

# Knowledge and attitudes towards AIDS among Saudi and non-Saudi bus drivers

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معارف ومواقف السائقين السعوديين وغير السعوديين تجاه الإيدز  
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**الخلاصة:** لقد استكشفنا مستوى المعارف حول الإيدز والمواقف تجاهه لدى سائقي الحافلات بالسعودية العاملين في الأسفار البعيدة المسافات (وهم من غير السعوديين) والعاملين في المدن (وهم من السعوديين). وظهر السائقون غير السعوديين (69 سائقاً) في مستوى معرفة أعلى من مستوى السائقين السعوديين (40 سائقاً) على الرغم من وجود العديد من الفجوات في معرفتهم. أما فيما يخص المواقف، فقد عرف السائقون السعوديون أكثر من غيرهم أن العفة تقي من الإيدز، ومالت كلتا المجموعتين إلى الاعتقاد أنهما ليسا من نوعية الناس التي يمكن إصابتها بالإيدز. لذلك يوصى بقوة بتكثيف برامج التوعية الصحية والمتابعة لهذا القطاع من العاملين.

**ABSTRACT** We explored the AIDS knowledge and attitudes of long-distance (non-Saudi) and in-city (Saudi) bus drivers in Saudi Arabia. The 69 non-Saudi drivers tended to score higher on knowledge than the 40 Saudi drivers although there were several gaps in their knowledge. As regards attitude, more Saudis knew that chastity could protect against AIDS and both groups tended to think that they were not the kind of people to get AIDS. Intensive health education and follow up is highly recommended for this sector of workers.

## Connaissances et attitudes vis-à-vis du SIDA chez les chauffeurs de bus saoudiens et non saoudiens

**RESUME** Nous avons exploré les connaissances et les attitudes vis-à-vis du SIDA des chauffeurs interurbains (non saoudiens) et urbains (saoudiens) en Arabie saoudite. Les 69 chauffeurs non saoudiens tendaient à avoir un score plus élevé pour ce qui concerne les connaissances que les 40 chauffeurs saoudiens, même s'il y avait plusieurs lacunes dans leurs connaissances. En ce qui concerne les attitudes, les saoudiens étaient plus nombreux à savoir que la chasteté pouvait constituer une protection contre le SIDA et dans les deux groupes, il y avait une tendance à penser qu'ils n'étaient pas le genre d'individus à contracter le SIDA. Une éducation sanitaire intensive et un suivi sont vivement recommandés dans ce groupe de travailleurs.

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## Introduction

The epidemiological pattern of AIDS has changed dramatically in the past two decades since the discovery of the disease. After being originally confined to North America and Western Europe the disease is now spreading throughout the world with more than 90% of infected persons living in the developing world [1]. Sub-Saharan Africa remains the worst affected region with 8% of all adults under 45 years of age being HIV-positive. Asia has seen considerable spreading of HIV in the southern and south-eastern countries where more than 6.7 million people were living with HIV by the year 1998 [2]. Among the factors influencing the spread of HIV, demographics and the social context play a considerable role. Traditionally, migration and urbanization have been associated with higher rates of sexually transmitted infections (STIs). Both rural to urban and international migrations occur all over the developing world and have played a major role in the spread of HIV in southern Africa [3]. Migration of male labour into the cities of the developing world may create such a situation. Among the high risk groups, drivers, especially truck drivers, have been designated as having an increased risk of HIV infection [4].

In Saudi Arabia, the majority of long-distance bus drivers come from areas in Africa and Asia which have a high infection rate for HIV. It is required by the Saudi authorities that foreign workers undergo blood tests to determine HIV status in their home countries prior to the issue of a visa. The tests are repeated upon arrival in the country. Most of them are staying away from their families for long periods and live irregularly in different rest houses. The cultural and social backgrounds of these drivers are very different from those prevailing in Saudi Arabia and one might suspect that

this type of job may pose a potential risk for introducing and perpetuating any of the two types of HIV discovered until now [5,6].

There are no previous studies addressing HIV/AIDS knowledge and attitudes of this occupational group in Saudi Arabia. Some studies, however, have dealt with different groups such as students [7], primary care physicians [8] and dentists [9]. The aim of this study was to investigate the attitudes and knowledge of two different groups of bus drivers about different aspects of HIV/AIDS. One group comprised the foreign long-distance bus drivers while the other group comprised native Saudi drivers providing city transportation within Khamis Mushayet.

## Methods

Khamis Mushayet is the largest city in southern Saudi Arabia. It houses the main bus station in the south which is considered a hub in the network of bus transport in the country. Bus drivers from all main cities in the country arrive at the Khamis Mushayet central station daily around the clock.

After the necessary administrative arrangements, the study was launched in two phases between January and March 2002. The first part of the study lasted for 3 weeks to ensure inclusion of all long-distance drivers arriving in the region in three shifts (1 shift/week). No drivers were on vacation or sick leave during this period. In the following 2 weeks the two shifts of the in-city drivers were similarly included. As the long-distance bus drivers were mostly non-Saudis (69 out of 71 drivers), it was decided to include those 69 long-distance drivers in the group of non-Saudis. With the in-city drivers, 4 non-Saudis were excluded from the group so that the group

consisted entirely of 40 Saudis. All the drivers were males. Filipinos represented (31.9%) of non-Saudi drivers followed by Indonesians (18.8%), Ghanaians (15.9%), Indians (14.5%), Kenyans (8.7%), Pakistanis (4.3%) and 2 drivers each (2.9%) from each Sudan and Sri Lanka.

A special interview form was prepared based on a previously reported questionnaire [10] after introducing some modifications. This was structured into two main parts addressing knowledge and attitude towards HIV/AIDS. Thus, the causes, nature, mode of transmission, treatment and control were formulated into statements and the driver was required to respond with true, false or don't know. From these, the correct answers (whether the statement is true or false) as well as the don't know answers were compared using chi-squared analysis for the two groups. A total of 28 statements (22 for knowledge and 6 for attitude) constituted the whole interview form. It was written in English and whenever it required translation into Arabic, Urdu or Hindi languages, one of the first two authors translated it to the interviewee. The reliability of the questionnaire in its different languages was assured by a pilot study comprising 11 workers in the bus administration department. Each driver was interviewed individually and after a brief explanation of the aim of this study, the driver verbally consented to participate. Scores were assigned for each correct answer in knowledge and attitude. Thus a total score of 22 for knowledge and 6 for attitude were adopted and the scores of each worker were calculated on the basis of a score of 1 for the correct answer and 0 for the incorrect or don't know answers. Knowledge and attitude scores were arbitrarily categorized into poor (0-11) and good (12-22) knowledge scores, and poor (< 3) and good (3 or more) for attitude

scores to allow for cross-tabulation between knowledge and attitude. The resulting data were analysed with SPSS, version 10, using the Student *t*-test or chi-squared (or Fisher) test whenever needed at the 5% significance level.

## Results

Table 1 presents the demographic characteristics of the two groups of drivers. The mean age of 49.7 years (standard deviation 7.3) for the Saudi drivers was significantly higher than the mean age of 39.7 years (standard deviation 5.9) for the non-Saudis. Despite this, the mean duration of work for non-Saudi drivers (14.8 years, standard deviation 8.2) was significantly higher than that of Saudi drivers (11.3 years, standard deviation 5.7). Non-Saudis had a significantly higher level of education than Saudi drivers (33.3% above intermediate level compared to 22.5%).

Table 2 shows the comparison between the two groups in knowledge about HIV/AIDS. A significantly higher proportion of the Saudi drivers (82.5%) did not know whether or not AIDS was caused by a virus and the majority did not know that AIDS is a life-threatening disease. In addition, a large proportion of Saudi drivers were not able to verify different casual activities as true or false means of disease transmission (80% for kissing, 70% for touching, 72.5% for eating, 65% for using personal belongings, 40% for shaking hands and 50% for living with a patient). Concerning the correct mode of transmission, sex was identified by 80% and 91.2% of Saudi and non-Saudi drivers respectively. Blood transfusion and sharing needles were recognized as true modes of transmission by 47.5% and 42.5% of Saudi drivers, respectively and by 69.6% and

Table 1 Characteristics of the drivers

Characteristic	Non-Saudis (n = 69)		Saudis (n = 40)		P-value
	Mean	s	Mean	s	
Age (years)	39.7	5.9	49.7	7.3	0.02
Duration of work (years)	14.8	8.2	11.3	5.7	0.018
Mean knowledge scores	14.6	3.8	10.1	5.3	<0.01
	No.	%	No.	%	
<i>Marital status</i>					
Married	66	95.7	37	92.5	NS
<i>Educational level</i>					
Up to intermediate	46	66.7	31	77.5	NS
Above intermediate	23	33.3	9	22.5	<0.05

NS = not significant.

s = standard deviation.

74.0% of non-Saudi drivers respectively. Only 20% of Saudi drivers and 29% of non-Saudi drivers knew that AIDS has no cure.

Table 3 describes the attitudes of both groups of drivers towards the disease. Most of the Saudi drivers (77.5%) believed that chastity protects against AIDS compared to 50.7% of non-Saudi drivers. Generally neither the Saudi drivers nor the non-Saudis believed they were the kinds of people to contract the disease (80% and 58% respectively) nor were they worried about getting AIDS (90% and 43.4% respectively) and they believed they were less likely than others to get the disease (75% and 55% respectively).

Table 4 is a cross-tabulation between knowledge scores and attitude scores. It shows that 15.9% of non-Saudi drivers had poor knowledge and attitude scores and 56.5% of them had good knowledge and attitude scores. The distribution was statistically significant for non-Saudis ( $\chi^2 = 8.456$ ,  $P = 0.004$ ) but not for Saudi drivers ( $\chi^2 = 1.440$ ,  $P = 0.231$ ).

## Discussion

A considerable part of the labour force in Saudi Arabia comes from neighbouring developing countries. Residing between two heavily infected areas in Africa and Asia, Saudi Arabia is thought to be at a high risk of receiving HIV/AIDS infections from the migration of labourers of these areas into the country. Some studies suggest that truck drivers in African countries are highly exposed to the risk of contracting and disseminating HIV infection due to their high mobility and the high incidence of STIs among them [11]. Thus, it was thought it would be justified to conduct this study in order to reveal the knowledge and attitudes of non-Saudi bus drivers and to compare them with Saudi drivers.

Overall, the knowledge scores of non-Saudi drivers were significantly higher than those of Saudi drivers. This might be attributed to the significantly higher level of education among non-Saudi drivers. Nevertheless, the language barrier may exert a

Table 2 Comparison of HIV/AIDS knowledge between the two groups of drivers

Knowledge	Saudi drivers (n = 40)			Non-Saudi drivers (n = 69)			P-value $\chi^2$ a	$\chi^2$ b
	True No.	False No.	Don't know No.	True No.	False No.	Don't know No.		
<i>Causes</i>								
Virus	7	0	33	41	2	26	<0.01	<0.01
Congenital	6	3	31	0	49	20	<0.01	<0.01
Stress	0	5	35	3	41	25	<0.01	<0.01
Unknown	0	4	36	11	39	19	<0.01	<0.01
<i>Nature</i>								
Is a condition in which the body cannot fight disease	0	0	40	39	6	24	<0.01	<0.01
Homosexuals are more likely to get AIDS	28	0	12	43	15	11	NS	NS
Some persons are immune to AIDS	11	0	29	5	27	37	<0.01	NS
AIDS is a life- threatening disease	8	4	28	57	0	12	<0.01	<0.01
Most people die from AIDS	3	12	25	60	0	9	<0.01	<0.01
<i>Mode of transmission</i>								
Kissing a patient	4	4	32	10	35	24	<0.01	<0.01
Touching a patient	4	8	28	10	39	20	<0.01	<0.01
Eating with a patient	3	8	29	8	42	19	<0.01	<0.01
Using personal belongings of a patient	5	9	26	16	20	33	NS	NS
Living with and being around a patient	15	5	20	9	50	10	<0.01	<0.01
Having sex with someone	32	0	8	63	3	3	NS	<0.01
Shaking hands with a patient	0	24	16	0	39	30	<0.05	NS

Table 2 Comparison of HIV/AIDS knowledge between the two groups of drivers (concluded)

Knowledge	Saudi drivers (n = 40)			Non-Saudi drivers (n = 69)			P-value $\chi^2$ <sup>a</sup>	$\chi^2$ <sup>b</sup>
	True No.	False No.	Don't know No.	True No.	False No.	Don't know No.		
Blood transfusion	19	3	18	48	6	15	<0.05	<0.05
Sharing drug needle	17	0	23	51	5	13	<0.01	<0.01
Treatment and control AIDS can be cured	23	0	17	7	23	39	<0.05	NS
There is no cure for AIDS	8	15	17	20	20	29	NS	NS
Can be cured if treated early	3	4	33	0	42	27	<0.01	<0.01
There is a new effective vaccine against the disease	4	0	36	12	23	34	<0.05	<0.01

<sup>a</sup> $\chi^2$  for correct results. <sup>b</sup> $\chi^2$  for "don't know" results. NS = not significant.

hindering effect for promoting and developing their knowledge during their stay in Saudi Arabia [12].

Although there was no statistical difference between both groups in marital status (more than 90% were married in both groups), the fact that it is difficult for non-Saudi drivers to meet their families for extended periods (only during annual vacations) should be taken into consideration as an important social risk factor. In this respect, studies have shown HIV infections to be high in married long-distance drivers [13,14].

Despite their better knowledge of HIV/AIDS, 27% to 38% of the non-Saudi drivers did not know the exact cause of AIDS (whether it is a viral infection, a congenital condition or of unknown cause). Also 38% of them did not consider or did not know that those who engage in homosexual activity are more likely to get HIV/AIDS, an issue to be taken seriously when a group of men with disparate cultural backgrounds live in common facilities [15]. A similar study carried out among prisoners has showed that although many of them knew that homosexual behaviour carries a risk for HIV infection, many still indulged in high risk behaviour [16].

The common modes of transmission, i.e. sex, blood transfusion and sharing needles with drug users were not pointed out correctly by 8.8%, 30.4% and 26.0% of non-Saudi drivers respectively. Ignorance of the modes of transmission of AIDS has been positively correlated to HIV seropositivity in several studies carried out on long-distance truck drivers and prisoners [17,18].

Table 3 Attitude towards HIV/AIDS for both groups of drivers

Attitude	Saudi drivers (n = 40)			Non-Saudi drivers (n = 69)			P-value $\chi^2$ a	$\chi^2$ b
	True No.	False No.	Don't know No.	True No.	False No.	Don't know No.		
Afraid of getting AIDS	22	3	15	31	23	15	NS	NS
Chastity can protect from AIDS	31	0	9	35	12	22	<0.01	NS
Not the kind of person to get AIDS	32	0	8	40	11	18	<0.05	NS
Not worried about getting AIDS	36	0	4	30	19	20	<0.05	<0.05
Less likely to get AIDS than others	30	0	10	38	13	18	<0.05	NS
AIDS is a problem in Saudi Arabia	7	17.5	14	14	20.3	41	<0.01	<0.01

\* $\chi^2$  for correct results.b $\chi^2$  for "don't know" results.

NS = not significant.

The prognosis of AIDS was also sometimes wrongly understood by non-Saudi drivers. That AIDS can be cured was reported by 10.1%, while 56.5% did not know that it is an incurable disease. Moreover, 17.4% thought that there was a new effective vaccine against AIDS. These findings indicate that some of the drivers lack, in spite of their fair knowledge, the necessary continued awareness in this field [19].

As regards Saudi drivers, they scored poorly for HIV/AIDS knowledge in all aspects, underlining the need for efforts to raise the awareness of this occupational group in different regions, however remote they are. In its simplest form, the health action model is based on the premise that when information is provided effectively, attitudes can be changed which can result in the adoption of healthy practices [20].

This study probed the attitude of drivers towards HIV/AIDS through a six-statement questionnaire. One-third of non-Saudi drivers were not afraid of getting AIDS, 58.0% thought that they are not the type of person to be infected and 55.0% considered themselves less likely to contract the disease than others. Chastity was not thought to protect from the disease by 17.4% of the drivers, while nearly one-third (31.9%) did not know it is a protective measure. The Saudi drivers' attitude was very conservative, chastity being considered by the majority (77.5%) to be protective. This statement might have influenced the response for the statements that followed as most of them (80%) indicated that they are not the kind of

**Table 4 Cross tabulation of knowledge and attitudes between the two groups of drivers**

Knowledge	Attitude							
	Poor score (< 3)				Good score (≥ 3)			
	Saudis		Non-Saudis		Saudis		Non-Saudis	
	No.	%	No.	%	No.	%	No.	%
Poor score (0–11)	7	17.5	11	15.9	18	45.0	12	17.4
Good score (12–22)	7	17.5	7	10.2	8	20.0	39	56.5

Saudi drivers  $\chi^2 = 1.440$ ,  $P = 0.231$ .

Non-Saudi drivers  $\chi^2 = 8.456$ ,  $P = 0.004$ .

person to get the disease and 70% felt they were less likely to contract the disease than others. It is therefore suggested that for Saudis in general the attitude component in the questionnaire should be redesigned to disentangle the attitude regarding chastity from the other items.

The effect of knowledge on attitude is congruent in non-Saudi drivers (Table 4) giving credit to the level of AIDS knowledge revealed by the questionnaire. On the other hand, the incongruity between perceived knowledge and reported attitude among Saudi drivers suggests that there is a need for specially designed and culturally tailored HIV/AIDS health education programmes.

## Conclusion

Despite the better HIV/AIDS knowledge of non-Saudi drivers compared to Saudi ones,

some gaps in their knowledge need to be filled. The most important of these are related to the causes and modes of transmission. Saudi drivers, on the other hand, have very deficient knowledge of HIV/AIDS and the attitudes they manifest have undoubted drawbacks.

## Recommendations

The study shows the need for continued culturally tailored health education and awareness campaigns among migrant workers, periodic monitoring for HIV infection and the improvement of their working (and rest) conditions. Saudi drivers need more intensive and systematic education about HIV/AIDS particularly as they are expected to take over the jobs of expatriates as long-distance drivers in the future.

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