respondents who reported having such partners in the 12 months before the survey. Source: Madagascar Adolescent Reproductive Health Survey, 2000.

expected, male youth who reported having more than two partners in the last year were 1·7 times more likely to have reported ever using condoms, and older youth (20–24) were 1·9 times as likely. High SES or being currently enrolled in a school were not significant determinants. However, having at least a secondary education also significantly determined reporting ever-use of condoms (OR = 1·6).

Among females, the factors that significantly affect the likelihood of ever having used a condom include perceived effectiveness of condoms for family planning, condom access, perceptions of reduced pleasure, parental support for condom use, number of sexual partners and level of education. Those who believed condoms to be effective for family planning were 3·4 times more likely than others to report ever using a condom. These knowing a condom source within 10 minutes walk were

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Table 3. Relative odds of ever having used condoms

	Males		Females	
	Odds ratio	*p*	Odds ratio	*p*
Perceived severity				
HIV-positive person can survive	1·036	0·364	0·964	0·421
AIDS can be cured	0·978	0·634	0·915	0·167
Perceived risk				
High personal risk for HIV	1·158	0·477	1·449	0·135
High personal risk for STI	1·758	0·006	1·596	0·087
Perceived barriers and solutions				
Condoms effective for FP	2·492	0·000	3·415	0·000
Condoms effective for HIV/AIDS prevention	1·304	0·338	1·161	0·647
Condom source within 10 minutes	2·432	0·000	1·780	0·008
Condoms reduce pleasure	1·264	0·155	2·164	0·000
Self-efficacy[a]				
Perceived social support				
Parents support youth condom use	2·064	0·000	1·677	0·010
Friends support youth condom use	1·690	0·007	0·989	0·957
Discussed FP in past year	1·494	0·025	1·177	0·456
Discussed STI prevention in past year	1·518	0·019	1·291	0·312
Discussed HIV/AIDS prevention in past year	1·231	0·251	1·287	0·302
Control variables				
Had 2+ partners in past year	1·749	0·001	3·601	0·001
Age	1·872	0·000	1·191	0·384
Secondary education or higher	1·601	0·014	2·429	0·000
Student	0·690	0·126	0·761	0·396
High SES	1·167	0·389	1·209	0·373
% Predicted correctly	71·4		79·4	
− 2 Log likelihood	988·397		713·724	
N of cases	915		848	

[a]Because some of the self-efficacy indicators used in this study are partner-specific, they are not included here. Source: Madagascar Adolescent Reproductive Health Survey, 2000.

1·8 times more likely than others to have tried condoms, and those who perceived a high level of parental support for condom use were 1·7 times more likes to report than others to have ever used a condom. By contrast, peer support was not a significant determinant of ever-use of condoms among females. Interestingly, those females believing that condoms reduced pleasure were 2·1 times more likely to report having ever used a condom. This may be a case of reverse causality, as females who have tried condoms are more likely to know whether condoms affect sexual pleasure. Similar to male respondents, having more than two partners within the last 12 months and having at least a secondary education increased the odds of reported ever-use of condoms (OR = 3·6 and 2·4, respectively). It is noteworthy that

for female respondents, unlike males, perceived high risk of HIV or STI was not a significant determinant of how likely they were to report ever using a condom.

Determinants of condom use in last sexual intercourse

Table 4 shows the determinants for condom use at last sexual intercourse. First condom use with regular partners is discussed. Results for male respondents show that the only variable significantly increasing the likelihood of reported condom use in last sexual intercourse with a regular partner was perceived effectiveness of condoms as a family planning method (OR = 11·4). Among female respondents, condom use with regular partners is determined by having self-efficacy in obtaining condoms and by having discussed HIV/AIDS. Female respondents who reported not being shy to obtain condoms were 2·2 times more likely than other females to have used a condom in last sex with their regular partner. Similarly, females who discussed HIV/AIDS prevention in the past year were 2·8 times more likely than other females to have used a condom in last sex with their regular partner.

As few women reported having casual sexual partners ($n = 98$), analysis concerning condom use at last sexual intercourse with casual partners was conducted only for male respondents. The results show that male condom use with casual partners is associated with perception of personal risk of STIs, perceptions about the effectiveness of condoms for family planning, perceived condom access and parental support. Specifically, males who perceive themselves to be at high personal risk of STIs are 2·3 times more likely than other males to have used a condom in last sex with their casual partners. Males who believe condoms are effective for family planning are 2·8 times more likely than others to have used a condom in last sex with a casual partner. Males who knew a condom source within 10 minutes walking distance are 2·9 times more likely than those who do not, to have used a condom in their last sex act with a casual partner. Finally, males who believe that their parents support youth condom use are 1·7 times more likely than other males to have used a condom with their casual partner.

Conclusions

Youth-targeted condom promotion programmes can play an important role in efforts to reduce the incidence of reproductive health problems among adolescents and young adults. Condom programmes are particularly valuable because condoms protect against unplanned pregnancy as well as STIs. This study has analysed survey data to identify the determinants of condom use to inform future youth reproductive health programmes in Madagascar.

The data show that very few youth in Toamasina are using condoms. Only about one-third of sexually experienced youth have ever used a condom. Very few youth used a condom in their last sex act with their regular partner. Levels of condom use with casual partners are higher than use with regular partners, but the levels remain low. More than 75% of males and 80% of females did not use a condom in their last sex act with a casual partner. Hence, there is a clear need to continue and expand adolescent reproductive health interventions.

Table 4. Relative odds of having used condoms in the last act with a regular partner and with a casual partner

	Use with regular partners				Use with casual partners	
	Males		Females		Males	
	Odds ratio	*p*	Odds ratio	*p*	Odds ratio	*p*
Perceived severity						
HIV-positive person can survive	0·847	0·084	0·903	0·348	1·053	0·433
AIDS can be cured	0·974	0·792	0·956	0·756	0·953	0·379
Perceived risk						
High personal risk for HIV	1·734	0·138	1·253	0·640	0·749	0·408
High personal risk for STI	0·667	0·285	1·239	0·679	2·341	0·014
Perceived barriers and solutions						
Condoms effective for family planning	11·389	.019	2·982	.070	2·836	.048
Condoms effective for HIV/AIDS prevention	0·781	0·644	0·918	0·901	1·398	0·497
Condom source within 10 minutes	1·681	0·118	1·214	0·658	2·867	0·002
Condoms reduce pleasure	1·074	0·794	1·756	0·129	0·739	0·236
Self-efficacy						
Confident can ask regular partner for sexual history	0·807	0·637	0·623	0·252	—	—
Confident can ask casual partner for sexual history	—	—	—	—	1·609	0·236
Not shy to obtain condoms	1·215	0·529	2·164	0·042	1·479	0·232
Perceived social support						
Parents support youth condom use	1·062	0·825	1·111	0·784	1·728	0·048
Friends support youth condom use	1·649	0·181	1·824	0·181	1·907	0·065
Discussed FP in past year	1·552	0·121	0·858	0·708	1·375	0·265
Discussed STI prevention in past year	0·985	0·958	0·963	0·934	1·621	0·101
Discussed HIV/AIDS prevention in past year	1·324	0·349	2·794	0·022	1·428	0·220
Control variables						
Had 2+ partners in past year	0·728	0·265	1·752	0·326	0·921	0·810
Age	1·047	0·866	0·623	0·255	1·602	0·084
Secondary education or higher	1·041	0·902	1·764	0·192	1·585	0·123
Student	1·336	0·401	1·396	0·487	0·739	0·458
High SES	0·983	0·951	0·628	0·255	0·811	0·472
% Predicted correctly	86·3		88·7		77·2	
− 2 Log likelihood	417·761		223·448		394·001	
N of cases	582		381		430	

Source: Madagascar Adolescent Reproductive Health Survey, 2000.

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The results also show that the determinants of condom use vary by gender and by partner type, and these differences need to be considered to develop appropriate programme activities and messages for males and females. For example, whether youth will try condoms depends on their perceived effectiveness for family planning, access to a nearby condom source, parental support and risky sexual behaviour. Males, however, are also more likely to try condoms if they feel they are at risk of STIs (but not HIV infection), have peer support, and have discussed family planning or STIs. Among females, these latter factors are not associated with ever-use of condoms. Similarly, whether males will use condoms with their regular partners appears to depend mostly on perceptions about the effectiveness of condoms for family planning. Whether females use condoms with their regular partners is determined mostly by self-efficacy, as defined as a lack of shyness to obtain condoms. Hence, reproductive health programmes for youth need to develop campaign activities and messages that are sensitive to these gender differences.

Finally, it is important to highlight the significance of condom use for family planning. These findings show that both males and females are more likely to try condoms if they perceive them to be effective for family planning. Males are also more likely to have used a condom in last intercourse with their regular partner if they perceive condoms to be effective for family planning. Thus, in this low HIV prevalence setting, it appears to be very important for youth reproductive health campaigns to emphasize that condoms are effective for both pregnancy prevention and STI/HIV prevention.

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