# The Factor Structure of The HIV Antibody Testing Attitude Scale in Four African Countries

Peltzer K.[1], Mpofu E.[2]

*Health Behaviour Research Unit[1], University of the North, Sovenga, South Africa*
*Department of Educational Foundations[2], University of Zimbabwe, South Africa*

***Objective*: To determine the facture structure of the HIV Antibody Testing Attitude Scale (HTAS) in an African population.**
***Method:* 760 first-year African university students from Nigeria, South Africa, Uganda and Zimbabwe were surveyed using the HIV Antibody Testing Attitude Scale. Factor structure was determined by using the principal component analysis with varimax rotation.**
***Results*: Five components accounting for 51% of the total variance were identified. The first factor (eigenvalue: 5.11) accounted for 23.2% of the variance in the responses and contained items concerned with perceptions on trust and support about HIV antibody testing, the second (eigenvalue: 2.19) 10% of the variance included items that were largely related to general concerns about HIV antibody testing, the third (eigenvalue: 1.51) 6.9% of the variance and included items related to fears about HIV antibody testing, the fourth (eigenvalue: 1.11) 5% of the variance contained items about concerns about the confidentiality of HIV antibody testing, and the fifth factor (eigenvalue: 1.01) accounted for 4.6% of the variance and reflected items about friends' concerns about HIV antibody testing.**
***Conclusion*: This study identified "friends' concerns", "confidentiality" and "general or public concerns" about HIV antibody testing like among US students (Boshamer & Bruce, 1999) but two major other factors emerged as 'trust and support' and 'fears' about HIV antibody testing. Issues around support and fears are relevant facilitators or barriers that are important for youth among African populations.**

***Key words:*** *HIV antibody, factor structure, Africa*

Testing for HIV antibodies is an important component of prevention and intervention programmes designed to curb the spread of HIV infection. Because pre-test and post-test counselling are offered to individuals who test either HIV positive or HIV negative, there is an opportunity for individualized intervention to discuss risky and safer behaviours and ways to modify risky behaviour patterns. The recent development of new treatments for HIV has brought improvements in the medical care of HIV, the benefits of early detection of the virus have increased, because the most effective treatment results occur in the earliest stage of HIV (1).

A concern is that not all individuals who may be at risk for HIV infection choose to be tested. Kalichman and Hunter (2) reported that only 36% of individuals who reported at least one high-risk behaviour have been tested for HIV. Thus, it is important to examine what factors motivate, as well as deter, an individual to seek HIV antibody testing (3). The failure to use HIV testing services by significant numbers of individuals at risk for HIV can be attributed to a number of factors, both on an individual as well as societal level. Among high-risk individuals in the US, persons do not test because they fear learning they are HIV-positive (25%), think they are unlikely to have been exposed to HIV (18%), think they are HIV-negative (13%), do not want to think about the possibility of being HIV-positive (8%), and think there is little they can do about being HIV-positive (6%) (1). Other barriers to HIV testing include the perceived stigma and fear of discrimination if seropositive, concerns over privacy and the issue of who has access to information about one's HIV status (1). For instance, among sexually active American adolescents it was found that 35% did not believe or did not know that the HIV test results were kept in confidence, and 19% thought that AIDS testers informed partners if the results were positive (4).

Boshamer and Bruce (3) developed and validated a reliable scale to assess the attitudes about HIV antibody testing that can be used to discern the salient beliefs and attitudes surrounding the issue of HIV antibody testing. By identifying particular individual's attitudes about HIV antibody testing, concerns about the testing process can be highlighted, aiding in the development of appropriate interventions to help increase HIV antibody testing. Preliminary factor analysis using a principal components factor analysis with varimax rotation was used on a final 32-item scale. Using the scree test, a four factor solutions was found. Twenty-three items met this criterion. The first factor contained items concerned largely with perceptions of how friends might react to HIV antibody testing, the second factor related to perceptions of the family's concerns about one's decision to get an HIV antibody test, the third factor related to perceptions of other peoples' reactions to HIV antibody testing, and the fourth factor contained items concerned with the perceived confidentiality of HIV antibody testing. A need for performing separate validity studies among different populations has been emphasised (3). Therefore the purpose of the study was to determine the factor structure

*Accepted for publication: 03 October 2002*

of the HIV Antibody Testing Attitude Scale (HTAS) in different African populations.

## Method

Sample

The participants chosen by convenience from students attending first year classes consisted of 760 first-year African university students (351 male, and 409 female) from Ibadan, Nigeria (n=200), Turfloop, South Africa (n=172), Kampala, Uganda (n=181) and Harare, Zimbabwe (n=207), in the age range of 17 to 44 years (M=23.6, SD=4.3).

Measures

A 22-item Attitudes about HIV-Antibody Testing Scale (3) was used. It was decided to use the 23 item version of the factor analysed HTAS. Further, it was reduced by one item 'Anyone who is tested for HIV is dirty', since it had the lowest loading on factor one and its similarity to the item 'Anyone who is tested for HIV is disgusting' after face validity had been established. The HTAS consists of four subscales: (1) friends concerns about HIV antibody testing (11 items), (2) family concerns (3 items), (3) concern about public opinion (4 items), and (4) concerns about confidentiality of HIV antibody testing (4 items); 8 of the items represented facilitators to HIV antibody testing, and 14 items represented barriers to HIV body testing. For each of the attitude items, students indicated on a 5-point Likert Scale whether they strongly agreed, agreed, were neutral, disagreed or strongly disagreed with each item. For example, 'My friends would look down on me if I were tested for HIV'. Responses were scored such that strong agreement with facilitator items was given a 5 and strong disagreement was given a 1. Reverse scoring was used for barrier items. Item scores were summed and high scores indicated a more favourable attitude toward HIV antibody testing. Cronbach alpha for the HIV testing measure was .84.

Procedure

The questionnaires were administered to the students in a classroom setting by trained postgraduate research assistants. Students filled in the questionnaires voluntarily after informed informal consent in the presence of the research assistants and were free to ask questions for clarification. Anonymity and confidentiality were assured. No time limit was given, but on average students took 15 minutes to answer all the questions. Permission was obtained from the relevant authorities.

## Results and Discussion

Product-moment correlation coefficients were computed between each pair of the Attitudes about HIV-antibody Testing Scale, and the correlational matrix thus obtained was inspected to ensure that it contained a fair proportion of elements that were significantly different from zero, and subjected to a principal component analysis.

Based on the Kaiser-Guttman criterion, factors with an eigenvalue greater than one were retained for subsequent varimax rotation (5). The Data-Text Primer considers a factor loading with an absolute value of .4 or more to load high enough to be considered part of the scale (6). Only those questionnaire items loading .4 and higher were recorded for discussion. The principal component analysis with varimax rotation yielded five components accounting for 51% of the total variance. The first factor (eigenvalue: 5.11) accounted for 23.2% of the variance in the responses and contained items concerned with perceptions on trust and support about HIV antibody testing. Items such as 'My friends would support my decision to get an HIV test', 'I could talk to my friends about making the decision to get an HIV test' and 'My family would support me if I decided to be tested for HIV' loaded highly on this factor. The second factor (eigenvalue: 2.19) accounted for 10% of the variance in responses and included items that were largely related to general concerns about HIV antibody testing such as 'I am afraid that if I were to be tested for HIV, my name would go into public records', 'I do not have time to get an HIV test' and 'Anyone who is tested for HIV is disgusting'. The third factor (eigenvalue: 1.51) accounted for 6.9% of the variance in responses and included items related to fears about HIV antibody testing such as 'People would assume I have HIV if I decided to get tested' and 'I am afraid someone would find out I was tested for HIV'.

The fourth factor (eigenvalue: 1.11) explaining 5% of the variance in responses contained items about concerns about the confidentiality of HIV antibody testing. Items such as 'HIV antibody testing information is kept very confidential by the medical staff who do testing' and 'I trust the HIV counsellors and nurses to keep my information confidential' loaded high in this factor. The fifth factor (eigenvalue: 1.01) accounted for 4.6% of the variance and reflected items about friends concerns about HIV antibody testing. The items 'My friends would look down on me if I were tested for HIV 'and 'My friends would treat me badly if I were to be tested for HIV' loaded high on this factor.

Table I shows the results of the factor analysis.

Cronbach alpha for the overall scale was .84. For factors 1 to 5 coefficient alphas were .74, .79, .64, .69, and .55. The corrected item-total correlations ranged from .18 to .71.

There was no significant difference between the mean HIV Antibody Testing Attitude Score of 52.3 (SD=13.2, N=351) for the males and that of 54.0 (SD=13.9, N=409) for the females as indicated by analysis of variance, F (1.599), p=. 20.

The factor analysis isolated five factors in this study, which is one more factor than in the sample of American College students. Further analysis indicates that the five factors accounted for 50% of the total variance; this is 7% higher than that of the variance accounted for by Boshamer and Bruce (3). All the 22 items of the HIV Antibody

Table I. Items and factor loadings for the HIV Antibody Testing Attitude Scale

| Item | Loadings |
|---|---|
| **Factor 1: Trust and support about HIV antibody testing** | |
| My friends would support my decision to get an HIV test | .71 |
| I could talk to my friends about making the decision to get an HIV test | .66 |
| My family would support me if I decided to be tested for HIV | .66 |
| It would not bother me if someone I know sees me going to get an HIV test | .58 |
| I could easily discuss HIV antibody testing with my family | .48 |
| My friends would not treat me any different if I were tested for HIV | .48 |
| **Factor 2: General concerns about HIV antibody testing** | |
| I am afraid that if I were to be tested for HIV, my name would go into public records | .71 |
| I do not have time to get an HIV test | .65 |
| Anyone who is tested for HIV is disgusting | .63 |
| HIV antibody testing is not really confidential | .52 |
| I would not consider getting an HIV test because I would be asked about thingsI have done that could get me into trouble | .51 |
| I would be embarrassed if my friends found out I had decided to have an HIV test | .50 |
| **Factor 3: Fears about HIV antibody testing** | |
| People would assume I have HIV if I decided to get tested | .65 |
| I am afraid someone would find out I was tested for HIV | .50 |
| I would not get tested for HIV because I would be asked information that was too personal | .49 |
| My parents would be upset if they knew I was planning to get tested for HIV | .41 |
| **Factor 4: Concerns about confidentiality of HIV antibody testing** | |
| HIV antibody testing information is kept very confidential by the medical staff who do testing | .78 |
| I trust the HIV counsellors and nurses to keep my information confidential | .72 |
| I can talk to my friends about making medical decisions | .53 |
| **Factor 5: Friends concerns about HIV antibody testing** | |
| My friends would look down on me if I were tested for HIV | .75 |
| My friends would treat me badly if I were to be tested for HIV | .67 |
| My friends would not look down on me if I were tested for HIV | .52 |

Testing Attitude Scale were included in the five factors in this study. However, factor analyses show a five and not a four facture structure. Boshamer and Bruce (3) identified the following factors: a friends concern, family concerns, concerns about public opinion and confidentiality of HIV antibody testing. This study has also identified 'friends concerns', 'confidentiality' and 'general or public concerns' about HIV antibody testing but two major other factors emerged as 'trust and support' and 'fears' about HIV antibody testing. It appears that issues around support and fears are relevant facilitators or barriers that are important for youth among African populations. This information can aid in the development of programmes targeting African risk groups, which is necessary for successful HIV interventions to promote HIV antibody testing.

## Acknowledgement

The financial assistance of the National Research Foundation (South Africa) towards this research is hereby acknowledged. Opinions expressed in this publication and conclusions arrived at, are those of the author and are not necessarily to be attributed to the National Research Foundation. We thank Bolanle Lawal in Nigeria and Peter Baguma in Uganda for implementing the study.

## References

1. Galvan FH, Bing EG, Bluthenthal RN: Assessing HIV testing and care. J Acquir Immune Defic Syndr 25: 151-156, 2000.
2. Kalichman SC, Hunter TL: HIV related risk and antibody testing: an urban community survey. AIDS Educ P 5: 234-243, 1993.
3. Boshamer CB, Bruce KE: A scale to measure attitudes about HIV- antibody testing: development and psychometric validation. AIDS Educ P 11: 400-413, 1999.

4. Samet JH, Winter MR, Grant L, Hingson R: Factors associated with HIV testing among sexually active adolescents: a Massachusetts survey. Pediatrics 100: 371-377, 1997.
5. Kim J, Mueller CW: Factor analysis. Sage University paper series on quantitative application in the social sciences. London: Sage publications, 1978.
6. Bailey KD: Methods of social research (2nd ed.). New York, The Free Press, 1982.

**Correspondence:**
Prof. Karl Peltzer
Director, Health Behaviour Research Unit, (HBRU)
University of North, Private Bag X 1106,
Sovenga (Pietersburg) 0727, South Africa
E-mail: PeltzerK@unin.unorth.ac.za