Instrument Title: Attitudes Toward Homosexuals in the Military (ATHM)
Instrument Author: Estrada, A.X.
A PRELIMINARY SCALE FOR ASSESSING ATTITUDES TOWARD HOMOSEXUALS IN THE MILITARY

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Summary.—This paper reports a factor analytical study of responses to statements of attitudes concerning lesbians and gay men in the military by 72 23.4-yr.-old members of the U.S. Marine Corps Reserve. Using exploratory factor analysis with an oblique rotation four factors were found which accounted for 64.9% of the total common variance. A factor labeled Trust accounted for 40.6% of the common variance, Comfort accounted for 8.7%, Acceptance accounted for 8.2%, and the fourth factor, Threat, accounted for 7.5%. Cronbach’s alpha ranged from .63 to .78. Validity was .75 when scores were correlated with those on the Attitudes Toward Lesbians and Gay Men scale, supporting the 4-factor interpretation. It is recommended that additional factor analyses be performed to further investigate the validity of the four factors and that of the entire scale.

In the past three decades there has been a dramatic increase in empirical research on attitudes toward lesbians and gay men. Considerable research has been directed toward the development of reliable and valid scales to measure the attitudes of university students (e.g., Herek, 1994) and of the general population (e.g., Herek & Capitanio, 1996). In general, research has found that negative attitudes toward lesbians and gay men are prevalent in our society (Niemi, Mueller, & Smith, 1989; Herek, 1991, 1994). Furthermore, scores on these measures show negative attitudes correlate with various demographic variables including age (Kurdek, 1988), sex (Whitley & Kite, 1995; Kite & Whitley, 1996), amount of education (Beran, Claybaker, Dillon, & Havercamp, 1992), religious attendance (Bierly, 1985; Hayes, 1995), political ideology (Herek, 1988, 1994), and contact with lesbians or gay men (Herek & Glunt, 1993; Grack & Richman, 1996; Herek & Capitanio, 1996). However, none of this research has examined these attitudes with respect to military service.

Although some recent works have focused on the topic of homosexuals in the military (e.g., National Defense Research Institute, 1993; Scott & Stanley, 1994; Herek, Jobe, & Carney, 1996), there are few data from military personnel. In fact, only one article was found on military personnel’s...
attitudes toward homosexuals in general or toward their service in the military (Estrada & Weiss, 1999).

This paper is intended to begin to fill this gap in research by reporting the results of a factor analysis of a 14-item measure of attitudes toward homosexuals in the military. The first section of this paper presents a brief review of measures of attitudes toward homosexuals. The next section describes the development of the scale. The final section presents the results and provides a discussion of the main finding.

Assessing Attitudes Toward Homosexuals

In recent years, numerous scales have been developed to assess attitudes toward homosexuals and homosexuality (e.g., Hudson & Ricketts, 1980). These scales, which are typically self-report measures, assess either global attitudes toward homosexuals, e.g., the Homonegativity Scale (Morrison, Parriag, & Morrison, 1999), the Index of Attitudes Toward Homosexuals (Hudson & Ricketts, 1980), and homosexuality, e.g., the Homophobic Scale (Arguero, Bloch, & Byrne, 1984), the Index of Toleration of Homosexuality (Irwin & Thompson, 1977), or attitudes toward lesbians and attitudes toward gay men, e.g., the Attitudes Toward Lesbians and Gay Men scale (Herek, 1994). For example, the Attitudes Toward Lesbians and Gay Men scale (Herek, 1994), which has excellent psychometric properties, consists of two 10-item subscales that measure attitudes toward gay men and attitudes toward lesbians (see Herek, 1994 for a review). The 20 statements are presented to respondents in Likert-type format with a scale anchored by strongly agree (1) and strongly disagree (4). Scoring is accomplished by reverse scoring some items and summing scores across items for each subscale (Herek, 1994). A low score indicates a negative attitude toward lesbians and gay men.

Over two decades of research have shown this scale to be one of the most valid and reliable measures of attitudes toward lesbians and gay men, using student and nonstudent samples (αs of .95 and .87, respectively). However, the utility of this scale as an indicator of attitudes toward homosexuals in the military is quite limited. The scale does not measure attitudes toward homosexuals in the military nor has it been administered to a military sample. A reliable and valid measure of attitudes toward homosexuals in the military could be useful to both policy makers and military personnel charged with policy making. Such a measure could help assess the effects of the new policy and inform policy makers if revisions to the new policy are warranted. This paper represents a first step toward the development of such a measure.

Scale Construction

To develop items for the Attitudes Toward Homosexuals in the Mili-
HOMOSEXUALS IN THE MILITARY

Several sources were consulted including both scientific and popular literature in magazines and newspapers. Literature on attitudes and attitude measurement, with particular emphasis on homosexuals, was examined. The search of the scientific literature proved of limited value given there has been little research. However, this literature did provide a number of important methodological points to consider when developing measures of attitudes toward homosexuals. First, items should be developed to distinguish between attitudes toward lesbians and attitudes toward gay men (Kite, 1984; Herek, 1988, 1994; Whitley & Kite, 1995; Kite & Whitley, 1996). Second, items should also distinguish between attitudes toward homosexuals, attitudes toward their civil liberties, and, in this case, workplace issues for homosexuals, e.g., acceptance of homosexuals in a military unit (Herek, 1991; Kite & Whitley, 1996). Finally, the items should address policy issues, e.g., the Department of Defense ban on homosexuals in the military. The search of the popular literature was also useful since it provided numerous examples of items that could be adapted for use. Numerous public opinion polls conducted by newspapers (e.g., Los Angeles Times) and magazines (e.g., Newsweek) on the topic of homosexuals in the military were examined. Two key sources were identified through this process including a 1993 Los Angeles Times Public Opinion Poll (Los Angeles Times, 1993) and a 1992 Sociological Survey of the Army (Moskos & Miller, 1993).

Initially, a pool of 17 items adapted from these two surveys was developed. Ten items were adapted from the 1992 Sociological Survey of the Army (Moskos & Miller, 1993), and 4 items were adapted from a Los Angeles Times Poll (Los Angeles Times, 1993; see Table 1 below). The items were selected because they addressed issues concerning the integration of lesbians and gay men in the military, homosexuals' right to serve in the military, and the ban on homosexual service in the military. Responses to all 17 items were made on a 4-point Likert-type scale anchored by 1 = strongly agree, 2 = agree, 3 = disagree, and 4 = strongly disagree. The following instructions were read to the respondents.

I am interested in learning about how members of the Armed Forces feel about working or associating with lesbians and gay men. This is not a test and there are no right or wrong answers. Consider each statement as carefully and accurately as you can, then place the number indicating your opinion next to each statement. Your responses will be kept confidential and no one will be allowed to read them. Do not write your name on any part of this form.

The initial measure was first administered to a convenience sample of 12 United States Marine Corps members. They were approached individually by the author immediately after a meeting with the unit commander when permission to conduct the study with unit members was obtained. The scale was administered along with the Attitudes Toward Lesbians and Gay
Men scale (Herek, 1994). The scale included 17 statements concerning homosexuals entering and serving in the military. The 17 statements were presented to respondents in Likert format, with a scale anchored by strongly agree (1) and strongly disagree (4). Because the initial sample used to develop the scale was small, no statistical analyses were performed. However, individual interviews were carried out with the respondents to evaluate the content of the items. Based on the results of the interviews, three items were dropped including a poorly written item, an item which respondents found difficult to understand, and an item that was redundant in content. The revised version of the scale included the 14 statements shown in Table 1 below. The present study investigated the psychometric properties of this scale.

METHOD

Participants

A total of 72 male members of the United States Marine Corps Reserve on active service were included. All participants were from the same unit and had undergone basic and advanced training in their military occupational skills. The mean age for the sample was 23.4 yr. (SD = 4.3) with a range of 19 to 46. Seventy-eight percent of the sample were single, 14% were married, and 7.8% were living with a significant other. The ethnic composition of the sample was 45% Hispanic American, 33% Euro-American, 13 Asian American, 4% African American, and 4% other. The average length of service in the military for the sample was 4.2 yr. In addition, the majority of the sample had a high school diploma (94.2%), and 77% indicated that they had some college education.

Measures

Attitudes toward homosexuals in the military.—The 14-item Attitudes Toward Homosexuals in the Military scale was administered using the Likert format with anchors of strongly agree (1) and strongly disagree (4). Some items were reverse scored and all summed across scores on the item. Individual scores ranged from a low 14 (extremely negative attitudes) to a high of 56 (extremely positive attitudes).

Attitudes toward lesbians and gay men.—These attitudes were measured on Herek’s scale (1994) of that name. There are two 10-item subscales for attitudes toward gay men and toward lesbians. The 20 statements are presented in Likert format on a 4-point scale anchored by strongly agree (1) and strongly disagree (4). Some items were reverse scored and then scores were summed across items within a subscale (Herek, 1994). Individual score

Data from the 12 participants tested to develop the 14-item version of the scale were not included.
ranged from 20 (extremely negative attitudes) to 80 (extremely positive attitudes).

Procedure

The researcher met with the unit commander to obtain permission to recruit participants. After obtaining permission, the researcher met with the participants during a regularly scheduled workday to tell participants about the general purpose of the study and ask them to volunteer to participate. They were informed that their responses would remain anonymous and would be kept confidential.

The questionnaire was administered to small groups of participants (n=30; there was a smaller group of 12 participants) in a classroom on the military base. After seating participants at individual desks, the researcher read brief instructions and handed each participant a copy of the survey, which was completed in about 20 minutes. Participants placed completed surveys in a large box near the front of the classroom. After each group was finished, they were given the opportunity to ask questions and were thanked for their participation.

RESULTS

Initial examination of the correlation matrix indicated that all of the items were positively intercorrelated, ranging from .13 to .66 (mean inter-item correlation = .34); 82 of 91 correlations were significant; and Kaiser's test of sampling adequacy (MSA >.6) indicated that the matrix was suitable for factor analysis (Tabachnik & Fidell, 1996).

An exploratory factor analysis was performed to examine the underlying constructs assessed by the scale. A principal components analysis with an oblique rotation was performed using SPSS (Nie, Hull, Jenkins, Steinbrenner, & Bent, 1975). An oblique rotation was chosen because it seemed likely that the factors would be correlated. Factors were identified on the basis of Kaiser's rule of eigenvalue > 1 (Kaiser, 1960) and confirmed by examination of a scree plot (Cattell, 1966). A factor was retained if its eigenvalue was greater than unity (Kaiser, 1960) and verified by the scree plot (Cattell, 1966).

The results suggest that this scale is not unidimensional (see Table 1). One factor labeled Trust accounted for 40.6% of the total common variance and consisted of four items that concerned trust and confidence of homosexual personnel, e.g., Openly gay or lesbian service members would try to seduce straight service members. Three other factors appeared to be interpretable. A factor labeled Threat accounted for an additional 8.7% of the

*Readers are referred to Estrada and Weiss (1999) for details concerning the recruitment of participants.
<table>
<thead>
<tr>
<th>Subscale and Item</th>
<th>Order</th>
<th>M</th>
<th>SD</th>
<th>Corrected Item-Total r</th>
<th>Loading</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trust</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gay men would not be reliable in a combat situation.</td>
<td>3a</td>
<td>2.5</td>
<td>.95</td>
<td>.50</td>
<td>.77</td>
</tr>
<tr>
<td>Openly gay or lesbian service members would try and seduce straight service members.</td>
<td>4b</td>
<td>2.3</td>
<td>.83</td>
<td>.47</td>
<td>.71</td>
</tr>
<tr>
<td>Lesbians/gay men should be allowed to enter and remain in the military. (reverse scored)</td>
<td>12b</td>
<td>2.1</td>
<td>.97</td>
<td>.55</td>
<td>.67</td>
</tr>
<tr>
<td>It is all right for gays and lesbians to be in the military as long as I don’t know who they are. (reverse scored)</td>
<td>13b</td>
<td>2.5</td>
<td>.99</td>
<td>.49</td>
<td>.68</td>
</tr>
<tr>
<td>Threat</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Allowing openly gay and lesbian people in the armed forces would be very disruptive.</td>
<td>2a</td>
<td>1.6</td>
<td>.83</td>
<td>.47</td>
<td>.76</td>
</tr>
<tr>
<td>If the ban was lifted, homosexuals would be subject to physical violence.</td>
<td>5a</td>
<td>1.7</td>
<td>.77</td>
<td>.47</td>
<td>.87</td>
</tr>
<tr>
<td>Comfort</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I would feel uncomfortable if there were a homosexual member in my unit.</td>
<td>4b</td>
<td>1.9</td>
<td>.87</td>
<td>.66</td>
<td>.64</td>
</tr>
<tr>
<td>I would feel uncomfortable having to share my room with a homosexual service member.</td>
<td>7b</td>
<td>1.5</td>
<td>.65</td>
<td>.67</td>
<td>.79</td>
</tr>
<tr>
<td>Gay males make me more uncomfortable than lesbians.</td>
<td>8b</td>
<td>1.7</td>
<td>.85</td>
<td>.51</td>
<td>.84</td>
</tr>
<tr>
<td>In the event of a draft, gay men should be drafted the same as straight men. (reverse scored)</td>
<td>10b</td>
<td>2.3</td>
<td>1.00</td>
<td>.47</td>
<td>.54</td>
</tr>
<tr>
<td>Allowing gays and lesbians in the military will increase soldiers’ acceptance of gays and lesbians. (reverse scored)</td>
<td>14b</td>
<td>2.0</td>
<td>.98</td>
<td>.45</td>
<td>.62</td>
</tr>
<tr>
<td>Acceptance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I feel that the ban on homosexuals in the armed forces should be lifted. (reverse scored)</td>
<td>1a</td>
<td>1.9</td>
<td>.93</td>
<td>.58</td>
<td>.87</td>
</tr>
<tr>
<td>I feel that gay men/lesbians should be allowed to serve openly in the armed forces. (reverse scored)</td>
<td>9a</td>
<td>1.8</td>
<td>.84</td>
<td>.66</td>
<td>.75</td>
</tr>
<tr>
<td>Allowing openly lesbian or gay men in the military would cause some problems but we could manage. (reverse scored)</td>
<td>11a</td>
<td>2.3</td>
<td>.99</td>
<td>.55</td>
<td>.69</td>
</tr>
</tbody>
</table>

a Item was adapted from a Los Angeles Times poll (Los Angeles Times, 1993). b Item was adapted from the 1992 Sociological Survey of the Army (Moskos & Miller, 1993).
total common variance and consisted of two items that concerned the dangers associated with the integration of lesbians and gay men into the military, e.g., Allowing openly gay and lesbian people in the armed forces would be very disruptive. Another factor labeled Comfort accounted for an additional 8.2% of the total common variance and consisted of five items that addressed comfort with lesbians and gay men in the military environment, e.g., I would feel uncomfortable if there were a homosexual member in my unit. The last factor labeled Acceptance accounted for an additional 7.5% of the total common variance and consisted of three items that addressed the ban on homosexuals in the military, e.g., I feel that gay men/lesbians should be allowed to serve openly in the armed forces. These four factors, Trust, Threat, Comfort, and Acceptance, accounted for 64.9% of the total common variance.

Reliability. To examine the reliability of the scales, Cronbach coefficients alpha (1951) were computed for the 14-item scales and each subscale, e.g., factors. The results indicate that the scales were reasonably internally consistent, with coefficients alpha of .87 for the entire 14-item scale, .72 for Trust, .63 for Threat, .78 for Comfort, and .76 for Acceptance.

Validity. The validity of the scales was examined via correlational analysis with scores on the Attitudes Toward Lesbians and Gay Men scale (Herek, 1994). Composite scores for the 14-item scale and each subscale, e.g., Trust, Threat, Comfort, Acceptance, were computed. As Table 2 shows, the scales were correlated. For example, the correlation between scores on the 14-item scale and on the Attitudes Toward Lesbians and Gay Men scale was .75 (p < .001), suggesting that the scale was measuring attitudes toward homosexuals. Not surprisingly, each subscale was highly correlated with scores on the entire scale (e.g., all rs > .60, p<.001). More importantly, the pattern of correlations among the subscales suggest that they appear to tap different dimensions of attitudes toward homosexuals in the military. For ex-

<table>
<thead>
<tr>
<th>Measure</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attitudes Toward Homosexuals in the Military</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>1. Total</td>
<td></td>
<td>.84</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Trust</td>
<td></td>
<td>.65</td>
<td>.41</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Threat</td>
<td></td>
<td>.88</td>
<td>.60</td>
<td>.53</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Comfort</td>
<td></td>
<td>.82</td>
<td>.62</td>
<td>.44</td>
<td>.61</td>
<td></td>
</tr>
<tr>
<td>5. Acceptance</td>
<td></td>
<td>.75</td>
<td>.72</td>
<td>.42</td>
<td>.63</td>
<td>.59</td>
</tr>
<tr>
<td>6. Attitudes Toward Lesbians and Gay Men</td>
<td></td>
<td></td>
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<td></td>
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</tr>
</tbody>
</table>

*P<.001.
ample, the correlations of Trust with Comfort and Acceptance were higher, .60 and .62, respectively, and the correlations of Threat with Comfort and Acceptance were .53 and .44, respectively. Also, the correlation between Threat and Trust was .41. The pattern of correlations between scores on the subscales with the Attitudes Toward Lesbians and Gay Men scale (Herek, 1994) ranged from .59 to .72. These results suggest that each subscale may be tapping into conceptually different facets of these attitudes.

DISCUSSION

The purpose of this study was to investigate the psychometric properties of a scale designed to assess attitudes toward homosexuals in the military. Although research on attitudes toward homosexuals has increased within the past decades, little of it has focused on military populations. Although some recent work on the topic of homosexuals in the military has emerged (e.g., National Defense Research Institute, 1993; Scott & Stanley, 1994; Herek, Jobe, & Carney, 1996), there are few data on military personnel. Only one study has been reported in the scientific literature (Estrada & Weiss, 1999). More importantly, there have been no attempts to develop a measure of attitudes toward homosexuals in the military. The purpose of this study was to begin the development of such a measure.

Analysis of the 14-item scale suggested that it is a multidimensional scale. Four factors were extracted that accounted for 64.9% of the total common variance. These results underscore the importance of factor-analytical studies in the development of attitude scales. It appears that the scale may consist of several subscales, which will affect how it should be scored. Reliability and validity analyses provide additional support for this interpretation. The four subscales are internally consistent. The correlations of the subscales with the Attitudes Toward Lesbians and Gay Men (Herek, 1994), suggested that each subscale may be tapping a conceptually distinct dimension of these attitudes. However, additional factor analyses, with larger and more diverse samples of military personnel, are needed to assess the validity of this interpretation.

Replication of these results would validate the suggested scoring procedures and support the suggested interpretation of the four factors. Replication is particularly important given the limitations of the study. First, the analyses were conducted with a small sample. Although the minimally acceptable ratio of subjects to variables in factor analysis is at the discretion of the researcher, it should be greater than 5:1 and as large as possible. As such, it is important to interpret these results very tentatively. Secondly, all participants were male. One well established finding in the literature on attitudes toward lesbians and gay men is that men and women differ in their attitudes toward homosexuals in general (Kite & Whitley, 1996) and toward
homosexuals of the same sex (Herek, 1994) and a narrow age range. Researchers should include women to assess whether these sex differences hold in military personnel. Thirdly, the present study included only young Marine Corps Reserve personnel. It would be valuable to study other service branches (e.g., Army, Navy, and Air Force) to examine the consistency of the proposed factors across branches. It may be the case that because each branch has its own mission, the proposed factors may vary by branch of service. Finally, the present study included only enlisted personnel. It would be valuable to examine officers' attitudes which is particularly important since officers are responsible for enforcing the Department of Defense policy on homosexuals in the military. Clearly, these are empirical questions that require examination. Although the present results are encouraging, the validity of the proposed factors and the total scale must be investigated further.

REFERENCES


Accepted February 25, 2002.