

## Sexual Risk Behavior of Travelers who Consulted a Pretravel Clinic

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**Objective.** The objective of this study was to determine to which degree travelers who received pretravel advice at a travel clinic have protected or unprotected sexual contact with a new partner and what factors influence this behavior.

**Method.** An anonymous questionnaire was sent to travelers who came to a pretravel clinic between June 1 and August 31, 2005. Risk factors for casual travel sex and predictors of protected sex were studied in a multivariate model.

**Results.** A total of 1,907 travelers were included (response rate 55%) in the study. Only 4.7% of the respondents had sexual contact with a new partner, and 63.1% of these new partners were from the country of destination. Of those who had casual travel sex, 52.4% did not expect this (women 75%), 30.9% did not always use condoms, and 41% were not protected against hepatitis B. Independent risk factors for casual travel sex were traveling without steady partner (OR 14.4), expecting casual travel sex (OR 9.2), having casual sexual contacts in the home country (OR 2.4), non-tourist journeys (OR 2.2), being male (OR 2.1), the fact that the information on sexually transmitted infections (STI) had been read (OR 2.0), and traveling to South and Central America (OR 2.0). Taking condoms along (OR 5.4) and reading the information on STI (OR 3.3) were identified as independent predictors of protected sex.

**Conclusions.** Travelers have substantial sexual risk behavior. Casual sex is usually not expected, and the most important predictor is traveling without a steady partner. We would advise every client of a travel clinic who will travel without a steady partner to read the STI information, to take condoms along, and to be vaccinated against hepatitis B.

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In the clinic for sexually transmitted infections (STI) of the Community Health Service GGD Hart voor Brabant ('s-Hertogenbosch, The Netherlands) and the Institute of Tropical Medicine (ITM) (Antwerp, Belgium), we regularly see clients who have had casual sexual contacts during a trip abroad. In 2005, we found that 6.5% of clients of the STI clinic of the GGD Hart voor Brabant had unsafe sexual contacts abroad within the preceding 3 months. The risk of acquiring an STI by unsafe sex during travel in tropical countries is higher than in Western countries, given their higher prevalence, including human immunodeficiency virus (HIV) and hepatitis B. However, travelers are not

always aware of this fact. Of sex tourists to Thailand, mostly highly educated men aged between 30 and 40 years, only 30% to 40% used condoms despite an HIV prevalence of 1.5% in the general population, towering to nearly 50% in the commercial sex workers (compared with an HIV prevalence of 0.2% in the Netherlands and Belgium).<sup>1</sup> The more than threefold rise in syphilis cases in the past 3 years and the increasing fluoroquinolone resistance of *Neisseria gonorrhoeae* are probably related to sexual contacts abroad. In the Netherlands, 27% of homosexual men, 30% of heterosexual men, and 19% of women with acute hepatitis B who acquired this by sexual contact between May 1999 and June 2000 were infected abroad.<sup>2</sup> In addition to a higher risk of acquiring these well-known infections, unsafe sexual contact in tropical countries can also introduce tropical STI into our countries. An example is the 2004 outbreak of lymphogranuloma

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venereum, which was until then a rare tropical disease in Europe.

Travelers who reported a new sex partner while abroad were likely to report higher numbers of partners while at home, by which STI acquired abroad can quickly spread in the home country.<sup>3</sup> One can expect that the risk of imported STI from tropical countries will further rise as people travel more. In 2004, the number of intercontinental travelers from the Netherlands rose 21%, compared with 2003; of these, about 50% sought health advice before departure.<sup>4</sup>

Two recent reviews on travel and STI concluded that sexual encounters during holiday have the potential to be a major and increasing cause of morbidity.<sup>5,6</sup> Some studies report a 6% to 56% incidence of casual sex among travelers, of which 24% to 75% was protected.<sup>1,7,8</sup> In one study, high-risk travelers were identified by the medical residents who gave pretravel advice, but no explicit criteria were defined.<sup>9</sup>

The objective of this study was to investigate the sexual risk behavior of travelers who consulted a pretravel clinic.

## Materials and Methods

Travelers who consulted the travel clinic of the GGD "Hart voor Brabant" in 's-Hertogenbosch (age range 16–50 y) or the ITM in Antwerp (18–50 y) between June 1 and August 31, 2005, were candidates for inclusion in this study. (The ITM ethical commission did not approve inclusion of individuals younger than 18 y.) Travelers older than 50 years were excluded as we intended to focus on the highest risk group. For practical reasons, individuals who planned to travel for more than 4 weeks and leave later than 6 weeks after the consultation or did not understand Dutch were excluded.

An anonymous questionnaire was sent 6 weeks after the travel advice to every person in the target group, and a reminder was sent 2 weeks later. As we expected a very low response on a questionnaire with such intimate questions and feared some people would even be offended, we informed individuals of the study and asked permission to send a questionnaire at the time of the travel advice, which nobody refused. We emphasized the importance of the questionnaire and gave an information leaflet about the study.

As no similar questionnaires were available, we developed our own and tested it in an informal pilot study. Collected data included gender, age, education, duration of journey, destination country, type of journey, journey with steady partner, hepatitis B protection, expectation of sexual contact, casual

sexual contacts at home, use of condoms with new partners at home, and whether condoms were brought on the journey. A steady partner was defined as a person with whom one had a (sexual) relationship before this journey. We also asked whether the STI risk was discussed during the pretravel consultation and whether the traveler read the STI information in the brochure with general health advice for travelers, which every client receives. If sexual contact with a new partner actually took place, we asked whether condoms were used, whether the partner was of the country of destination, and whether the sex took place after using alcohol or drugs. We did not ask whether the contact was with a commercial sex worker, as travelers may often not realize it.<sup>6</sup>

Data were analyzed using Statistical Package for Social Sciences Program for Windows v. 14 (SPSS Inc., Chicago, IL, USA). We used chi-square test for bivariate analysis and backward stepwise logistic regression for the multivariate. For the latter, only significant variables ( $p < 0.05$ ) were explored in the model.<sup>10</sup>

## Results

Of 3,462 questionnaires sent, 1,907 (55%) were returned and included in the analysis (1,298 from GGD and 609 from ITM). To determine whether the survey was representative of the entire group, we compared age, gender, and travel destination of the subgroup of responders of the GGD with the total group of travelers who left between July 1 and August 31, 2005, after travel advice at the GGD: the subgroup matched the total group ( $N = 3,199$ ).

Table 1 shows the basic characteristics of the sample. More women than men were included; the mean age was 29 years; and most individuals were highly educated. The mean duration of the journey was 16 days. The favored destination was sub-Saharan Africa (24%). Most of the respondents were tourists (89%) and traveled with their steady partner (61%). There were more respondents who took condoms along (25%) than respondents who expected casual sex (4%). Nearly 40% said that the STI risk was discussed during the pretravel consultation, 50% had read the STI information, and 45% had at least one hepatitis B vaccination.

Five percent of respondents had sexual contact with a new partner on their journey. Of these, 31% did not or did not always use condoms and 41% were not protected against hepatitis B. Sixty-three percent of these sexual contacts were with a partner from the country of destination and 79% always or

**Table 1** Characteristics of sample ( $N = 1,907$ )

Characteristics	Percent respondents
Gender	
Male	45
Age (y)	
16–20	12
21–25	26
26–30	20
31–40	24
41–50	18
Highest level of education	
Primary school	1
Secondary school	39
Higher professional training	36
University	24
Duration of journey (d)	
$\leq 7$	3
8–14	35
15–21	37
22–31	25
Destination	
Sub-Saharan Africa	24
Asia	23
Turkey	21
South America	11
Central America	10
North Africa	9
Western countries	3
Type of journey	
Business	4
Study or course	1
Visit of family or friends	6
Tourist-organized journey	54
Tourist not-organized journey	35
Journey with steady partner	
Yes	61
Hepatitis B protection	
Vaccinated for this journey	27
Was protected previously	18
Not protected	55
Expected to possibly have sex contact with a new partner on this journey	
Yes	4
Has casual sexual contacts in own country	
Yes	40
Uses condoms with new or casual partners in own country	
Yes	25
Sometimes	9
No	6
N/A, has no casual sexual contacts	60
Took condoms along on this journey	
Yes	25
STI risk was discussed during the travel consult	
Yes	39
Read the STI information in the travel brochure	
Yes	50
Sexual contact with a new partner on this journey	
Yes	4.7

STI = sexually transmitted infections; N/A = not applicable.

sometimes took place after using alcohol or drugs. In this group, there was no difference in condom use between men and women (79% vs 71%;  $p > 0.05$ ), but men more often had a local partner (71% vs 38%;  $p < 0.05$ ) and women more often had casual sex after using alcohol or drugs (95% vs 73%;  $p < 0.05$ ). Of those who expected casual sex, 48% actually had it, but 49% of the men and 75% of the women who had casual sex did not expect it ( $p < 0.05$ ). Table 2 shows the results of a bivariate analysis of risk factors. Significant variables were entered in a logistic regression model that identified gender, destination, type of journey, presence or absence of a steady partner, expectation of new sexual contact, casual sexual contacts in the home country, and the fact that the STI information had been read as predictors of having casual sex (Table 3). Respondents traveling to North Africa and Western countries were not included in the logistic regression as they had no casual sex. The multivariate model had a moderately good fit (Hosmer and Lemeshow 0.50).

Within the group of travelers who had sexual contact, condom use was always or sometimes associated with taking condoms along, reading the STI information, and using condoms with casual contacts at home. The use of condoms was not related to gender, age, education, destination, type of journey, hepatitis B vaccination, the expectation of a new sexual partner, and the STI risk being discussed. There was no difference in condom use when sex was associated with alcohol or drug use or whether or not the sexual partner was of local origin (data not shown). A logistic regression model identified taking condoms along (OR 5.4, 95% CI 1.7–17.0) and reading the STI information (OR 3.3, 95% CI 1.0–11.1) as predictors of protected sex. The model had a very good fit (Hosmer and Lemeshow 1.00).

## Discussion

This study shows that travelers who consulted our pretravel clinics had substantial sexual risk behavior, as 4.7% of them had sexual contact with a new partner, usually unexpected. Nearly one third of these contacts were unprotected, and two thirds were with a person from the country of destination. Traveling without steady partner and expecting a new sexual contact were identified as the most important predictors of having casual sex. Reading the STI information and taking condoms along were predictors of protected sex.

The results of other studies regarding the prediction of risky sexual behavior were compared with our results, although these studies used different

**Table 2** Bivariate analysis of sexual contact with a new partner ( $N = 1,907$ )

Characteristics	Percent sex contact	<i>p</i>
Gender (% expecting casual sex)		
Male	7.6 (7.9)	<0.05
Female	2.3 (1.3)	
Age (y)		
16–20	3.9	>0.05
21–25	5.2	
26–30	5.0	
31–40	5.0	
41–50	3.8	
Highest level of education		
Primary school	0.0	>0.05
College	3.7	
Higher, not academic	6.5	
Academic education	3.7	
Duration of journey (d)		
≤7	10.0	<0.05
8–14	3.3	
15–21	4.6	
22–31	6.0	
Destination (% expecting casual sex)		
Sub-Saharan Africa	3.8 (2.7)	<0.05
Asia	5.2 (3.9)	
Turkey	3.9 (4.9)	
South America	10.1 (5.5)	
Central America	7.0 (6.8)	
North Africa	0.0 (1.2)	
Western countries	0.0 (2.0)	
Type of journey		
Business	10.3	<0.05
Study or course	9.1	
Visit of family or friends	10.0	
Tourist-organized journey	3.5	
Tourist not-organized journey	5.0	
Journey with steady partner (% expecting casual sex)		
Yes	0.3 (0.6)	<0.05
No	11.4 (10.1)	
Hepatitis B protection		
Vaccinated for this journey	6.5	<0.05
Was protected previously	5.7	
Not vaccinated	3.5	
Expected sexual contact with a new partner		
Yes	47.6	<0.05
No	2.8	
Has casual sexual contacts in own country		
Yes	9.8	<0.05
No	1.3	
N/A, has no casual sexual contacts	1.3	
Uses condoms in home country with new or casual partners		
Yes	8.9	<0.05
Sometimes	16.1	
No	4.7	
N/A, has no casual sexual contacts	1.3	
Took condoms along on this journey		
Yes	10.4	<0.05
No	2.7	

Continued

**Table 2** Continued

Characteristics	Percent sex contact	<i>p</i>
STI risk was discussed during the travel consultation		
Yes	6.0	<0.05
No	3.9	
Read the STI information in the brochure		
Yes	6.3	<0.05
No	3.1	

STI = sexually transmitted infections; N/A = not applicable.

methods and different target populations (Table 4). Mulhall and colleagues found that 66% of 213 consecutive clients planning to travel without partner to Thailand expected casual sex. In our study, only 10% of those who traveled without partner expected casual sex.<sup>19</sup> Cabada and colleagues, in their survey of 422 travelers at the Lima airport, reported that 12.2% of them had had casual sex, while in the subgroup of our travelers to South America, this was 10%.<sup>7</sup> Central America was the destination with the highest expectation of casual sex, but the actual risk was highest in South America, suggesting that the local situation is an important element in sexual behavior of tourists. In fact, the risk behavior was higher than the expectations in all tropical countries. Although the number of non-tourist travelers was relatively small, we found that they had a significantly higher risk behavior than the tourist travelers.

**Table 3** Independent predictors of new sexual contact (logistic regression,  $N = 1,690$ )

Characteristics	OR	95% CI for OR
Gender		
Male	2.1	3.7–1.2
Destination*		
High-risk destination	2.0	1.2–3.5
Type of journey		
Business, study trip, or visit of family or friends	2.2	1.2–4.1
Journey without steady partner		
Yes	14.4	5.2–41.3
Expected sexual contact with a new partner on this journey		
Yes	9.2	5.0–16.9
Has casual sexual contacts in home country		
Yes	2.4	1.3–4.6
Read the STI information in the brochure		
Yes	2.0	1.2–3.5

STI = sexually transmitted infections.

\*High-risk (South and Central America) compared with medium-risk (Turkey, sub-Saharan Africa, and Asia) destination.

**Table 4** Relation between sexual risk behavior and several variables: results compared to other studies with different target populations

Variable	Other studies	Our results
Alcohol or drugs used before casual sex	Bellis and colleagues: no relation with condom <sup>8</sup>	We confirmed this
Partner of country of destination	Cabada and colleagues: 67% <sup>7</sup>	63%
	Bellis and colleagues: no relation with condom use <sup>8</sup>	We confirmed this
	Gagneux and colleagues: men had more often a local partner <sup>11</sup>	We confirmed this
Gender	Hawkes and colleagues: men had more casual travel sex <sup>12</sup>	We confirmed this
	de Graaf and colleagues: no relation with condom use <sup>13</sup>	We confirmed this
Age	Batalla-Duran and colleagues: those younger than 25 y had more casual travel sex <sup>14</sup>	No relation between age and casual travel sex or condom use
Education	Cabada and colleagues: lower educated persons had more casual travel sex <sup>15</sup>	No relation with casual travel sex or condom use
Duration of journey	Cabada and colleagues: travelers who stayed longer than 30 d had more risk behavior <sup>7</sup>	No relation but maximum duration was 1 mo
Type of journey	Arvidson and colleagues: women on business trips had the same risk as those on other kinds of journey <sup>16</sup>	More risk on business or study trips than on tourist trips
Traveling with a steady partner	Cabada: risk is three times lower for persons who are married or traveling with their partner <sup>7</sup>	Risk is 14 times lower when traveling with partner
Expectation of new sexual partner	de Graaf and colleagues: men had more risk when they had the intention to have sex before departure <sup>17</sup>	We confirmed this
	Cabada and colleagues: 55% of those who had casual travel sex did not expect this <sup>7</sup>	We confirmed that casual travel sex was usually not expected
Having casual sexual contacts in home country	Bloor and colleagues: also more new sex partners abroad <sup>18</sup>	We confirmed this
Use of condoms at home	Bloor and colleagues: the condom use by men abroad matched the use of condoms at home, whereas for women, this varied according to their partner's backgrounds <sup>18</sup>	No independent relation between the use of condoms at home and the use of condoms with casual travel sex

This mirrors the high sexual risk behavior of travelers visiting friends and relatives described by Leder and colleagues.<sup>20</sup> Cabada and colleagues reported in the above-mentioned survey that only 24% of the travelers consistently used condoms with a new sexual partner, while Bellis and colleagues reported a 62% condom use in their survey of 1,559 travelers to Ibiza.<sup>8</sup> In our study, 69% of respondents consistently used condoms during casual travel sex. This does not mean that they averted all risk on STI: barrier contraceptives provide considerable protection against STI but are not regarded as 100% protective.<sup>21</sup> Furthermore, we have no information about the way the condoms were used. Many clients of both our STI clinics who report condom use do not use them for orogenital contacts. In the survey of

400 young individuals who had traveled abroad without a partner in the previous 2 years, Bloor and colleagues found that male pattern of condom use abroad reflected patterns at home, whereas for women, these patterns varied according to their partner's background.<sup>18</sup> We found that taking condoms along was the most important predictor of using them, maybe because it is not always easy to find them when necessary (they are often not sold to young or unmarried people or to men who have sex with men).<sup>22</sup> In addition, condoms manufactured abroad may protect less effectively against HIV.<sup>3</sup> We found that reading the STI information was associated with having casual travel sex and with using condoms; obviously, we do not know whether this represents a causal relation.

This survey has several possible weaknesses. To raise the response rate, we did not include keys, making it impossible to investigate reasons for not responding. The survey relies on the accuracy of self-reported data and the assumption that responders are representative of the target population. In the returned questionnaires, there were very few unanswered questions, and we assume that answers were honest as the survey was anonymous.

The fact that the survey was announced could have influenced the results. We suppose that both advisers and travelers were more aware of the sexual health risks and paid more attention to it than they would have otherwise. As such, any influence of this announcement on sexual behavior would have been protective, suggesting that risk behavior might otherwise have been even more frequent.

We have no information about the way the risk of STI was discussed during the pretravel consultation; it could vary from basic advice of avoiding casual sex to specific data on STI or HIV prevalence at a certain destination. We preferred not to structure or formalize this sexual risk discussion to most closely mimic a routine consultation. The only information we have, therefore, is whether the traveler remembered whether the risks of STI were discussed. As the target group subjects were recruited from the Netherlands and Belgium, different sexual behavior may have been possible due to different health education in each country. The overall risk behavior in the ITM subgroup was higher, but after stratifying for the presence of a steady partner, it was the same in both subgroups. Therefore, the apparent difference was due to the fact that the ITM subgroup contained more clients traveling without a partner and not to a difference in sexual behavior per se. A relevant difference was that the ITM clients were more often protected against hepatitis B due to different national vaccination strategies. As for the finding that clients traveling to Western countries did not have casual sexual encounters, we presume that they are not representative for travelers to Western countries in general, as those travelers do not usually come to a pretravel clinic.

Future intervention studies are needed to investigate if structured STI counseling of high-risk travelers can reduce the sexual risk behavior and how this could be implemented in the pretravel consultation.

## Conclusions

We found substantial sexual risk behavior with travelers who received pretravel health advice in a travel

clinic, even though this was usually not expected by the traveler. Nearly one third of these new sexual contacts were not protected, and 40% of travelers who had casual sex were not protected against hepatitis B. As we found that traveling without a steady partner is the most important predictor of sexual risk behavior and that taking condoms along and reading the STI information were associated with protected sex, we would advise every person, planning to travel without steady partner, to take condoms along and to read the STI information. We would not limit this advice to persons who expect that they might have a new sexual partner, as nearly half of the men and three quarters of the women who actually had a new sexual contact did not expect this.

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## Declaration of Interests

The authors state that they have no conflicts of interest.

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