

Full Length Research Paper

A mixed methods study of the factors associated with HIV testing among young people in Saudi Arabia

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Despite recent progress in enhancing the accessibility of HIV-related health services worldwide, opportunities to diagnose patients are often missed due to genuine barriers at different levels. The aim of the study is to explore the factors that affect the HIV testing uptake by young people in Saudi Arabia. For the quantitative strand of the study a newly developed self-completed online questionnaire was used and the study sample was drawn using a convenience sampling technique. Then, a semi-structured interviews were used to gather the perspective of healthcare professionals working in the field of HIV/AIDS in the country. 394 participants completed the questionnaires: 30% male and 70% female. Only 20 participants had previously been tested for HIV. On HIV/AIDS-related knowledge scale, the male participants scored higher than the females (6.4 V 5.7). For the risk perception scale, female participants appeared to have lower levels of risk perception than male participants (10.5 V 11.7). The female participants showed slightly more positive attitudes towards HIV testing than male participants (111.32 V 108.14). On the other hand, healthcare professionals indicated; stigma, HIV/AIDS knowledge gap and fear of positive result consequences as the main factors hindering the HIV test uptake. Knowledge, attitudes and HIV risk perception are critical factors that inform the decision to undertake HIV testing however, socio-cultural constraints are significant additional burden that hinder the efforts to scale up the HIV testing uptake in Saudi Arabia.

Key words: HIV testing, young people, attitude, knowledge, perception.

INTRODUCTION

Acquired Immune Deficiency Syndrome (AIDS) is a major health problem worldwide, with approximately 42 million people living with the virus. Each day, the number of young people and adolescents living with HIV increases by 2,100 (UNAIDS, 2014a, b, c). Of the four million people infected with HIV in the 15-24 years age bracket in 2013, almost 30% were under the age of 19 (UNAIDS, The GAP Report, 2014). Low and middle income

countries have the greatest number of cases, with a large proportion (85%) occurring in the Sub-Saharan region. The population in this region has a high proportion of young people, and this is likely to continue to rise until 2050 (Idele et al., 2014). In South Sudan, for instance, over half the population is under the age of 18 (UNAIDS, 2013). This means that the HIV infection rate among young people, which is already high, is likely to increase.

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Although there has been an overall 30% drop in the number of people living with HIV, the number of adolescents who died from the disease increased by 50% during the 7-year period from 2005 to 2012 (UNICEF, 2013).

Of the regions with the most rapidly growing HIV epidemics, the Middle East and North Africa (MENA) region is one of the two highest; this region is considered high-risk as it is highly susceptible to the spread of the disease (UNAIDS, 2014a, b, c). Although there are significant variations across the region with regard to epidemiological patterns, trends and typologies, the severity of the epidemic is increasing due to the infection becoming more widespread, with the number of new cases increasing and more deaths occurring due to AIDS-related causes. According to UNAIDS (2014a, b, c), the number of people infected with HIV during 2013 was in excess of 25,000. This was a 7% increase from levels in 2005, bringing the total number of people in the region living with HIV to nearly a quarter of a million [CI: 160,000-330,000]. At the same time, the number of AIDS-related deaths in the region rose by an astonishing 66 per cent, bringing the total to 21,000 infected individuals (UNAIDS, 2014a, b, c).

Central to this problem is the level of testing for HIV. This has increased in its coverage, particularly in countries with high levels of infection, but there still appears to be significant barriers to participation (Bajunirwe and Muzoora, 2005; Carr and Gramling, 2004). This is a significant issue as testing can prove important. Not only can it help prevent further transmission of the virus, it can also help in effective treatment being provided to the sufferer (Deblonde et al., 2010). Thus, establishing what these barriers are and exploring effective ways in which they can be overcome is of paramount importance in attempts both to treat HIV-infected patients and prevent HIV transmission.

The prevalence of HIV in Saudi Arabia is currently low; however, there are still cases of HIV transmission within selected groups in Saudi communities that are considered to be at high risk of acquiring the infection. The most recent report on the HIV/AIDS situation in Saudi Arabia revealed that since the identification of the first case of HIV in 1984 and until December 2014, the total number of HIV cases reported was 21,761 (UNAIDS/KSA, 2015). The report also showed that the reported number of HIV-infected Saudi nationals has increased considerably from only 125 individuals in 2000 to 444 in 2014. This official report also pointed out the limitation of its figures in describing the true picture of HIV/AIDS in Saudi Arabia, as it only includes information from limited sources. The government of Saudi Arabia is actively seeking to develop programmes to promote education and awareness regarding HIV and its transmission within Saudi Arabia in order to minimise the incidence of HIV. However, the lack of research in the area of HIV/AIDS in Saudi Arabia has resulted in the

application of imported policies and guidelines which may be unsuitable for Saudi Arabia in tackling HIV/AIDS. Thus, conducting research in the field of HIV/AIDS within Saudi Arabia is the first effective step in controlling the disease through contextual, evidence-based strategies.

MATERIALS AND METHODS

Setting and participants

The field work of the current research was held in the western province of Saudi Arabia in Makkah and Jeddah. The quantitative strand of the study took place in Umm AL-Qura University in Makkah. However, the qualitative interviews were conducted within National AIDS Programme centres in both Makkah and Jeddah.

Umm Al-Qura University

One of the oldest universities in the country established in 1981. In 2014 the number of undergraduate students enrolled in the university were 87 thousand students. Female students were slightly higher than male students which represent 54.5 per cent of the total undergraduate students at the university (University, U.A. www.uqu.edu.sa, 2017).

Health care facilities (NAP)

The National AIDS Program (NAP) established by the Ministry of Health in Saudi Arabia in 1994. The NAP centres are distributed all over the 20 health administration regions whereas the main centre is located in Riyadh. In each health administration region there are at least one voluntary counselling and testing (VCT) centre, treatment clinic and mobile VCT facility in some of the health administration centres such as Makkah (MOH. www.napksa.com, 2017).

Data collection

Quantitative strand

A non-experimental, descriptive, cross-sectional design. The quantitative strand mainly aimed to assess the three globally recognised factors that influence the individual in seeking HIV testing services. These factors include; HIV/AIDS related knowledge, perception of risk and the attitude toward HIV testing. The study sample has been drawn from undergraduate students at Umm Al-Qura University (n = 394). A non-probability, convenient sampling technique has been utilised to recruit the students to complete the questionnaire. The sample size for the quantitative strand was calculated based on the total population of undergraduate students at Umm Al-Qura University which was approximately 87,000 students. The margin of error was set at five percent with a confidence level of 95 percent. Therefore, the sample size calculation revealed that the sample required should be at least 381 participants. Online consent was obtained from all participants in this phase of the study before they could complete the questionnaire.

Measures

The questionnaire included five main sections: demographic information, HIV/AIDS related knowledge, individual's perception of

HIV risk, attitude toward HIV testing, and HIV testing history. A test/re-test strategy was adopted to assess the reliability of the questionnaire which revealed an excellent to good degree of reproducibility for the three scales included in the questionnaire; The HIV related knowledge, HIV risk perception, Attitude toward HIV testing as ICC were (0.68, 0.79, 0.65) respectively. The content validity of the three scales were also assessed and appeared to be acceptable.

The HIV related knowledge: This section of the questionnaire has mainly originated from and influenced by the 18 items HIV knowledge questionnaire developed by Carey and Schroder (2002). 12 items questionnaire assess the participant's knowledge about various aspect of HIV/AIDS which include transmission, preventions, epidemiology, severity and progression.

HIV testing History: In this section of the questionnaire the number of those previously tested as well as those who never been tested for HIV is being counted and the reason behind the testing.

HIV risk perception: Three items were included in this section each of them aim to evaluate the individual's perception of risk contracting HIV infection. The three statements express the thoughts that might deceive a young individual to think he/she is at very low or no risk of HIV infection. Five points Likert type scale were used to measure the individual level of agreement with each statements.

Attitude toward HIV testing: This section is the leading part of the questionnaire which evaluate whether the individual embrace a favourable attitude toward HIV testing or not. This section of the questionnaire is greatly influenced by Boshamer and Bruce (1999) scale developed to measure attitude about HIV Antibody testing. The evaluation is accomplished by rating 37 statements on the level of agreement each individual indicate for each statement.

Qualitative strand

A basic descriptive qualitative research design has been utilized to explore the of HIV health professionals' perspectives about the factors that influence young people HIV testing seeking behaviour which affect the testing uptake in Saudi Arabia. A purposive sampling technique has been applied to recruit HIV/AIDS healthcare professionals (n = 3). Data for the qualitative strands of this study were collected using face to face semi-structured, open-ended, in-depth interview. The interviews have been guided by a topic list which was developed following the preliminary analysis of the quantitative data (questionnaire data). The approximate duration of each interview ranged between 25 to 40 min. Informed consent was obtained from all the participants in the phase of the study.

Data analysis

For the quantitative strand, the descriptive data were first examined and explained. Then, inferential statistical analysis using SPSS software was performed to assess the mean difference between male and female as well as across age groups for; HIV/AIDS related knowledge, risk perception and attitude toward HIV testing scores were measured using parametric test such as (t-test and ANOVA test). The significant level has been set at $p = 0.05$. The qualitative data analysed using the strategy of thematic analysis. The thematic analysis focuses on findings patterns in the data which could be gathered and interpreted through major themes. The interview transcripts were translated to English. Data reduction has been achieved through data grouping, categorising and theme

identification which help the researcher in interpreting the data.

RESULTS

Demographic characteristics

The study sample comprised 116 (29.4%) males and 278 (70.6%) females. The ages of more than the half of the study sample fell between 20 to 22 years whereas those who were aged between 17-19 years and 23-25 years represented 34.8 and 14.7% respectively. In terms of marital status, about 93% of the participants were single. Only 11 participants were not hold a Saudi nationality while both parents of about 94 percent of the participants were Saudi nationals (Table 1).

HIV testing information

95% of the participants had never been tested for HIV while only 20 participants had been tested. About 48 % of the participants stated that the main reason for not being tested for HIV was because it was unlikely that they had been exposed to HIV. Nearly 36 % of the participants claimed that no one had offered them the HIV test as the main reason for not being tested while, for about 16 % of the participants, their main reason was that they did not know where to get tested. On the other hand, about 25 percent of those who had been tested previously for HIV selected the mandatory pre-marital test as the main reason for undertaking an HIV test (Table 2). The participants' willingness to be tested for HIV during the following year was recorded in five categories which can be seen in Table 1.

HIV/AIDS related knowledge

The responses showed that misconceptions about HIV/AIDS were apparent in the responses of the respondents. Males and females' participants had similar level of knowledge and misconceptions as T-test result showed non-statistically significant difference ($p = 0.107$). While the ANOVA test revealed statistically significant differences in the mean HIV knowledge scores across the age groups (Table 3).

HIV risk perception

The risk perception score ranged from 3 to 15 and the mean risk perception score was 10.9 with a standard deviation of 2.5. 49.2% of the participant's score ranged between 8 and 11 whereas those who scored 12 or above represented 41.8%. In addition, only 9% of the participants' scores were under 8. The difference between the mean scores of the male and female

Table 1. Demographic information presented across men and women.

Variable	Demographic information		
	Men (%)	Women (%)	Total
Number of participants	116 (29.4)	278 (70.6)	394
Age group			
17-19	26 (22.4)	111 (39.9)	137
20-22	73 (62.9)	126 (45.3)	199
23-25	17 (14.7)	41 (14.7)	58
Marital status			
Single	112 (96.6)	255 (91.7)	367
Married	3 (2.6)	19 (6.8)	22
Divorced	1 (0.9)	4 (1.5)	5
Nationality			
Saudi	113 (97.4)	270 (97.1)	383
Non-Saudi	3 (2.6)	8 (2.9)	11
HIV test history			
Tested for HIV	10 (9.4)	10 (3.8)	20
Not Tested	96 (90.6)	250 (96.2)	346
Willingness to be tested			
Strongly willing	28 (26)	47 (18.4)	75
willing	32 (30.8)	78 (30.5)	110
Uncertain	29 (27.9)	85 (33.2)	114
Unwilling	10 (9.6)	20 (7.8)	30
Strongly unwilling	5 (4.8)	26 (10.2)	31

participants appeared to be statistically significant $p < 0.05$. In addition, ANOVA test indicate a statistically significant difference in the mean scores across age groups (Table 3).

Attitude toward HIV testing

The mean score of the attitude towards HIV testing was 110.4 with a standard deviation of 17.5. T-test and ANOVA test revealed no statistically significant difference either across genders or age groups for the attitude toward HIV testing mean scores (Table 3).

Interviews findings

Four main themes were identified and a number of sub-themes were also recognised under each theme. The themes were as follows: HIV testing facilitators, HIV testing barriers, HIV/AIDS related knowledge, and an action plan to increase the uptake of HIV testing by

young people in Saudi Arabia (Figure 1).

DISCUSSION

One of the central aspects of this research is the exploration of the factors that affect the utilisation of HIV testing in Saudi Arabia, using a mixed methods approach and with two distinct groups of individuals: service users (young people) and service providers (HIV/AIDS health care professionals). Although the two groups of individuals are different, their interaction is inevitable because undertaking HIV testing mandates contact with the Saudi Arabian health care system. Thus, both young people and HIV/AIDS health care professionals were included in the study. In this study, it appeared that the individual-level factors that shaped how an individual respond to HIV/AIDS-preventive measures, particularly HIV testing, were related to a complicated multi-dimensional set of problems. A person's attitude is not merely driven individually; environmental components, such as culture and the health care system and

Table 2. Reasons for being tested or not tested for HIV previously.

Reasons for undertaking the HIV test or not	
<i>Reasons for Not tested for HIV</i>	
	N (%)
It's unlikely you've been exposed to HIV.	162 (47.6)
Fear of a positive result consequences.	7 (2.1)
You were worried your name would be reported to the government if you tested positive	3 (0.9)
You don't trust the results to be confidential.	1 (0.3)
No one had offered you an HIV test.	121 (35.6)
You were afraid of losing friends and family, if people knew you were HIV positive.	6 (1.8)
You were afraid of being discriminated and stigmatized.	3 (0.9)
You didn't know where to get tested.	16 (4.7)
You need to travel for a long distance to get tested	1 (0.3)
Fear of needle	4 (1.2)
Other reason	16 (4.7)
<i>Reasons for getting tested for HIV</i>	
	N (%)
Mandatory Pre-marital test.	5 (25)
Worried that you may have been infected.	2 (10)
Because you practiced unprotected sex.	2 (10)
Because a doctor, nurse or other health care professional asked you to	2 (10)
For hospitalization or surgical procedure	2 (10)
For employment purposes	2 (10)
Other reason	5 (25)

Table 3. Scales mean scores and difference across genders and age groups.

Scales mean scores and difference across genders and age groups			
Scale	Men		P-value
	Mean (Yasin et al., 2013)		
	Women		
	Mean (Yasin et al., 2013)		
HIV/AIDS Related Knowledge	6.17 (2.7)		0.107
HIV Risk perception	11.67 (2.5)		0.000
Attitude toward HIV testing	108.15 (17.9)		0.082
Scale	Age group		Sig.
HIV/AIDS related knowledge	17-19	20-22	0.000
		23-25	0.000
HIV risk perception	17-19	20-22	0.011
		23-25	0.024
			95 % CI
			(-1.93 - 0.56)
			(-2.90 - 0.97)
			(-1.54 - 0.15)
			(-2.06 - 0.11)

healthcare professional's attitude, influence these attitudes. It was also evident that health care professionals were facing logistical, bureaucratic and societal pressures which played an important role in the low uptake of HIV testing in general.

The three most common reasons indicated by the participants in the current study were in agreement with the literature. However, one of these reasons was widely mentioned globally as the main reason for not being tested for HIV across various populations; this is the low perception of HIV risk. The most common reason indicated for not being tested for HIV (low HIV risk

perception) was congruent with other research conducted worldwide in both developed and developing countries; 48% of the participants in the current study stated that exposure to HIV was considered unlikely. The HIV testing was not offered is the second most common reason given for not being tested for HIV, indicated by 36% of the participants. This was also demonstrated as a barrier that affected the utilisation of HIV testing by young people aged 12-24 in the USA (Peralta et al., 2007). In addition, another study conducted in the USA by Johnson et al. (2011) claimed that health care providers were not offering HIV tests as a result of either time constraints or

Stigma	HIV/AIDS knowledge gap	Fear of the consequences of a positive result
<ul style="list-style-type: none"> • <i>“Stigma is the first factor that makes people choose not to get tested and keeps them back.”</i> • <i>“I think the most important barriers is the stigma related to HIV/AIDS. ...etc”</i> 	<ul style="list-style-type: none"> • <i>“The low level of HIV related knowledge also accounts for a big share of the low testing...etc”</i> • <i>“The lack of knowledge about HIV/AIDS and the huge misconceptions around HIV/AIDS are also common barriers in Saudi Arabia”</i> 	<ul style="list-style-type: none"> • <i>“If they find out that they are HIV positive then what will happen? Then their family will know, they will lose their jobs and what if they’re married? What if the wife or the husband wants to leave?”</i> • <i>“The fear of positive results could also count as a barrier to getting tested for HIV.”</i>

Figure 1. The main factors emerged from the interviews with Healthcare professionals.

an inadequate level of awareness that health care personnel had regarding HIV testing guidelines. Another less common reason for not being tested shown in the current study, which was indicated by 4.6% of the participants, was not knowing the location of HIV testing centres. This was also indicated by young people in the Balkans as a barrier they faced in undertaking HIV testing (Delva et al., 2008). In addition, Payne et al. (2006) stated that African-American college students aged 18-24 lacked information about testing sites. So, it added to the obstacles that hindered their uptake of HIV testing.

Lack of proper knowledge about HIV/AIDS was demonstrated in the current study, which may lead to the reluctance of young people to take up HIV testing and other HIV/AIDS health-related services. Misconceptions were apparent in almost all aspects of HIV/AIDS-related knowledge, including preventive measures, severity, epidemiology and routes of transmission. Although almost more than three decades have passed since the first case of HIV was detected, HIV being transmittable by a mosquito bite is still one of the most common misconceptions identified in the current study. The participants also considered HIV to be a curable disease if detected early and believed that a vaccine is available. Meena et al. (2013) also found that HIV is curable disease is apparent misconception within their study.

The majority of the participants in the current study demonstrated moderate HIV risk perceptions. Sexuality and its related behaviours vary across populations and cultures and, as most of the high-risk behaviours for contracting HIV are strongly disapproved of and regarded as immoral in the Saudi Arabian context, most of the participants perhaps responded to that item in accordance with socio-cultural norms. Most of the literature about young people’s HIV risk perceptions shows a low risk perception across young populations worldwide, regardless of the state of HIV epidemics.

The current study suggested a reasonably supportive attitude among the participants. Similarly, Peltzer et al. (2004) indicated that university students in India, South Africa and the USA had a moderately favourable attitude toward HIV testing, although students from the USA held a more positive attitude towards HIV testing in comparison to those from India and South Africa. Although the attitude toward HIV testing was reasonably positive, HIV testing was very low among the participants in the study. The core elements of cognitive theory, which asserts the need to recognise that human beings are not always rational when they make decisions could explain this finding. The decision-making process is usually influenced by an individual’s beliefs, experiences and cultural norms. Although the findings of this study demonstrated that attitudes towards HIV testing were reasonably positive, the majority of the participants had not undertaken the test. Accordingly, scaling up HIV testing requires multidisciplinary action, as attitude is just one piece of the picture.

Stigma related to HIV/AIDS was the most common subtheme agreed upon by the HIV/AIDS health care professionals who participated in the study as a barrier to young people undertaking HIV testing in Saudi Arabia. The pervasiveness of stigma as a major barrier to increasing HIV testing among various subgroups has been well documented in the literature worldwide. In the Middle East the impact of stigma on HIV/AIDS prevention programmes has also been highlighted, hindering their progression (Abu-Raddad et al., 2010; Akala, 2005; DeJong and Mortagy, 2013). Although stigma related to HIV/AIDS is observed and acknowledged worldwide, it is understood that stigma is more intense in countries dominated by Islam due to Islamic constraints on sexuality (Kaadan, 2004). The main reason for using a combination of quantitative and qualitative methods was to explain the quantitative data set and enhance

understanding regarding the situation in Saudi Arabia about the utilisation of HIV testing services. The interviews offered another perspective to the main question of the study, as well as providing an action plan to increase the uptake of HIV testing by young people in Saudi Arabia.

Conclusion

The complexity of the research inquiry was clearly demonstrated when attempting to integrate the two sets of data. Tackling HIV/AIDS in general in Saudi Arabia requires a multidisciplinary approach and the engagement of legislators, community leaders, healthcare policy makers, HCPs and representatives of the at-risk groups, such as young people.

CONFLICT OF INTERESTS

The authors have not declared any conflict of interests.

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