

PSYCHOMETRIC PROPERTIES OF THE NUNGESSER HOMOSEXUAL ATTITUDES
INVENTORY AND ITS RELATION TO HEALTH RISKS AMONG GAY MEN

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ABSTRACT

Sexual minority men are at an increased risk for negative outcomes, including mental health disorders, suicide, substance abuse, and sexual risk behaviors. Internalized Homophobia (IH), roughly defined as sexual orientation-related self-hatred among gay men, has been linked to these outcomes. Since its publication in 1983, the predominant measure of IH used in psychological research has been the Nungesser Homosexual Attitudes Inventory (Nungesser, 1983). The scale is potentially dated, and there is a relative paucity of investigation into its psychometric properties; findings derived through its use may be in question. The current effort describes two studies designed to address these concerns. Study I includes a principal components analysis of the scale using data obtained from an internet sample ($N = 486$), resulting in suggested revisions for the broader scale, and proposed brief versions of the Self and Disclosure subscales. Study II used data obtained from a second internet sample ($N = 884$) to further evaluate scale structure and properties. Analyses include confirmatory factor analyses of the original scale, Shidlo's revised version (1994), the suggested alternative, and the Brief Self and Disclosure scales proposed in Study I. Of the three versions of the overall scale, the suggested alternative proposed in Study I exhibited the most favorable fit and highest item loadings. Internal consistency for the suggested alternative was equal to that of the larger NHAI and Shidlo-revised scales. External validity was evaluated through correlations with mental health and suicide, substance use, sexual risk, and orientation-based victimization. Strong results in the expected direction were found only in the instance of mental health, with negative attitudes towards homosexuality being associated with increases in depression and anxiety scores as measured by the Hospital Anxiety and Depression Scale. The suggested scale alternative and Brief Self and Disclosure scales performed similarly to the more extensive NHAI and Shidlo-

revised scales, leading to a recommendation for their use in research. Finally, findings from the current effort are discussed in relation to the broader social context impacting the lives and development of sexual minority men.

To my family and friends for their unwavering support.

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TABLE OF CONTENTS

	Page
ABSTRACT.....	iii
DEDICATION	v
ACKNOWLEDGMENTS	vi
LIST OF TABLES	x
LIST OF FIGURES	xi
CHAPTER	
1. INTRODUCTION	1
2. STUDY I	9
METHODS	9
Participant Recruitment	9
Survey	9
RESULTS	10
Preliminary Analyses	10
Participant Retention and Characteristics	10
Data Preparation	13
Principal Components Analyses	14
Brief Self and Brief Disclosure Scales	15
3. STUDY II	17
METHODS	17
Participant Recruitment	17

Measures	17
Demographics	17
Nungesser Homosexual Attitudes Inventory	18
Hospital Anxiety and Depression Scale	18
Suicide Behaviors Questionnaire-Revised	19
Alcohol Use Disorders Identification Test	19
Drug Abuse Screening Test	20
Smoking	20
Sexual Risk Behavior	21
Sexual Orientation Related Abuse	22
Procedure	22
RESULTS	22
Preliminary Analyses	23
Participant Retention and Characteristics	23
Data Preparation	24
Primary Analyses	25
Internal Consistency	25
Measures of Fit	28
Confirmatory Factor Analyses	28
External Validity	45
Mental Health and Suicide	45
Substance Use/Abuse	47
Sexual Risk	49

Orientation-Related Abuse	52
4. DISCUSSION	55
Measurement	55
Shidlo Revisions	55
NHAI	56
Suggested Alternative	57
Methods Factors	57
Other Subscale	58
Brief Self and Brief Disclosure Scales	59
External Validity	60
Mental Health and Suicide	60
Substance Use/Abuse	61
Sexual Risk	64
Orientation-Related Abuse	66
Limitations	67
Directions for Future Research	68
Conclusions	71
REFERENCES	73
APPENDIX	80

LIST OF TABLES

Table

1. Shidlo-Revised NHAI	3
2. Measure/Scale Information	11
3. Participant Characteristics	13
4. NHAI-SR PCA	15
5. NHAI PCA	15
6. Suggested Alternative PCA	15
7. Single-factor Self Loadings	16
8. Single-factor Disclosure Loadings	16
9. Participant Characteristics	24
10. NHAI Item Correlations and Descriptive Statistics	26
11. Reliability for the NHAI, NHAI-SR, Alternative Model, and Brief Scales	27
12. Original NHAI, Models with Factor Loadings and Fit Indices	30
13. Shidlo-Revised NHAI, Models with Factor Loadings and Fit Indices	41
14. Proposed Alternative NHAI, Models with Factor Loadings and Fit Indices	42
15. Loadings for Self Factor	43
16. Loadings for Other/Global Factor	44
17. Loadings for Disclosure Factor	44
18. Attitudes Towards Homosexuality, Correlations with Mental Health and Suicide	46
19. Attitudes Towards Homosexuality, Correlations with Substance Use Constructs	48
20. Attitudes Towards Homosexuality, Correlations with Sexual Risk Constructs	50
21. Attitudes Towards Homosexuality, Correlations with Orientation-Based Victimization	53

LIST OF FIGURES

Figure

1. Original NHAI Structure	31
2. NHAI with Methods Factors Only	32
3. NHAI with Original Structure and Methods Factors	33
4. NHAI-SR Structure	34
5. NHAI-SR Methods Factors Only	35
6. NHAI-SR with Original Structure and Methods Factors	36
7. Suggested Scale Alternative	37
8. Alternative with Methods Factors Only	38
9. Alternative with Suggested Structure and Methods Factors	39

CHAPTER 1: INTRODUCTION

The construct of internalized homophobia (IH)—roughly defined here as sexual orientation related self-hatred among gay men—has played an important role in gay affirmative psychology, and promises to continue doing so as links have been established between IH and health risk behaviors. Suicide may be considered to be an epidemic among gay men, with credible accounts holding that suicide attempts are up to 18 times more likely among homosexual men than among their heterosexual peers (Fergusson, Horwood, Ridder, & Beauvais, 2005). IH has been implicated in the increased rates of suicide ideation and behavior among members of the sexual minority community. IH has been shown to be correlated with suicide ideation among older gay men (D’Augelli, Grossman, Hershberger, & O’Connell, 2001) and with a measure of suicide ideation and/or behavior among a general sample of New York City gay men (Meyer, 1995). Igartua, Gill, and Montoro (2003) found a bivariate link between suicide and IH among a gay and lesbian sample, and suggested that the effect may be mediated through a possible relationship between IH and depression. The literature similarly bears evidence of links between IH and other concerning outcomes. Szymanski, Kashubeck-West, and Meyer (2008) reviewed the evidence linking internalized homophobia among gay men with several major categories of correlates: difficulties in sexual identity formation and the coming out process, low self-esteem, a lack of social support, higher rates of depression and psychological distress, psychosocial distress, suicidal ideation and behavior, body dissatisfaction, poor physical health (particularly in regards to HIV status and coping), substance abuse, sexual risk-taking, and difficulties with intimate relationships. Evidence indicates that IH is linked with all of these constructs. As these topics remain important—and in some instances growing—concerns in regards to the psychological health of individual gay men as well as

public health in general, IH has been established as a construct warranting continuing and even increased investigation.

Research in IH has been most heavily influenced by one scale in particular. The Nungesser Homosexual Attitudes Inventory (NHAI; Nungesser, 1983) has been, and remains, the most widely used measure of internalized homophobia among gay men (Dew & Chaney, 2005; Newcomb & Mustanski, 2011; Szymanski et al., 2008). Among lesbians, modified versions of the NHAI as well as the Lesbian Internalized Homophobia Scale (Szymanski & Chung, 2001) have been used. The widespread use of the NHAI has lent a great deal of influence to its proposed three-factor conceptualization of the construct: 1) attitudes towards one's own homosexuality, 2) attitudes towards other homosexuals, and 3) attitudes towards the disclosure of one's own homosexual identity to others (NHAI items are included in Table 1 along with later additions). Prior to the publication of the NHAI, IH had been assessed using only a single item or a small number of items with limited face validity and questionable theoretical basis for selection (Shidlo, 1994). Further, much of the research specifically targeting internalized homophobia as a construct post-dates the scale's publication, suggesting that in addition to helping to define the construct, the scale may have also played a role in raising awareness of it.

The creation of the NHAI was briefly discussed in Nungesser's 1983 book. An initial pool of 84 true/false items was created, comprised of original items with apparent face validity. The items were tested using a small convenience sample of gay men ($n = 50$) gathered from "public cruising areas" (Nungesser, 1983, p.72) and a gay-interest university group. Nungesser reported that results suggested the retention of the final 34 items (for original NHAI items as well as the later Shidlo additions, see Table 1); unfortunately, beyond the use of item *D* values,

Table 1. Shidlo-Revised NHAH

<u>Subscale Self (Personal Homonegativity)</u>	<u>Subscale Other (Global Homonegativity)</u>	<u>Subscale Disclosure</u>
Reverse Code: 1, 3, 5, 6, 14, 15	Reverse Code: 17, 18, 19, 21, 23.	Reverse Code: 26, 27, 28, 30, 36, 39.
1. When I am in a conversation with a gay man and he touches me, it does not make me uncomfortable.	16. Homosexuality is not as satisfying as heterosexuality.	26. I wouldn't mind if my boss knew that I was gay.
2. Whenever I think a lot about being gay, I feel depressed.	17. Homosexuality is a natural expression of sexuality in humans.	27. When I tell my straight friends about my homosexuality, I do not worry that they will try to remember things about me that would make me appear to fit the stereotype of a homosexual.
3. I am glad to be gay.	18. Gay men do not dislike women any more than heterosexual men dislike women.	28. When I am sexually attracted to another gay man, I do not mind if someone else knows how I feel.
4. When I am sexually attracted to another gay man, I feel uncomfortable.	19. Marriage between gay people should be legalized.	29. When women know about my homosexuality, I am afraid that they will not relate to me as a man.
5. I am proud to be a part of the gay community.	20. Gay men are overly promiscuous.	30. I would not mind if my neighbors knew that I am gay.
6. My homosexuality does not make me unhappy.	21. Most problems that gay persons have come from their status as an oppressed minority, not their homosexuality per se.	31. It is important to me to conceal the fact that I am gay from most people.
7. Whenever I think a lot about being gay, I feel critical about myself.	22. Gay persons' lives are not as fulfilling as heterosexuals' lives.	32. If my straight friends knew of my homosexuality, I would feel uncomfortable.
8. I wish I were heterosexual.	23. Children should be taught that being gay is a normal and healthy way for people to be.	33. If men knew about my homosexuality, I am afraid that they would begin to avoid me.
[9] I do not think I will be able to have a long-term relationship with another man.	24. Homosexuality is a sexual perversion.	34. If it were made public that I am gay, I would be extremely unhappy.
<i>Shidlo Additions, 10-15</i>	[25] Adult homosexual males who have sex with boys under eighteen years of age should be punished by law.	35. If my peers knew of my homosexuality, I am afraid that not many would want to be friends with me.
10. I have been in counseling because I wanted to stop having sexual feelings for other men.		36. If others knew of my homosexuality, I wouldn't worry particularly that they would think of me as effeminate.
11. I have tried killing myself because I couldn't accept my homosexuality.		37. When I think about coming out to peers, I am afraid that they will pay more attention to my body movements and voice inflections.
12. There have been times when I've felt so rotten about being gay that I wanted to be dead.		38. I am afraid that people will harass me if I come out more publicly.
13. I have tried killing myself because it seemed that my life as a gay person was too miserable to bear.		[39] When I think about coming out to a heterosexual male friend, I do not worry that he might watch me to see if I do things that are stereotypically homosexual.
14. I find it important that I read gay books or newspapers.		
15. It's important to me to feel part of the gay community.		

Note: Shidlo suggests omission of bracketed NHAH items.

the analyses used to derive these results were not clearly indicated. The subscale measuring attitudes towards homosexual features in oneself was comprised of 10 items, the subscale measuring attitudes towards homosexuality in others was comprised of 12 items, and the subscale measuring comfort with disclosure consisted of 12 items. Nungesser reported a reliability estimate of .94 for the Self subscale, .88 for the Other subscale, and .91 for the Disclosure subscale. Nungesser subsequently tested the measure among a second convenience sample comprised of gay community group members and university faculty ($n = 50$), providing responses on a Likert scale of agreement, and reporting a reliability estimate of .95 for the overall scale. While the response categories were described as “Likert scaling” (Nungesser, 1983, p.73), the number of categories used was not provided, nor were their corresponding labels. Little more was reported in terms of psychometric properties beyond individual item D values, reflecting each item’s ability to discriminate between high and low total scores.

Following the publication of the NHAI, the scale was used for over a decade without substantial investigation of its psychometric properties. Shidlo’s (1994) review and revision of the NHAI was the first—and remains the only—published examination of NHAI properties that extends beyond reliability estimates and correlations among subscale scores. In addition to an internal reliability estimate of .90 among his sample, and subscale correlations ranging from .62 to .67, Shidlo also provided item-total correlations for individual items, including the 6 items added as part of his revisions (items 10-15 in Table 1). Added to the Self subscale, these items might each be further characterized as reflecting one of two constructs, community involvement and suicide ideation/behavior. Shidlo reported an intention to improve content validity by adding “extreme items” (Shidlo, 1994, p. 186), realized through the addition of orientation-related suicide items, such as “I have tried killing myself because it seemed that my life as a gay

person was too miserable to bear” (Shidlo, 1994, p. 200). Further revisions included modernization and clarification of item wording, as well as the suggested omission of three items, with justifications including lack of content validity. In addition to his own revisions and examination, Shidlo suggested the need for further investigation into the scale’s psychometric properties, including a factor analysis to verify the scale structure proposed by Nungesser (1983).

Rosario, Hunter, Maguen, Gwadz, and Smith (2001) reported having performed a factor analysis of the original NHAI items using data collected from gay, lesbian, and bisexual New York City youth ($n = 156$), arriving at a two-factor solution, briefly described as “attitudes towards homosexuality, with 11 unit-weighted items (e.g., “My [homosexuality/bisexuality] does not make me unhappy,” Cronbach’s $\alpha = .85$); and comfort with homosexuality, with 12 unit-weighted items (e.g., “If my straight friends knew of my [homosexuality/bisexuality], I would feel uncomfortable,” Cronbach’s $\alpha = .90$)” (p. 143). This largely completes the authors’ description of the factors, and the remaining items comprising the two factors are not provided. Generalizability may have been compromised by the use of lesbians in the sample. Beyond this effort, the literature bears little in the way of further investigation of the structure of the original or the Shidlo-revised NHAI.

The paucity of investigation into the scale’s properties is troubling. For instance, if the subscales are not well-conceptualized as the factors that Nungesser proposed, the practice of using subscale totals in analyses would be inadvisable. Yet subscale scores are often used in analyses (e.g. Jellison & McConnell, 2003). Further, the properties of the overall scale are largely unknown, and are particularly suspect due to the age of the measure and the rapidly changing nature of the factors impacting the lives and development of gay men. For instance, changes in general societal tolerance, the emergence of the HIV crisis, and the changing legal

climate may have had an impact on the psychology of gay men. One study showed that between wave 1 and wave 2 of NESARC data collection (conducted respectively: 2001-2002 and 2004-2005), several psychiatric disorders increased among LGB people living in states that enacted bans on same-sex marriage during the intervening period (Hatzenbuehler, McLaughlin, Keyes, Hasin, 2010). Hatzenbuehler et al. report the following increases: 248.2% for any mood disorder, 41.9% for any alcohol use disorder, and a 36.3% increase for psychiatric comorbidity. Further, there were no similar increases among heterosexual populations in the same states, nor among gay men living in states that did not enact similar bans. As the social environment has undergone dramatic changes in the three decades following the release of the NHAI, it may be reasonable to assume that members of the gay community may have been impacted by such changes, and further, it may be reasonable to question whether a construct such as internalized homophobia should be assessed using the same measure employed in 1983.

A recent meta-analysis showed a decline in the strength of the relationship between internalized homophobia and sexual risk-taking among gay men (Newcomb & Mustanski, 2011). The researchers suggest caution in interpreting these findings, indicating measurement concerns as a potential contributor to the weakening of association. While the overall results of that meta-analysis do suggest a relationship between internalized homophobia and sexual risk-taking, it is important to note that the results of individual studies in this area often conflict. While a number of investigations have supported a link (e.g. Meyer & Dean, 1995; Peterson et al., 1992; Ratti, Bakeman, & Peterson, 2000; Stokes & Peterson, 1998), a number offered either no support or support for only an indirect link (Dew & Chaney, 2005; Dudley, Rostosky, Korfliage, & Zimmerman, 2004; Farnsworth, 2002; Herek & Glunt, 1995; Parsons, Bimbi, Koken, & Halkitis, 2005; Shidlo, 1994; Vincke, Bolton, Mak, & Blank, 1993), and several included findings in the

opposite direction (Joseph, Adib, Joseph, & Tal, 1991; Shidlo, 1994; Stokes, Vanable, & McKirnan, 1996). In regards to other risk behaviors among gay men and a possible link to internalized homophobia, research findings are often similarly mixed. For instance, while several studies have indicated a link between internalized homophobia and substance abuse among gay men (e.g. Cherry, 1996; Farnsworth, 2002; Nicely, 2001), a number do not support such a link (e.g. Allen, 2001; Amadio & Chung, 2004; D'Augelli, Grossman, Hershberger, & O'Connell, 2001; Ross et al., 2001). Among the studies reviewed by Szymanski et al. (2008), two of those reporting a relationship between IH and substance abuse showed differing strengths of association according to the aspect of IH being measured. These findings provide further impetus for the investigation of NHAI scale structure. If the subscales are shown to be well-conceptualized as the factors they were originally intended to reflect, it may be advisable to incorporate the use of subscale totals in analyses.

As the NHAI is the dominant measure of internalized homophobia used in the research, and the scale remains largely unexamined, it is possible that measurement concerns may play a role in the mixed nature of results among the previously discussed lines of investigation. In order to evaluate the accuracy of past findings, as well as encourage quality measurement of internalized homophobia in future research, a thorough investigation of the structure and properties of the NHAI is necessary. With this in mind, two studies were conducted to examine the properties of the NHAI. The first study uses data obtained from an online sample to conduct an exploratory principal components analysis of the NHAI and NHAI-SR. The results suggest potential revisions of the scale. The second involves confirmatory factor analyses using data obtained from a more recent online sample. Revisions suggested by the first study are examined, the potential influence of methods factors are considered (i.e. negative vs. positive wording), and

the external validity of the scales is evaluated using established measures of potential correlates, including depression and anxiety, suicide ideation and behaviors, alcohol and drug abuse, smoking, sexual risk behavior, HIV status and testing, and bias-related abuse.

CHAPTER 2: STUDY I

Methods

Participant Recruitment

Completed online survey responses were collected from 486 participants during January, 2008. Participants were recruited online using three primary methods. First, potential participants were identified by parameter-constrained automated searches (criteria: homosexual, male, and adult), conducted through professional and social networking websites (including Myspace). The nature of these searches, and the websites themselves, assured that all those identified for recruitment had previously and publicly self-identified as homosexual. Emails were sent through the networking sites to potential participants, briefly describing the study as a broad survey of the attitudes and behaviors of homosexual men, and concluding with a link to the survey site. Second, participant nominations were used. At the close of the online survey, participants were provided an option through which they might send a survey link to individuals meeting inclusion criteria. Third, administrators of homosexual-interest listservs were contacted with requests for assistance. The lists varied in nature. Among them were professional lists, college and graduate student lists, and lists serving gay men belonging to particular religious groups. There was no compensation for participation.

Survey

Survey administration was facilitated through a third-party psychological data collection website. Links to the site and survey were included in recruitment materials. Time to survey completion was estimated to be approximately thirty minutes. The survey included the Nungesser Homosexual Attitudes Inventory (Nungesser, 1983), with Shidlo's (1994) revisions presented after an initial body of unrelated items. The survey included the 30 items included in

the NHAI reproduction published by Shidlo (1994) (out of 34 items comprising the original NHAI [Nungesser, 1983], reflecting 3 Shidlo-suggested omissions and 1 apparent Shidlo oversight), as well as the 6 additional items contributed by Shidlo (survey items 14-52 in the Appendix comprise the revised NHAI). The original NHAI items were initially designed to be answered in True/False format. Nungesser subsequently used scaling described as Likert, but did not provide the number of categories used. For the purposes of this study, responses were provided on a 1-7 scale reflecting agreement. In accordance with the original NHAI, higher scores indicate more positive attitudes towards homosexuality. For NHAI characteristics, see Table 2. Internal consistency estimates range from .84 to .95 for the NHAI (respectively: Dew & Chaney, 2005; Nungesser, 1983), and from .87 to .91 for the Shidlo-revised version of the scale (respectively: Skinta, 2007; Chung & Szymanski, 2006).

Results

Preliminary Analyses

Participant Retention and Characteristics

Of the initial 517 survey responses, 31 were excluded for the following reasons: 8 participants indicated an exclusively heterosexual identity and 5 participants indicated a primarily heterosexual identity, 12 cases were incomplete initial attempts by participants who later submitted complete responses, 4 cases with response inconsistencies were believed to be false, and 2 cases were submitted twelve minutes apart from the same IP address. The remaining 486 cases were retained for analyses. Participant characteristics are summarized in Table 3.

While the demographic characteristics of the gay male population are largely unknown, several indicators speak to the representativeness of the current sample. In a report for the National Opinion Research Center, Smith (2003) notes that homosexuality is more common

TABLE 2. Measure/Scale Information

Construct	Scale	Reference	<i>N</i>_{Items}	(in Appendix)	α	Source
Internalized Homophobia	<u>NHAI</u>	Nungesser, 1983	34	14-52	.84-.95	Dew & Chaney, 2005; Nungesser, 1983
	Self		10		.71-.94	Jellison & McConnell, 2003; Nungesser, 1983
	Other		12		.45-.88	Jellison & McConnell, 2003; Nungesser, 1983
	Disclosure		12		.86-.91	Reilly & Rudd, 2006; Nungesser, 1983
Internalized Homophobia	<u>NHAI-SR</u>	Shidlo, 1994	36	14-52	.87-.91	Skinta, 2007; Chung & Szymanski, 2006
	Self		14		.73-.81	Houts & Horne, 2008; Cohen, 2011
	Other		9		.62	Cohen, 2011
	Disclosure		13		.84	Cohen, 2011
Anxiety & Depression	<u>HADS</u>	Zigmond & Snaith, 1982	14	53-66		
			Anxiety	7		.68-.93, M = .83 (K = 15)
			7		.67-.90, M = .82 (K = 15)	Bjelland, Dahl, Haug, & Neckelmann, 2002
Suicide Ideation & Behavior	<u>SBO-R</u>	Osman et al., 2001	4	64-71	.75-.88	Cotton, Peters, & Range, 1995; Osman et al., 2001
Alcohol Abuse/Dependence	<u>AUDIT</u>	WHO, 2001	10	72-81	.83-.90	Hays, Merz, & Nicholas, 1995; Feldman et al., 2011
Drug Abuse/Dependence	<u>DAST-10</u>	Bohn et al., 1991	10	86-95	.86-.94	Cocco & Carey, 1998; Carey, Carey, & Chandra, 2003
Demographics	N/A	Original Items	12	2-13	N/A	N/A
Smoking	N/A	Holloway et al., 2012	3	83-85	N/A	N/A
Sexual Risk Behavior	N/A	Original Items	10	97-106	N/A	N/A
HIV Serostatus	N/A	Original Items	3	107-109	N/A	N/A
Orientation Related Abuse	N/A	Dean, Wu, & Martin, 1992	6	110-115	N/A	N/A

among younger men. Similarly, more recent Gallup data (2012) suggest that rates of self-identification as gay or bisexual are three times higher among those aged 18-29 than among those 65 and over. In light of these findings, the fairly young age of the current sample ($M = 30$, $SD = 11$) may be representative of the larger population.

While Smith (2003) reported that being gay is unrelated to education, and 2012 Gallup data suggest that LGBT Americans tend to be lower in academic achievement, Black, Gates, Sanders, and Taylor (2000) examined several data sources, including census data, concluding that gay men may be more highly educated than the heterosexual population. The relatively high educational achievement of the current sample (32% completed a college degree, and an additional 38% reported at least some college education) may reflect a general tendency among the sub-population. Other findings by Smith (2003) are consistent with the nature of the current sample. Smith reports that “gays . . . are distinctive in congregating in the largest central cities” (p. 9). This reported tendency may be reflected in the largely urban nature of the current sample (42% reported currently living in large urban locations). While Gallup (2012) data show a very small effect for geographic region on sexual identification, rates are generally similar across U.S. regions, and the makeup of the current sample is likely representative.

While Black et al. (2000) report that the racial characteristics of the gay population largely mirror those of the general population, as does Smith (2003), Shields et al. (2013) report that a slightly higher percentage of African American middle school students in San Francisco reported LGB identity than did White students. Among the other racial categories, lower percentages identified as LGB in comparison to White and African American students. The 2012 Gallup data suggest that racial minority members are more likely to report LGB identity. Therefore, minority members of the gay male population are likely underrepresented among the

largely White (80%) sample. While Nungesser (1983) does not report the demographic characteristics of the samples among which NHAJ items were initially tested, the reliability and external validity of the measure has been established using primarily European American samples (Szymanski et al., 2008).

TABLE 3. Participant Characteristics (N = 486)

Variable and Descriptives		Variable and Descriptives		Variable and Descriptives	
<u>Age in Years</u>		<u>Racial/Ethnic Self-Identification</u>		<u>Political Ideology</u>	
Mean (SD)	30 (11)	White	80%	Liberal	70%
Range	16-68	Hispanic	10%	Centrist	23%
IQR	22-34	Other	10%	Conservative	7%
<u>Homosexual</u>		<u>Relationship/Committed</u>		<u>Sexual Preference</u>	
Exclusively	72%	Yes	34%	Top	32%
Predominantly	23%	Unsure	10%	Versatile	34%
Bisexual	5%	No	56%	Bottom	32%
<u>Region (US Census)</u>		<u>Residence</u>		<u>Education</u>	
Northeast	19%	Large Urban	42%	High School	14%
Midwest	20%	Smaller Urban	30%	College, Some	38%
South	30%	Suburban	20%	College, Degree	32%
West	31%	Rural	8%	Graduate, Some	5%
<u>Religious Affiliation</u>				Graduate, Degree 11%	
Yes	12%	Group Unaccepting Homosexuals			
Yes	11%	Group Accepting Homosexuals			
Yes	5%	Unsure of Group Stance			
No	45%	Spiritual, But Not Religious			
No	27%	Not Particularly Spiritual or Religious			

Data Preparation

Following the outline provided by Kline (2011), data from the current survey were first screened for the presence of several violations of data assumptions: univariate and multivariate outliers, and univariate and multivariate non-normality. In order to evaluate the effects of univariate non-normality, log transformations were applied to variables with a skew index greater than 3 or a kurtosis index greater than 10. Analyses proceeded using both the original and transformed versions of those variables. The use of transformations had little impact on

results, therefore findings are reported for untransformed variables. While multivariate non-normality can be evaluated, large samples often produce statistically significant results, and Kline (2011) suggests that multivariate non-normality may be influenced by data screening and corrections at the univariate level. Univariate non-normality was of limited concern, as participants were limited to a 1-7 response scale. Mahalanobis distance statistics were computed and examined in order to screen for multivariate outliers. There were no extreme multivariate outliers, and all cases were retained for analyses.

Principal Components Analyses

Results were examined for a number of initial solutions obtained using oblimin rotation in SPSS. Regardless of the number of factors specified, results suggested that the Shidlo additions to the scale are distinct from the main body of items, forming two prominent and distinct components. Community involvement items 14 and 15 dominate one prominent component, while mental health and suicide items 10-13 form a second component with little relation to the main body of items (see Table 4 for a 3-factor solution including Shidlo's additions, with loadings $>.45$ in bold). After the removal of the Shidlo items, loadings suggested a 3-factor solution loosely corresponding to the original Self, Other, and Disclosure subscales. The Disclosure subscale items (26-38) form a strong initial component, save for item 36, which loads poorly on all three factors, and items 27-29 and 37 displaying loadings that are weaker in comparison to the rest. Items 2, 3, and 5-8 of the Self subscale are joined by items 16 and—to a lesser extent—22 of the Other subscale in dominating the second component. The third component is dominated by Other subscale items 17, 19, 23, and 24, with items 18 and 21 displaying weaker but fairly distinct loadings on this component as well (see Table 5 for item loadings). This solution suggests the removal of a number of low or non-distinctly loading

items: 1, 4, 18, 20, 22, 27-29, 36, and 37. Loadings for the 19 retained items are displayed in Table 6. These 19 items can be characterized by fairly strong and unique loadings.

Table 4. NHAJ-SR PCA.

NHAJ-SR			
<i>(items comprising Shidlo-Revised scale)</i>			
Item	Component		
	1	2	3
1	.086	.215	.032
2	.306	.183	.416
3	.128	.486	.262
4	.283	.112	-.012
5	-.042	.677	.213
6	.179	.299	.336
7	.298	.137	.272
8	.298	.363	.264
9	-	-	-
10	-.009	.050	.495
11	-.066	-.063	.876
12	.060	-.059	.792
13	-.030	-.110	.879
14	-.125	.728	-.124
15	-.105	.778	-.042
16	.279	.321	.160
17	.151	.401	-.009
18	-.102	.288	.058
19	.081	.322	.004
20	-.023	.349	.021
21	-.013	.363	-.123
22	.197	.241	.161
23	.159	.366	-.176
24	.094	.357	.154
25	-	-	-
26	.474	.184	.093
27	.371	.094	.022
28	.420	.065	.095
29	.466	.006	-.089
30	.598	.041	-.010
31	.760	-.036	-.063
32	.695	-.026	-.029
33	.689	-.171	.079
34	.784	.027	-.017
35	.752	-.061	.008
36	.107	.126	-.019
37	.572	-.074	.009
38	.702	-.144	.115
39	-	-	-

Table 5. NHAJ PCA.

NHAJ			
<i>(analysis using original items)</i>			
Item	Component		
	1	2	3
1	.048	.200	.090
2	.177	.672	-.143
3	.014	.667	.093
4	.227	.153	.031
5	-.119	.730	.058
6	.048	.630	.023
7	.124	.604	-.165
8	.155	.650	.017
9	-	-	-
10	-	-	-
11	-	-	-
12	-	-	-
13	-	-	-
14	-	-	-
15	-	-	-
16	.134	.510	.114
17	.113	.126	.511
18	-.165	.169	.375
19	.139	-.072	.553
20	-.126	.318	.203
21	-.070	.098	.357
22	.096	.425	.020
23	.165	-.119	.613
24	.142	.058	.573
25	-	-	-
26	.471	.164	.158
27	.375	.010	.202
28	.433	.067	.124
29	.379	.109	-.068
30	.633	-.089	.231
31	.775	-.092	.102
32	.713	-.087	.138
33	.635	.147	-.259
34	.752	.048	.106
35	.714	.073	-.047
36	.049	.085	.174
37	.447	.241	-.226
38	.641	.174	-.194
39	-	-	-

Table 6. Suggested Alternative PCA.

NHAJ, SUGGESTED ALTERNATIVE			
<i>(reflecting suggested omissions)</i>			
Item	Component		
	1	2	3
1	-	-	-
2	.182	.675	-.131
3	-.045	.725	.134
4	-	-	-
5	-.150	.746	.083
6	.008	.673	.008
7	.105	.612	-.172
8	.110	.676	.082
9	-	-	-
10	-	-	-
11	-	-	-
12	-	-	-
13	-	-	-
14	-	-	-
15	-	-	-
16	.084	.505	.186
17	-.008	.187	.602
18	-	-	-
19	.054	.008	.559
20	-	-	-
21	-	-	-
22	-	-	-
23	.079	-.084	.664
24	.026	.120	.629
25	-	-	-
26	.446	.218	.102
27	-	-	-
28	-	-	-
29	-	-	-
30	.593	-.043	.213
31	.774	-.085	.113
32	.720	-.092	.132
33	.694	.091	-.239
34	.755	.051	.131
35	.734	.061	-.023
36	-	-	-
37	-	-	-
38	.691	.142	-.186
39	-	-	-

Brief Self and Brief Disclosure Scales

In addition to the revisions proposed to the original scale, the results of separate single-factor structural models were examined to create brief versions of the Self and Disclosure subscales. High-loading items from the Self factor of the principal components analysis—2, 3,

5-8, and 16—were included in the initial single-factor structural model of Self items. Items were eliminated one at a time, and the effects on the remaining loadings were examined. A final solution was achieved in which items 2, 3, 7, and 8 are hypothesized to form a brief Self scale. Table 7 provides the initial single-factor loadings as well as the loadings on the final brief factor. High-loading items 26, 30-35, and 38 from the principal components analysis were included in the initial single-factor structural model of Disclosure items. Items were then eliminated one at a time, and the effects on the remaining loadings were examined. A final solution was achieved. 4 high-loading Disclosure items—31, 32, 34, and 35—are hypothesized to form a brief Disclosure scale. Table 8 provides the initial single-factor loadings as well as the loadings on the final brief factor.

TABLE 7. Single-factor Self Loadings.

Item	Initial Loading	Final Loading
2	.67	.68
3	.69	.64
5	.62	-
6	.59	-
7	.54	.54
8	.72	.74
16	.53	-

TABLE 8. Single-factor Disclosure Loadings.

Item	Initial Loading	Final Loading
26	.55	-
30	.57	-
31	.72	.71
32	.66	.70
33	.59	-
34	.80	.82
35	.71	.67
38	.64	-

CHAPTER 3: STUDY II

Methods

Participant Recruitment

Survey responses were collected from 909 adult men who self-identify as gay or bisexual between April and June, 2013. Recruitment materials contained the name of the study, The Temple University Gay Men's Health Survey, as well as a brief description of the effort: a short and anonymous online questionnaire designed to benefit the gay community. Multiple methods of recruitment were used. Social networking sites were used to disseminate survey information. Recruitment materials were posted in establishments of gay interest. Community centers and organizations across the U.S. were contacted and requested to assist through their means of access to community members, including mailings and list serves. Information was disseminated at gay pride events. Finally, at the conclusion of the online survey, participants were provided with a link to the website and requested to share the information with other men who met criteria for participation. There was no compensation for participation.

Measures

Demographics

Information was requested in regards to basic demographic and social variables (survey items 2-13 in the Appendix). Participants were asked to enter their age in years. Racial and ethnic categories from the U.S. census were provided, and participants were asked to indicate which category or categories applies to them. Participants were asked to report the highest level of education that they have attained using U.S. census categories. Participants were asked to select their state of residence from a drop-down list (non-U.S. participants were asked to enter their country of residence in a provided "Other" field). Information was requested in regards to

household income, with provided census categories. Sexual preference was measured using the Kinsey scale (Kinsey, Pomeroy, & Martin, 1948), and in addition, participants were asked to choose among provided sexual self-identities. Those selecting “other” were asked to specify. Relationship status was requested. Participants were asked to indicate the valence of their political beliefs by selecting among the categories provided to them, from “very conservative” to “very liberal.”

Nungesser Homosexual Attitudes Inventory (NHAI)

The survey included the 33 items included in the NHAI reproduction published by Shidlo (1994) (out of 34 items comprising the original NHAI [Nungesser, 1983], reflecting 1 apparent Shidlo oversight), as well as the 6 additional items contributed by Shidlo (survey items 14-52 in the Appendix comprise the revised NHAI). Subscale averages were computed and used in analyses as well as an overall item average. For NHAI characteristics, and those of the standardized scales discussed below, see Table 3.

Hospital Anxiety and Depression Scale (HADS)

The HADS is a brief self-report measure designed to gauge levels of depression and anxiety (Zigmond, & Snaith, 1982). The measure consists of two seven-item subscales, anxiety and depression, with responses provided on a 0-3 scale indicating frequency (items 53-66 of the appended survey comprise the HADS). The subscales and overall scale have been shown to have acceptable internal consistency, validity, and reliability. Published internal consistency estimates for the anxiety subscale range from .68 to .93, with an average of .83 ($K = 15$), and internal consistency estimates for the depression subscale range from .67 to .90, with an average of .82 ($K = 15$) (Bjelland, Dahl, Haug, & Neckelmann, 2002). Scores have been shown to have utility in both identifying clinical cases and measuring the severity of symptoms. The results of

multiple studies suggest the use of a cutoff between 8 and 9 for the identification of cases with subscale scores (see Bjelland, Dahl, Haug, & Neckelmann, 2002 for review). For the purposes of this study, participants were evaluated as case vs. non-case as well as on a continuum indicating the severity of symptoms.

Suicide Behaviors Questionnaire-Revised (SBQ-R)

The Suicide Behaviors Questionnaire-Revised (SBQ-R, Osman et al., 2001) is a 4-item self-report scale adapted in accordance to a factor analysis by Cole (1988) from the original Suicidal Behaviors Questionnaire (Linehan, 1981), an extensive measure designed to be administered in interview format. The version of the SBQ-R published by Osman et al. (2001) was used with a single alteration to the initial item suggested by McBee-Strayer and Rogers (2002), separating the confounded original into two items, one tapping ideation and the other tapping actual attempts (for the version of the SBQ-R used in the current study, see items 64-71 of the appended survey). The resulting items measure lifetime suicide ideation, the presence of a past attempt, the past-year frequency of ideation, having reported or threatened an attempt, and the likelihood of future suicide behavior. The overall scale has been shown to have acceptable internal consistency, test-retest reliability, concurrent validity, and utility as a suicide risk measure (Cotton, Peters, & Range, 1995; Osman et al., 2001). Published internal consistency estimates range from .75 to .88 (respectively: Cotton, Peters, & Range, 1995; Osman et al., 2001). Single item scores are also used for the purposes of analyses (e.g. McBee-Strayer & Rogers).

Alcohol Use Disorders Identification Test (AUDIT)

The AUDIT is a 10-item self-report scale developed by the World Health Organization to serve as a brief assessment of alcohol use (Saunders, Aasland, Babor, de la Fuente, & Grant,

1993). The scale's Second Edition (WHO, 2001) was used for the purposes of this study (items 72-81 of the appended survey). Responses reflect frequency or agreement with the item. Measured constructs include current and past-year alcohol abuse, dependence, and associated problems. The AUDIT has been shown to exhibit acceptable internal consistency, test-retest reliability, and validity (for a review, see Fiellin, Carrington, & O'Connor, 2000). Internal consistency estimates range from .83 to .90 (respectively: Hays, Merz, & Nicholas, 1995; Feldman, Chatton, Khan, Khazaal, & Zullino, 2011). When used to identify clinical cases, a total score of 8 or more is recommended. For the purposes of this study, participants were evaluated as case vs. non-case as well as on a continuum.

Drug Abuse Screening Test (DAST-10)

The DAST-10 (Bohn et al., 1991) is an abbreviated version of the original 28-item screening measure for drug abuse or dependence (Skinner, 1982). Respondents provide yes or no answers to 10 questions regarding past-year drug use and related behaviors (items 86-95 in the appended survey). The test has been shown to have acceptable validity (criterion, construct, and discriminative), internal consistency, and test-retest reliability (see Yudko, Lozhkina, & Fouts, 2007 for a review). Estimates of internal consistency range from .86 to .94 (respectively: Cocco & Carey, 1998; Carey, Carey, & Chandra, 2003). A score of 3 or higher reflects the likelihood of a substance use disorder (Carey et al., 2003). For the purposes of analyses, this cutoff was used to identify cases vs. non-cases, and total scores were also considered on a continuum.

Smoking

Single items were used to assess each of the following aspects of cigarette smoking behavior: lifetime use (yes/no), the number of days in the past month in which the participant

smoked, and the number of cigarettes smoked on a typical day in which the participant smoked in the past month (see items 83-85 in the appended survey). Items will be used in analyses separately. Participants will also be classified according to a scale reflecting both frequency and intensity of use. Using the criteria employed by Holloway et al. (2012), participants were classified according to a 4-point scale: 1) lifetime non-users, 2) non-recent users (having smoked, but not in the past month), 3) light users (having smoked up to 15 days in the past month, and up to 10 cigarettes per typical day), and 4) frequent/heavy users (having smoked more than 15 days in the past month, or having smoked more than 10 cigarettes on a typical day).

Sexual Risk Behavior

Sexual behaviors were examined using 10 items (numbers 97-106 in the appended survey). Five items assessed participant history and practices in the receptive role of anal intercourse, and an additional 5 items assessed participant history and practices in the insertive role. Participants were asked 1) if they have ever engaged in unprotected sex, 2) the number of partners with which they have engaged in anal intercourse in the past 3 months, 3) if they have had unprotected anal intercourse in the past 3 months with a primary partner of known HIV status, 4) how many partners they have had unprotected anal intercourse with in the past 3 months (not including a primary partner of known HIV status), and 5) the number of times they have had unprotected anal intercourse in the past 3 months (not including a primary partner of known HIV status). The accuracy of self-reports of condom use and sexual behavior has been supported for the 3-month recall window (Jaccard, McDonald, Wan, Dittus, & Quinlan, 2002).

Items 107-109 of the appended survey were used to assess HIV screening behavior and serostatus. Participants were asked if they had ever been tested for HIV. A second item asked if

the participant had been tested for HIV within the past year. A third question requested the participant's HIV serostatus: negative, positive, or unknown.

Sexual Orientation Related Abuse

Items assessed the past-year and lifetime frequencies of the three categories of victimization identified by Dean, Wu, and Martin (1992). Pilkington and D'Augelli (1995) describe:

- (1) Type I: verbal abuse (insults and threats of physical violence);
- (2) Type II: minimal physical attack (having personal property damaged or destroyed; being chased, followed, or spat upon; having objects thrown at one's body);
- and (3) Type III: physical assault (being punched, hit, kicked, or beaten, sexual assault, or assault with a weapon). (p37)

In accordance with the work of Pilkington and D'Augelli (1995), participants were asked to respond on a scale indicating frequency: never, once, twice, and more than twice (for victimization items, see numbers 110-115 of the appended survey). Individual item scores were used in analyses as well as composite scores for lifetime victimization and past year victimization.

Procedure

Recruitment materials included an address for the online survey. The survey was hosted by a professional psychological data collection company in order to convey legitimacy and ensure maximum confidentiality. Participants were initially presented with a consent form. After providing electronic consent, participants were directed to the survey. Participants responded to a total of 115 items, comprised by the scales discussed above. The median time for survey completion was approximately 16 min. At the completion of the survey, participants

were thanked for their participation, provided with the survey link in electronic format, and asked to disseminate information to other potential participants should they feel comfortable.

Results

Preliminary Analyses

Participant Retention and Characteristics

Of the initial 909 survey responses, inclusion criteria required the elimination of 22 participants who reported their sexual preference as either exclusively or predominantly heterosexual. 3 cases constituted extreme multivariate outliers among the items comprising the NHAI-SR, and were excluded for the sake of analyses. 884 cases were retained. Suggestions for minimum sample sizes used with CFA range from 5 participants per item to 20 or more participants per item (Furr, 2011). The revised NHAI published by Shidlo is comprised of 36 items. According to rules of thumb, the minimum sample size used should be between 180 and 720 participants. Structures of greater complexity generally require larger sample sizes. In the instance of the current study, a sufficient sample size was obtained in order to ensure power and accuracy. Participant characteristics are summarized in Table 9. As was the case in Study I, the current sample can be characterized as being young ($M = 35$, $SD = 12$), White (82%), and highly educated (36% reported a bachelor's degree, and 26% reported a graduate degree). Unlike the previous sample, the current body of participants was largely comprised of residents of the Northeastern U.S. (67%).

TABLE 9. Participant Characteristics (*N* = 884)

Variable and Descriptives		Variable and Descriptives	
<u>Age in Years</u>		<u>Political Ideology</u>	
Mean (SD)	35(12)	Liberal	74%
Range	16-77	Centrist	17%
IQR	26-43	Conservative	9%
<u>Kinsey (Homosexual)</u>		<u>HIV Serostatus</u>	
Exclusively	79%	Negative	82%
Predominantly	20%	Unsure	10%
Bisexual	2%	Positive	8%
<u>Self-Identify</u>		<u>Relationship Status</u>	
Gay	95%	Single	55%
Bisexual	4%	Monogamous Relationship	34%
Other	1%	Open Relationship	11%
<u>Current Region</u>		<u>Education</u>	
Northeast	67%	High School	9%
South	15%	Some College	21%
West	9%	Associate's Degree	8%
Midwest	4%	Bachelor's Degree	36%
Non-U.S.	5%	Master's Degree	16%
		Professional or Doctoral Degree	10%
<u>Racial Self-Identification</u>		<u>Household Income</u>	
White, non-Hispanic	82%	Less than 25,000	18%
Hispanic, Latino, or Spanish	6%	25,000 - 49,999	27%
Other Primary Category	6%	50,000 - 74,999	22%
Multiracial	6%	75,000 - 99,000	12%
		100,000 or over	21%

Data Preparation

Following the outline provided by Kline (2011), NHAI responses from the current survey were first screened for the presence of several violations of CFA assumptions: univariate and multivariate outliers, missing data, and univariate and multivariate non-normality. In order to evaluate the effects of univariate non-normality, log transformations were applied to variables with a skew index greater than 3 or a kurtosis index greater than 10. Analyses proceeded using both the original and transformed versions of those variables. The use of transformations had little impact on results, therefore findings are reported for untransformed variables. While

multivariate non-normality can be evaluated, large samples often produce statistically significant results, and Kline (2011) suggests that multivariate non-normality may be influenced by data screening and corrections at the univariate level. Univariate non-normality was of limited concern, as participants were limited to a 1-7 response scale. Mahalanobis distance statistics were computed and examined in order to screen for multivariate outliers. Three cases constituted extreme multivariate outliers, and were eliminated for the sake of analyses. Finally, missingness was addressed using the AMOS 18.0 (Analysis of Moment Structure) (Arbuckle, 1995-2009) form of ML estimation, which does not delete or impute data, but uses a partitioning of scores based on the missingness patterns. The resulting correlation matrix is displayed in Table 10.

Primary Analyses

Internal Consistency

Internal consistency for the NHAI, NHAI-SR, the proposed alternative, and the brief Self and Disclosure scales were evaluated using the Cronbach's alpha statistic produced by SPSS. Internal consistency below .70-.80 can be considered potentially problematic (Furr, 2011). Reliability for the scale totals as well as the subscale scores are provided in Table 11. For the NHAI, the NHAI-SR, and the suggested alternative, reliability for the overall scale is .90, reliability for the Self and Disclosure subscales is above .80, and reliability for the Other subscale is .60 or lower. Reliability for the overall suggested scale alternative is equal to that of the NHAI and the NHAI-SR, but with fewer items used (14 fewer and 17 fewer respectively).

Reliability for the 7 items comprising the suggested alternative Self subscale (.85) is higher than the reliability for the 9 items comprising the NHAI Self subscale (.81) and the 14 items comprising the NHAI-SR Self subscale (.80). While internal consistency appears to be

potentially problematic for all versions of the Other subscale, reliability for the 4 items comprising the suggested alternative subscale (.56) is similar to that obtained for the 10 items comprising the NHAI Other subscale (.58) and the 9 items comprising the NHAI-SR Other subscale (.60). Reliability for the 8 items comprising the suggested alternative Disclosure subscale (.89) is similar to the reliabilities for the 14 items comprising the NHAI Disclosure subscale and the 13 items comprising the NHAI-SR Disclosure subscale (both .88). Reliability for the 4 items comprising the brief Self scale is .82, and reliability for the 4 items comprising the brief Disclosure scale is .83. In all instances discussed above, brevity does not appear to be accompanied by any substantial deterioration of internal consistency.

TABLE 11. Reliability for the NHAI, NHAI-SR, Alternative Model, and Brief Scale

Model	N_{items}	Reliability
NHAI	33	.90
Self	9	.81
Other	10	.58
Disclosure	14	.87
Positive Items	18	.88
Negative Items	15	.74
NHAI-SR	36	.90
Self	14	.80
Other	9	.60
Disclosure	13	.88
Positive Items	20	.88
Negative Items	16	.78
Alternate	19	.90
Self	7	.85
Other	4	.56
Disclosure	8	.89
Positive Items	11	.88
Negative Items	8	.73
Brief Self	4	.82
Brief Disclosure	4	.83

For the items comprising the NHAI, NHAI-SR, and the suggested alternative, reliability was calculated for the positively-worded and negatively-worded items. For all versions of the

scale, reliability of the positively-worded items is .88, and reliability for the negatively-worded items is .73 or higher. These high figures for negatively and positively worded items may suggest that measurement concerns are at play, that reliability alone is an inadequate reflection of construct measurement, or both.

Measures of Fit

In addition to item loadings, measures of overall fit will be provided for the models to follow. These measures are used to compare the covariances proposed by the models to those observed in the data. Commonly used test statistics and fit indices include χ^2 , CFI (Comparative Fit Index), RMSEA (Root Mean Square Error of Approximation), and AIC (Akaike Information Criterion). As sample size is large in this instance, model χ^2 statistics may be expected to be significant (Kline, 2011), but can be evaluated according to the criteria that smaller values indicate better fit. The CFI is an approximate fit index, and values may be interpreted as estimates of the proportion of data covariance explained by the specified model. This index suggests more favorable fit as it rises to a value of 1. The RMSEA is a “badness-of-fit” index, with values indicating favorable fit as they decrease towards 0. A well-known rule of thumb holds that a value $\leq .05$ indicates good fit (Browne & Cudeck, 1993). The RMSEA is a parsimony-adjusted index, generally favoring simpler models (Kline, 2011). Another parsimony-adjusted index—the AIC—is a predictive fit index used to compare the likelihood of replication between models given a similarly sized sample randomly selected from the same population. Lower AIC values indicate a greater likelihood of replication.

Confirmatory Factor Analyses

An initial single-factor model was run for each the NHAI, the NHAI-SR, and the model suggested by the previously discussed EFA. In each instance, the fit of the single-factor model

was poor, underperforming in comparison to subsequent models suggesting more complex structures. Next, a series of models using the original NHAI items were evaluated. Model 1 corresponds to the structure originally proposed by Nungesser (1983) (see Figure 1). Three lower-order factors—Self, Other/Global, and Disclosure—are hypothesized to load onto the higher-order factor of Internalized Homophobia. Item numbering follows the version of the scale published by Shidlo (1994). Items 1-9 are hypothesized to load onto the Self factor, items 16-25 are hypothesized to load onto the Other/Global factor, and items 26-39 are hypothesized to load onto the Disclosure factor. In order for the loadings of all second-order factors to be freely estimated, the variance of the higher-order factor was fixed to 1 (Byrne, 2010). Model 2 consists of two correlated methods factors, one for positively worded items (worded with the construct of internalized homophobia) and one for negatively worded items (worded against the construct of internalized homophobia) (see Figure 2). Positively worded items consist of numbers 2, 4, 7-9, 16, 20, 22, 24, 25, 29, 31-35, 37, and 38. The remainder of the items comprising the original NHAI are specified to load onto the negative wording factor. Model 3 combines the factor structure originally hypothesized by Nungesser (Model 1) with the methods factors proposed in Model 2 (see Figure 3). Loadings and fit for the models comprised of original NHAI items are displayed in Table 12. Individual test statistics and fit indices for all three models were non-optimal according to the criteria previously discussed. The fit of model 1 was poor. The fit of model 2 was generally worse. Of these proposed structures, the fit of model 3 was best. In comparison to the item loadings onto the originally proposed factors (model 1), those obtained from hybrid model 3 were substantially decreased for the Self and Other subscales, suggesting that methods factors may play a significant role in explaining variance for the items comprising those subscales.

TABLE 12. Original NHA1, models with factor loadings and fit indices

Item	Model											
	Single-Factor	NHA1 Structure			Methods Factors		NHA1 Structure/Methods Factors					
	IH	Self	Other	Disclosure	Positive	Negative	Self	Other	Disclosure	Positive	Negative	
1	.20	.20				.22	.02					.26
2	.71	.82			.70		-.23			.77		
3	.60	.73				.61	-.79					.57
4	.42	.42			.42		.04			.47		
5	.48	.55				.52	-.26					.52
6	.54	.62				.56	-.13					.62
7	.58	.67			.57		-.18			.64		
8	.65	.74			.63		-.33			.66		
9	.41	.46			.41		-.01			.50		
16	.52		.69		.51			.13		.60		
17	.20		.29			.24		.48				.21
18	.17		.23			.20		.24				.20
19	.18		.25			.24		.48				.22
20	.28		.34		.28			-.04		.34		
21	.10		.14			.13		.26				.12
22	.51		.63		.52			.05		.59		
23	.32		.38			.35		.44				.31
24	.36		.41		.35			.29		.36		
25	.02		.07		.02			.05				.06
26	.61			.64		.65			.47			.51
27	.49			.49		.52			.24			.48
28	.62			.61		.68			.31			.62
29	.45			.46	.47				.24	.41		
30	.65			.67		.69			.42			.59
31	.72			.75	.72				.52	.55		
32	.74			.78	.75				.54	.56		
33	.65			.69	.68				.45	.54		
34	.74			.78	.75				.56	.56		
35	.73			.79	.76				.61	.55		
36	.21			.18		.25			-.01			.28
37	.56			.58	.58				.33	.49		
38	.62			.65	.63				.44	.49		
39	.19			.18		.22			.02			.25
<u>Variiances</u>												
	0.11*	0.01*	0.23**	0.34**	0.94**	0.19**	0.00	0.30**	0.36**	1.10**	0.25**	
<u>Fit Indices</u>												
χ^2 =	99	χ^2 =	1803.25		χ^2 =	2689.64		χ^2 =	1291.95			
df=	495	df=	492		df=	494		df=	458			
p<	.001	p<	.001		p<	.001		p<	.001			
CFI=	.75	CFI=	.86		CFI=	.77		CFI=	.91			
RMSEA=	.074 (.071-.076)	RMSEA=	.055 (.052-.058)		RMSEA=	.071 (.089-.074)		RMSEA=	.045 (.043-.048)			
AIC=	3061.98	AIC=	2007.25		AIC=	2889.64		AIC=	1563.95			

* $p < .05$. ** $p < .01$.

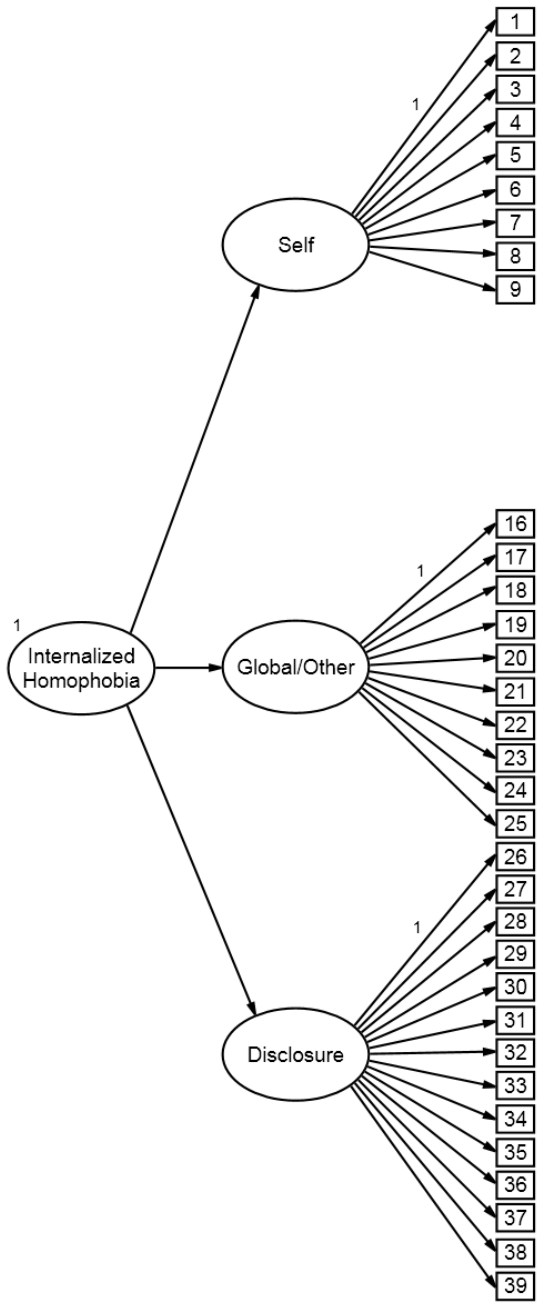


Figure 1. Original NHA I Structure.

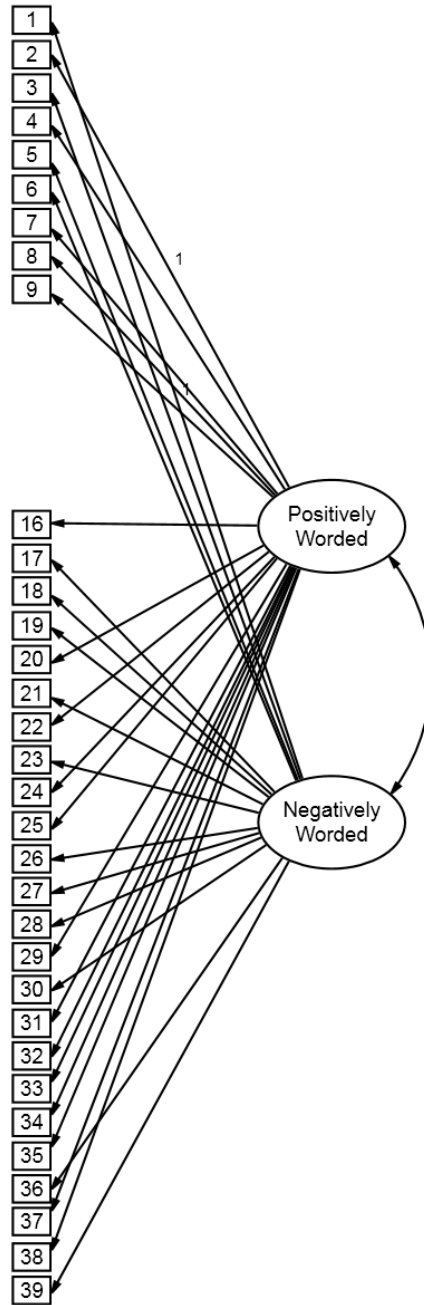


Figure 2. NHA1 with methods factors only.

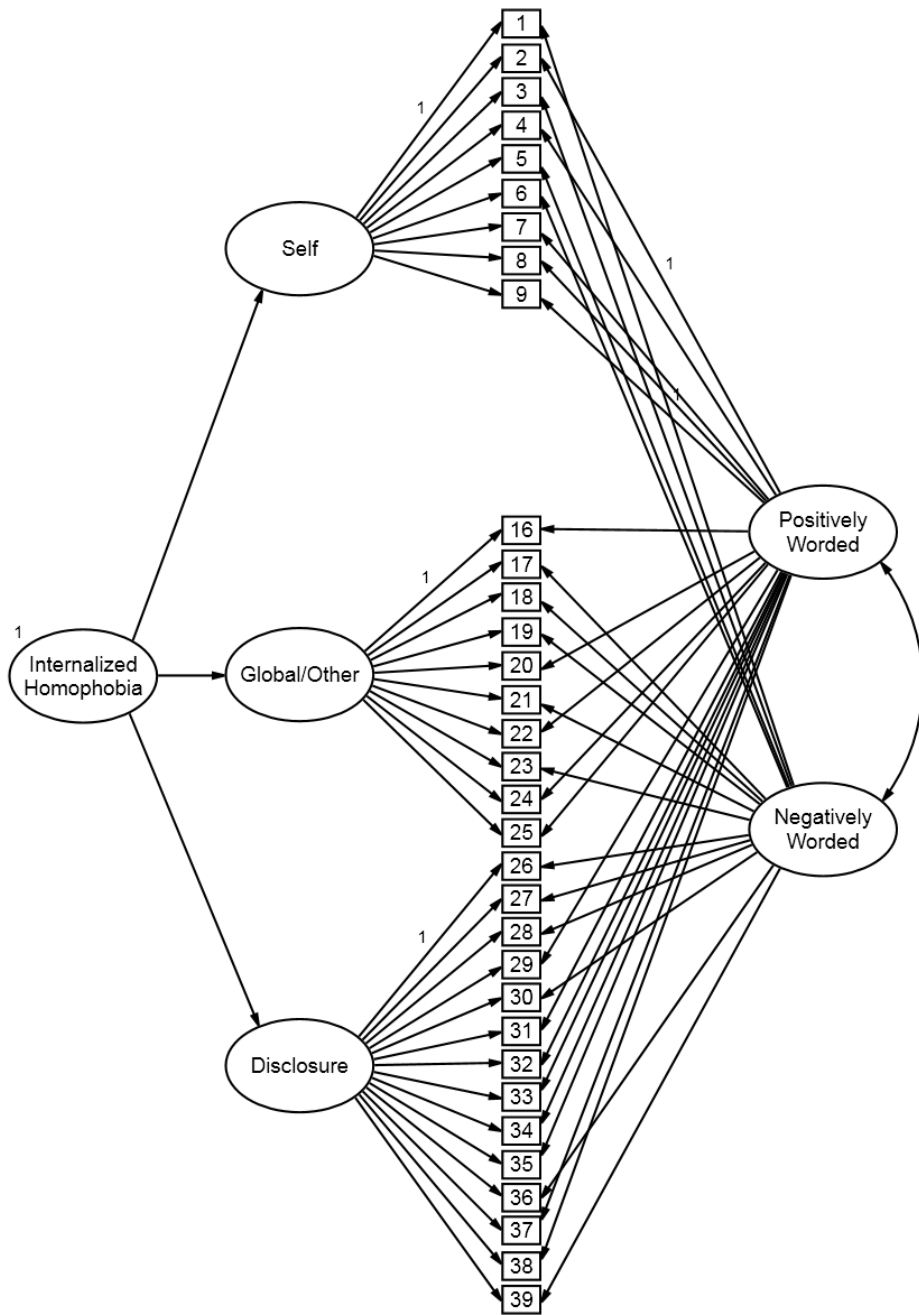


Figure 3. NHA with original structure and methods factors.

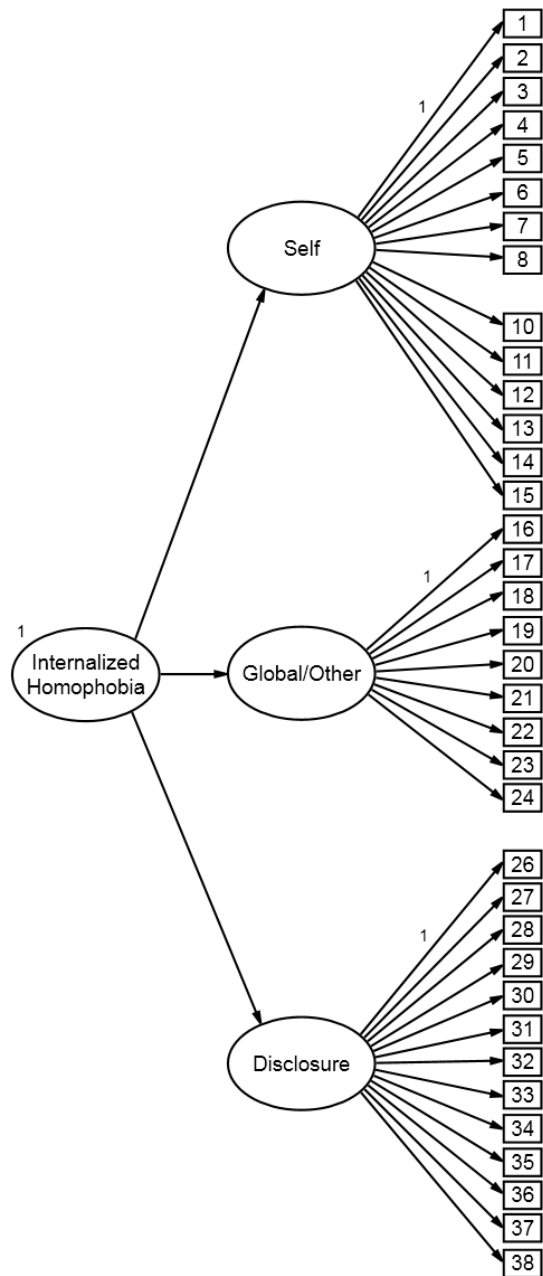


Figure 4. NHAI-SR factor structure.

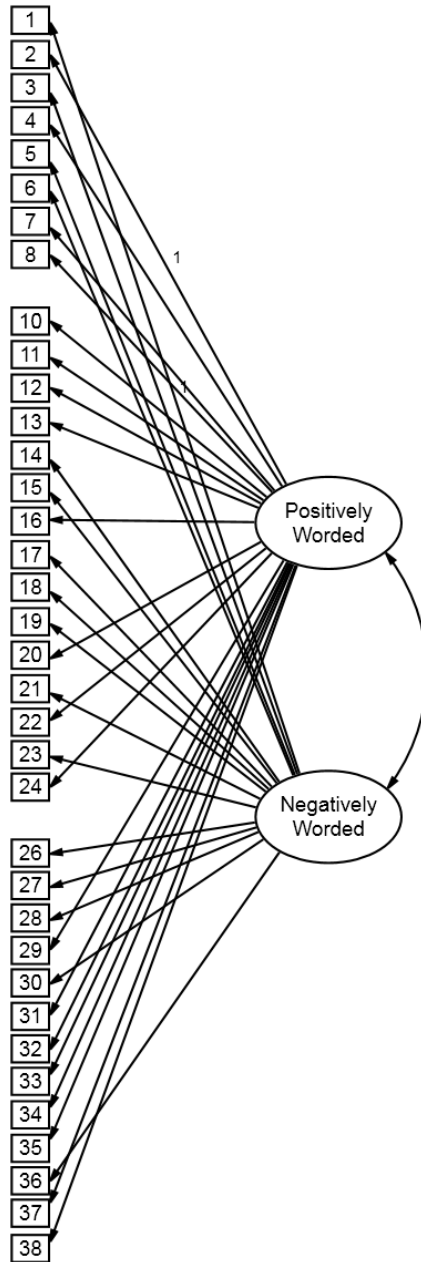


Figure 5. NHAI-SR methods factors only.

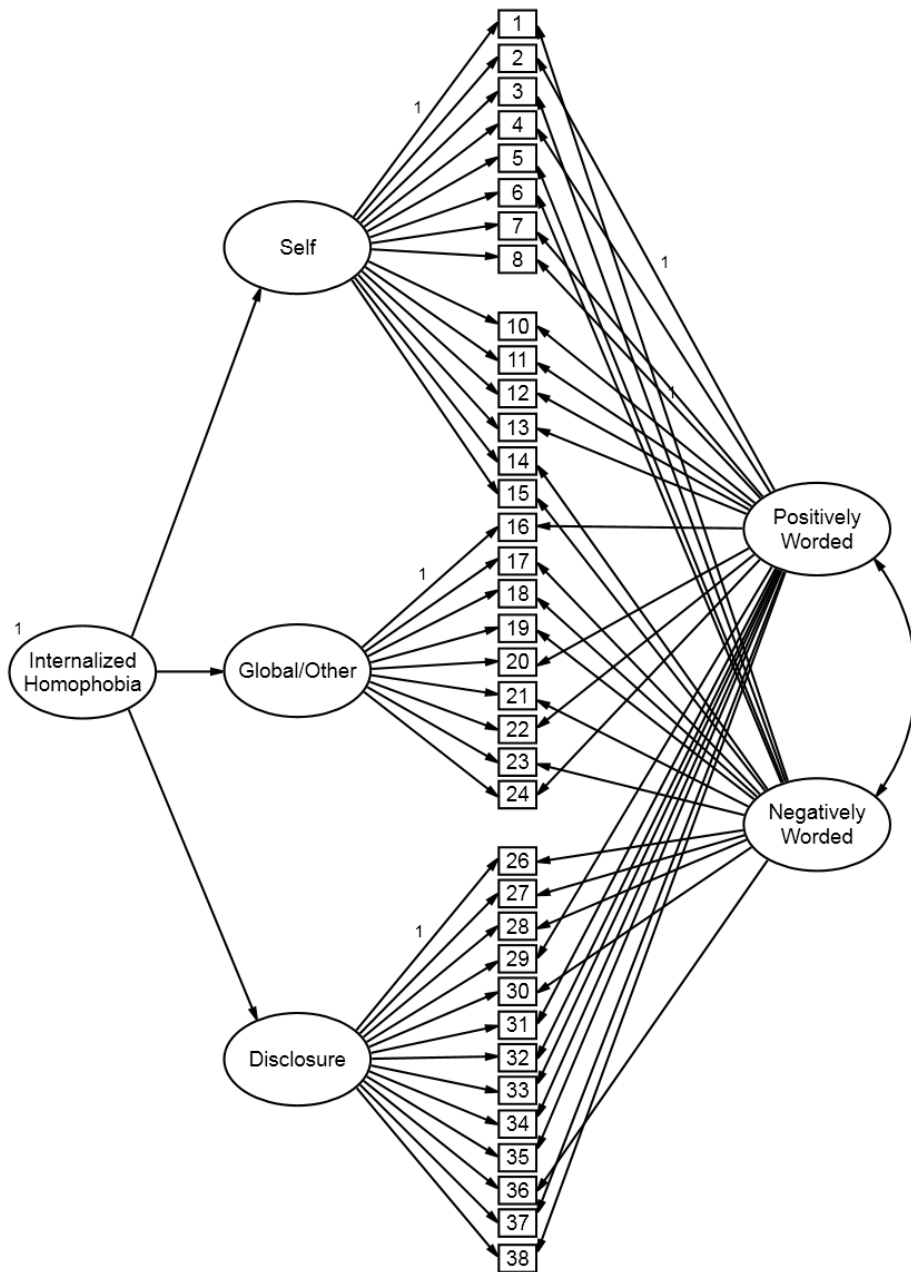


Figure 6. NHAJ-SR with original structure and methods factors.

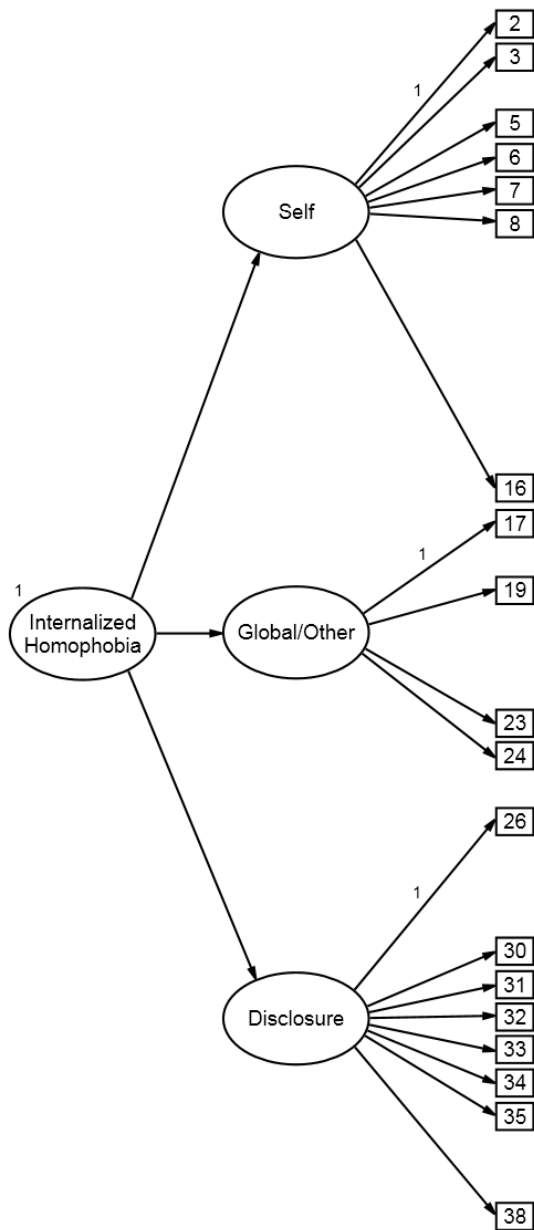


Figure 7. Suggested scale alternative.

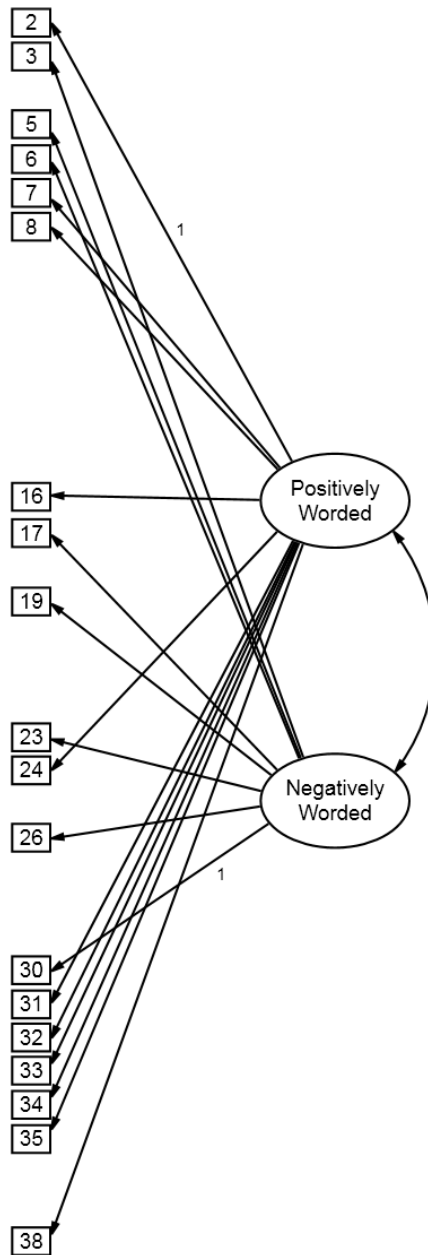


Figure 8. Alternative with methods factors only.

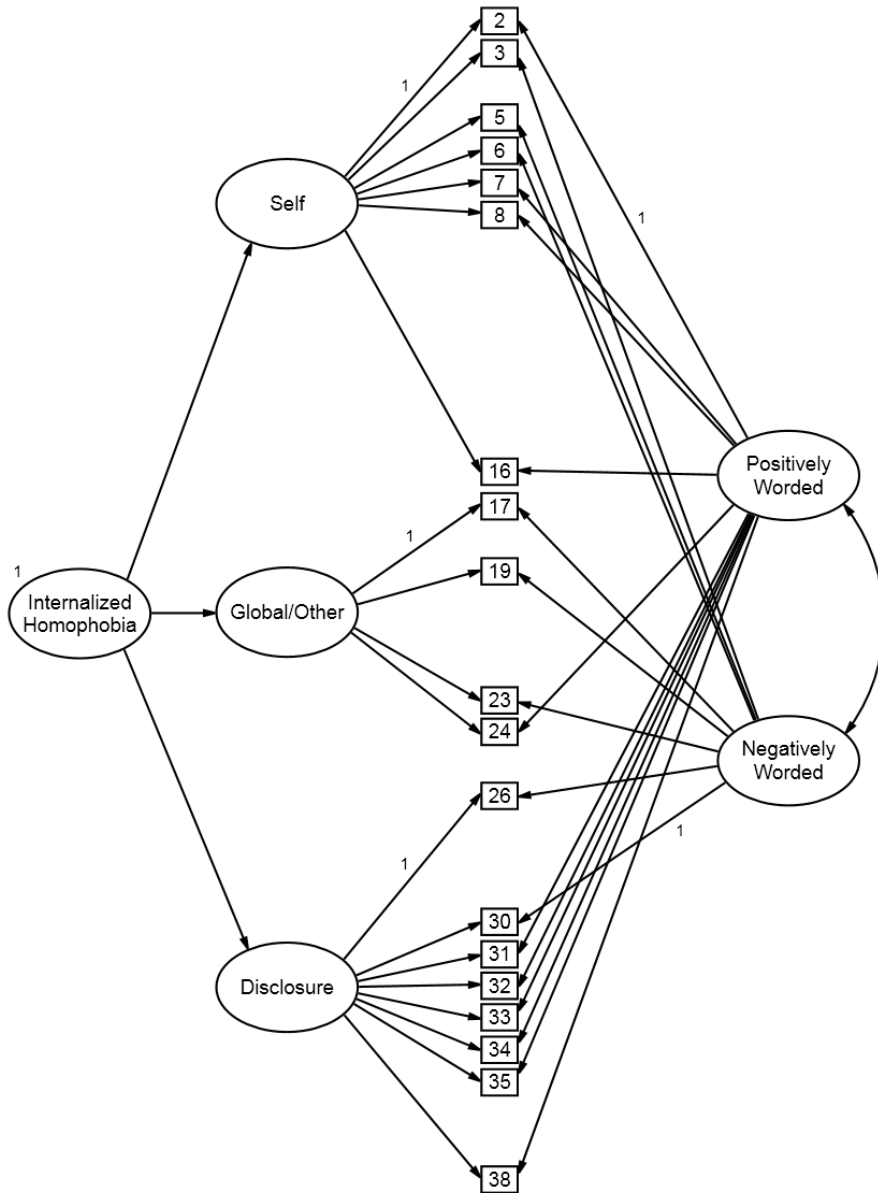


Figure 9. Alternative with suggested structure and methods factors.

A second series of models were tested using the items comprising the NHAI-SR, reflecting Shidlo's (1994) suggested omissions of items 9, 25, and 39, as well as his addition of items 10-15 to the Self factor. Model 4 is specified according to the second-order factor structure proposed by Shidlo (see Figure 4). Similar to Model 2, Model 5 hypothesizes correlated positive and negative wording factors (see Figure 5). Of the SR additions, items 10-13 load onto the positive wording factor, and items 14 and 15 load onto the negative wording factor. Model 6 combines the NHAI-SR structure hypothesized by Shidlo (Model 4) with the methods factors proposed in model 5 (see Figure 6). Estimates for model 6 included a negative variance figure for the Self factor. The estimate was small and highly non-significant, so it was fixed to 0. Loadings and fit for the models comprised of NHAI-SR items are displayed in Table 13. Fit was poor for these models, and generally worse than the models comprised of the original NHAI items. Combined with the poor loadings of the Shidlo addition items in Model 4 and the results of the principal components analyses in Study I, these findings suggest the Shidlo items may constitute an inappropriate addition to the Self subscale as well as the larger body of items. Of the three NHAI-SR models, fit for the methods model (5) was worst. The structure proposed by Shidlo (model 4) constituted a small improvement. The hybrid model (6) was clearly the best fitting of the three, while still being non-optimal. Again, loadings on the Other subscale were notably impacted by the addition of the methods factors, and loadings on the Self subscale were heavily diminished.

A third series of models tested the scale structure suggested by the results of Study I. Model 7 is specified according to those results (see figure 7). Model 8 is specified with the retained items loading onto correlated positive and negative wording factors (see figure 8). Model 9 combines the suggested alternative structure of model 7 with the methods factors

TABLE 13. Shidlo-Revised NHA1, models with factor loadings and fit indices

Item	Model											
	Single-Factor	SR Structure			Methods Factors		SR Structure/Methods Factors					
	IH	Self	Other	Disclosure	Positive	Negative	Self	Other	Disclosure	Positive	Negative	
1	.21	.21				.23	.07					.24
2	.72	.81			.71		.07			.81		
3	.61	.74				.64	-.07					.77
4	.42	.42			.42		.06			.41		
5	.50	.57				.58	-.06					.66
6	.54	.61				.56	.01					.60
7	.58	.65			.58		.03			.66		
8	.65	.74			.64		-.04			.75		
10	.23	.29			.23		.25			.28		
11	.21	.26			.23		.91			.20		
12	.29	.36			.30		.70			.32		
13	.20	.26			.22		.87			.20		
14	.19	.25				.29	-.17					.36
15	.32	.39				.43	-.14					.51
16	.53		.69		.52			.14		.61		
17	.21		.29			.25		.47				.22
18	.17		.23			.21		.26				.19
19	.18		.26			.26		.45				.25
20	.28		.34		.28			-.03		.34		
21	.09		.14			.14		.27				.12
22	.51		.63		.52			.11		.56		
23	.32		.38			.37		.43				.34
24	.36		.42		.35			.33		.34		
26	.61			.64		.64			.51			.48
27	.49			.49		.52			.29			.44
28	.62			.61		.66			.40			.54
29	.45			.46	.47				.29	.37		
30	.64			.67		.67			.50			.51
31	.71			.75	.71				.54	.53		
32	.73			.78	.74				.55	.55		
33	.65			.69	.68				.47	.52		
34	.74			.78	.75				.56	.56		
35	.73			.79	.76				.61	.54		
36	.21			.18		.24			.05			.23
37	.56			.58	.59				.36	.46		
38	.62			.65	.64				.45	.48		
<u>Variances</u>												
	0.11*	0.34**	0.02*	0.23**	0.96**	0.24**	0.01	0.00 ^a	0.49**	1.23**	0.22**	
<u>Fit Indices</u>												
χ^2 =	5343.51	χ^2 =	4175.63	χ^2 =	5081.03	χ^2 =	2020.54					
df=	594	df=	591	df=	593	df=	555					
p<	.001	p<	.001	p<	.001	p<	.001					
CFI=	.60	CFI=	.70	CFI=	.62	CFI=	.88					
RMSEA=	.095 (.093-.098)	RMSEA=	.083 (.081-.085)	RMSEA=	.093 (.09-.095)	RMSEA=	.055 (.052-.057)					
AIC=	5559.51	AIC=	4397.63	AIC=	5299.03	AIC=	2314.54					

* $p < .05$. ** $p < .01$. ^a Non-significant variance fixed to zero.

depicted in model 8 (see figure 9). Loadings and fit for the models comprised of the retained items are displayed in Table 14. The models comprised of the retained items were generally the best fitting of the series. Again, the suggested structure (model 7) constituted an improvement over the fit of the methods model (8). Similar to the results obtained using the NHA1 and NHA1-

SR items, the fit of the hybrid model of retained items was best. Loadings on the Self factor were notably impacted by the addition of the methods factors, but the Other and Disclosure loadings remained fairly strong.

TABLE 14. Proposed Alternate NHAI, models with factor loadings and fit indices

Item	Model										
	Single-Factor	Alternate Structure			Methods Factors		Alternate Structure/Methods Factors				
	IH	Self	Other	Disclosure	Positive	Negative	Self	Other	Disclosure	Positive	Negative
2	.70	.81			.69		.00			.90	
3	.60	.76				.63	-.37				.71
5	.47	.56				.52	-.24				.53
6	.52	.62				.55	-.08				.65
7	.56	.66			.55		-.07			.67	
8	.64	.74			.63		-.54			.64	
16	.50	.58			.50		-.30			.52	
17	.19		.43			.22		.42			.16
19	.17		.48			.23		.51			.17
23	.31		.57			.35		.51			.27
24	.36		.48		.36			.36		.30	
26	.62			.65		.66			.52		.45
30	.65			.66		.68			.48		.51
31	.74			.77	.74				.58	.50	
32	.74			.78	.76				.60	.51	
33	.65			.67	.66				.47	.50	
34	.77			.80	.77				.60	.53	
35	.75			.80	.77				.64	.50	
38	.62			.64	.63				.44	.47	
Variations											
	0.94**	0.33**	0.18**	0.30**	0.90**	0.80**	0.00	0.16**	0.41**	1.54**	0.46**
Fit Indices											
χ^2 =	1643.69	χ^2 =	600.35	χ^2 =	1576.67	χ^2 =	423.07				
df=	152	df=	149	df=	151	df=	129				
p<	.001	p<	.001	p<	.001	p<	.001				
CFI=	.78	CFI=	.93	CFI=	.80	CFI=	.96				
RMSEA=	.105 (.101-.110)	RMSEA=	.059 (.054-.064)	RMSEA=	.10 (.099-.108)	RMSEA=	.051 (.045-.056)				
AIC=	1757.69	AIC=	720.35	AIC=	1692.67	AIC=	583.07				

* $p < .05$. ** $p < .01$.

When comparing the fit of the models suggested by Nungesser (model 1), Shidlo (model 4), and the model suggested by the results of the principal components analysis from Study I (model 7), the AIC may be of greatest utility. Respectively, the AIC values obtained for those models were 2007.25, 4397.63, and 720.35, suggesting that the factor structure proposed according to the results of Study I best fits the data. In order to further investigate the specific areas in which fit was sufficient or compromised, the three factors/subscales were separated, and independent analyses were conducted. Item loadings and model fit for the three versions of the

Self subscale, as well as the proposed brief Self scale, are provided in Table 15. Results for the three versions of the Other subscale are displayed in Table 16. Table 17 displays the results obtained for the three versions of the Disclosure subscale, as well as the proposed brief Disclosure scale. While an examination of loadings for items 9, 25, and 39 supports Shidlo's suggested omission of those items, the poor fit of the NHAI-SR Self subscale as well as the low loadings of items 10-15 contradict his suggested addition of those items. In the instance of each subscale, fit is better for the proposed alternative suggested in Study I than for those suggested by Nungesser or Shidlo. The brief Self and Disclosure scales feature high item loadings, AIC values that are favorable in comparison to the full subscales, and favorable CFI values (respectively: .97 and 1.00), however the RMSEA for the brief Self scale is non-optimal (.15 [.11-.19]).

TABLE 15. Loadings for Self factor

Item	Model			
	NHAI	NHAI-SR	Alternate	Brief
1	.19	.21	-	-
2	.82	.81	.81	.80
3	.75	.75	.77	.77
4	.41	.40	-	-
5	.55	.58	.56	-
6	.63	.62	.62	-
7	.67	.65	.66	.67
8	.72	.72	.74	.74
9	.45	-	-	-
10	-	.29	-	-
11	-	.28	-	-
12	-	.38	-	-
13	-	.28	-	-
14	-	.25	-	-
15	-	.39	-	-
16	-	-	.58	-
22	-	-	-	-
Fit				
χ^2	155.17	2495.34	105.80	42.51
<i>df</i>	27	77	14	2
<i>p</i>	<.001	<.001	<.001	<.001
CFI	.95	.51	.96	.97
RMSEA	.07 (.06-.09)	.19 (.18-.20)	.09 (.07-.10)	.15 (.11-.19)
AIC	209.17	2579.34	147.80	66.51

TABLE 16. Loadings for Other/Global factor

Item	Model		
	NHAI	NHAI-SR	Alternate
16	.62	.62	-
17	.39	.39	.47
18	.28	.28	-
19	.34	.33	.56
20	.29	.29	-
21	.20	.20	-
22	.56	.57	-
23	.44	.44	.55
24	.44	.45	.40
25	.07	-	-
<u>Fit</u>			
χ^2	254.58	238.31	0.92
<i>df</i>	35	27	2
<i>p</i>	<.001	<.001	.63
CFI	.73	.73	1
RMSEA	.08 (.08-.09)	.09 (.08-.11)	.00 (.00-.05)
AIC	314.58	292.31	24.92

TABLE 17. Loadings for Disclosure factor

Item	Model			
	NHAI	NHAI-SR	Alternate	Brief
26	.64	.65	.64	-
27	.48	.48	-	-
28	.60	.60	-	-
29	.46	.46	-	-
30	.66	.66	.65	-
31	.75	.75	.77	.76
32	.78	.78	.78	.79
33	.69	.69	.67	-
34	.78	.79	.80	.79
35	.80	.80	.81	.82
36	.17	.17	-	-
37	.58	.58	-	-
38	.65	.65	.64	-
39	.18	-	-	-
<u>Fit</u>				
χ^2	646.81	528.19	200.49	9.17
<i>df</i>	77	65	20	2
<i>p</i>	<.001	<.001	<.001	.01
CFI	.89	.90	.95	1.00
RMSEA	.09 (.09-.10)	.09 (.08-.10)	.10 (.09-.11)	.06 (.03-.11)
AIC	730.81	606.19	248.49	33.17

External Validity

The external validity of the NHAI, NHAI-SR, the proposed scale alternative, and the brief Self and Disclosure scales was evaluated by computing correlations with constructs previously reported to be associated with IH. Total scores, subscale scores, and brief scale scores were examined for correlations with mental health and suicide constructs, substance use and abuse, sexual risk, and orientation-based victimization. Seven cases constituted extreme univariate outliers on one or more sexual risk variables, and were eliminated for the sake of the external validity analyses.

Mental Health and Suicide

In general, attitudes towards homosexuality were most strongly correlated with the mental health and suicide constructs (displayed in Table 18 [point-biserial correlations are provided for dichotomous variables], along with variable descriptives). All measures of attitudes towards homosexuality were negatively correlated with HADS total scores (variable 1), Depression subscale scores (variable 2), Depression case vs. non-case (variable 3), Anxiety subscale scores (variable 4), and Anxiety case vs. non-case (variable 5). In general, the strongest relationships were seen between Self and mental health, followed by Disclosure, and Other. The alternative version of the scale, along with the alternative subscales, performed similarly to the NHAI, the NHAI-SR, and their subscales. The Brief Self scale performed similarly to the more extensive Self subscales, while correlations were only slightly weaker for the Brief Disclosure scale in comparison to the larger Disclosure subscales.

All scale totals, as well as all measures of Self and Disclosure, exhibited significant negative relationships with suicide ideation (variable 6), while Other scores did not. Suicide ideation was most strongly linked to Self, followed by Disclosure. In the instances of the suicide

TABLE 18. Attitudes Towards Homosexuality, Correlations with Mental Health and Suicide

Variable	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	N	Mean	SD	Skew	Kurtosis
NHAI Total	-.42**	-.39**	-.20**	-.36**	-.35**	-.15**	-.03	-.03	-.01	877	5.63	0.72	-1.01	1.38
Self	-.45**	-.40**	-.21**	-.40**	-.38**	-.22**	-.03	-.02	.01	877	5.88	0.94	-1.12	0.96
Other	-.20**	-.19**	-.12**	-.18**	-.20**	-.03	.03	.01	.03	877	5.46	0.63	-0.90	3.11
Disclosure	-.36**	-.40**	-.17**	-.30**	-.29**	-.12**	-.05	-.05	-.02	877	5.59	0.97	-0.99	1.09
NHAI-SR Total	-.43**	-.40**	-.21**	-.37**	-.36**	-.23**	-.11**	-.09*	-.05	877	5.77	0.70	-0.98	1.27
SR-Self	-.43**	-.37**	-.19**	-.40**	-.37**	-.34**	-.19**	-.14**	-.11**	877	5.82	0.81	-0.95	0.80
SR-Other	-.22**	-.23**	-.15**	-.19**	-.20**	-.06	.01	.00	.02	877	5.83	0.66	-1.07	3.45
SR-Disclosure	-.36**	-.36**	-.17**	-.30**	-.29**	-.12**	-.05	-.05	-.02	877	5.66	1.00	-1.14	1.35
Alternative Total	-.40**	-.39**	-.21**	-.34**	-.33**	-.16**	-.03	-.03	.00	877	6.01	0.84	-1.30	1.93
Alt-Self	-.41**	-.38**	-.20**	-.37**	-.35**	-.20**	-.02	-.02	-.01	877	5.88	1.06	-1.18	0.92
Alt-Other	-.11**	-.12**	-.12**	-.08*	-.10**	-.01	.02	.00	.03	877	6.56	0.67	-2.46	9.33
Alt-Disclosure	-.33**	-.34**	-.17**	-.27**	-.26**	-.11**	-.04	-.04	.00	877	5.84	1.13	-1.39	1.77
Brief Self	-.41**	-.38**	-.20**	-.37**	-.35**	-.19**	-.01	-.02	.01	877	5.83	1.22	-1.17	0.68
Brief Disclosure	-.29**	-.32**	-.18**	-.22**	-.23**	-.08*	-.02	-.03	.01	877	6.00	1.23	-1.70	2.78
Descriptives														
N	820	820	820	820	820	820	820	820	820					
Mean	9.37	2.81	0.06	6.57	0.28	5.77	0.19	0.13	0.06					
SD	6.26	2.91	0.24	4.04	0.45	3.13	0.39	0.33	0.24					
Skew	0.90	1.38	3.72	0.60	0.97	1.32	1.61	2.26	3.68					
Kurtosis	0.62	1.73	11.88	0.06	-1.07	1.22	0.60	3.13	11.54					

* $p < .05$. ** $p < .01$.

- [1] HADS Total
- [2] Depression
- [3] Depression Case
- [4] Anxiety
- [5] Anxiety Case
- [6] Suicide Ideation
- [7] Suicide Attempt
- [8] Suicide Attempt, Unsure of Desire
- [9] Suicide Attempt, Desired to Die

attempt variables (variables 7-9), significant correlations were present only for the NHAI-SR total and the NHAI-SR Self subscale. These small correlations were likely due to the 3 prominent NHAI-SR suicide additions to the Self subscale.

In summation, attitudes towards homosexuality generally shared moderate relationships with mental health constructs, in which positive attitudes towards homosexuality were associated with lower levels of Depression and Anxiety. Suicide ideation shared a smaller, but generally significant negative relationship with attitudes towards homosexuality, and suicide attempts shared an even smaller negative relationship with aspects of the Shidlo measurement of attitudes towards homosexuality. Measurement using the suggested alternative scale as well as the brief Self and brief Disclosure scales was generally sufficient.

Substance Use/Abuse

Smaller positive correlations are characteristic of the relationship between attitudes towards homosexuality and substance use/abuse (see Table 19). In the instances of alcohol use, measured by the AUDIT total (variable 1), as well as alcohol abuse case vs. non-case (variable 2), only the brief Disclosure scale was correlated significantly with those measures. The correlations were small and positive in each instance, $r(733) = .08, p < .05$, with comfort with disclosure being associated with an increase in alcohol use and problematic drinking.

In the instance of illicit drug dependence, measured by the DAST-10 total (variable 3), all measures of Disclosure—save for the NHAI Disclosure subscale—exhibited small but significant positive relationships with the measure, with comfort with disclosure being associated with an increase in illicit drug abuse. For illicit drug abuse disorder case vs. non-case (variable 4), none of the measures of attitudes towards homosexuality were significantly related to the construct.

TABLE 19. Attitudes Towards Homosexuality, Correlations with Substance Use Constructs

Variable	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]
NHAI Total	.01	.00	.04	.01	.06	.07	.04	.06	.08	.07*	.10
Self	-.02	-.02	.01	.00	.06	.04	.03	.08*	.10	.07*	.06
Other	-.02	-.06	.00	-.03	-.02	.13*	-.01	-.01	.09	.00	.15*
Disclosure	.03	.04	.07	.03	.07*	.03	.05	.06	.03	.08*	.07
NHAI-SR Total	-.01	-.01	.02	-.02	.06	.06	.02	.06	.08	.07*	.10
SR-Self	-.03	-.03	-.04	-.05	.04	.02	.00	.07	.08	.07	.04
SR-Other	-.03	-.06	-.01	-.04	-.01	.13*	-.01	-.01	.10	.01	.16**
SR-Disclosure	.03	.04	.07*	.03	.08*	.04	.05	.06	.03	.08*	.07
Alternative Total	.03	.03	.05	.02	.08*	.04	.05	.07*	.04	.10**	.09
Alt-Self	-.02	-.01	.01	.00	.09**	.04	.04	.09**	.08	.09**	.04
Alt-Other	.05	.00	-.01	-.03	-.03	.12*	-.01	-.03	.05	-.01	.16**
Alt-Disclosure	.04	.06	.08*	.04	.08*	.00	.05	.06	-.01	.09**	.06
Brief Self	-.02	-.01	.01	.00	.08*	.02	.06	.08*	.07	.08*	.03
Brief Disclosure	.08*	.08*	.10**	.07	.08*	.01	.06	.05	.00	.07*	.04
Descriptives											
<i>N</i>	735	735	704	704	802	247	802	802	247	802	247
Mean	6.70	0.36	1.26	0.14	2.24	3.67	0.71	6.86	22.27	1.69	3.16
SD	5.45	0.48	1.54	0.35	1.10	0.57	0.45	12.35	12.33	1.14	0.95
Skew	1.37	0.59	1.96	2.04	0.53	-1.54	-0.95	1.63	0.01	1.35	-0.26
Kurtosis	2.53	-1.66	4.88	2.16	-1.04	1.37	-1.10	2.43	2.72	0.40	-0.04

p* < .05. *p* < .01.

[1] AUDIT Total (Excluding those who currently abstain due to a personal history of abuse, health, or religious reasons)

[2] AUDIT Case (Excluding those who currently abstain due to a personal history of abuse, health, or religious reasons)

[3] DAST-10 Total (Excluding those who currently abstain due to a personal history of abuse)

[4] DAST-10 Case (Excluding those who currently abstain due to a personal history of abuse)

[5] Smoking Scale

[6] Smoking Scale Among Past Month Smokers

[7] Smoking Lifetime

[8] Days Smoked Past Month

[9] Days Smoked Among Past Month Smokers

[10] Cigarettes Smoked Per Day Past Month

[11] Cigarettes Smoked Per Day Among Past Month Smokers

For smoking behavior measured by overall scores on the smoking scale (variable 5), all measures of Disclosure shared a small positive relationship with the smoking total. The brief Self scale and the larger alternate Self subscale shared small positive relationships with the smoking total, as did the total score for the overall alternative scale. Among past-month smokers (variable 6), only the Other subscales were related to smoking scale scores, exhibiting small positive correlations. Lifetime smoking (variable 7) was not significantly related to any measures of attitudes towards homosexuality. Days smoked in the past month (variable 8) was significantly positively related to all Self measures—save for the NHAI-SR Self subscale—as

well as the suggested alternative overall score. Among past-month smokers, days smoked (variable 9) was not significantly related to any of the measures of attitudes towards homosexuality. Cigarettes smoked per day in the past month (variable 10) shared a small positive relationship with all scale totals, as well as all measures of Disclosure and Self, save for the NHAI-SR Self subscale. Among past-month smokers, cigarettes smoked per day (variable 11) was related to all Other subscale scores, with small but significant positive correlations.

The suggested alternative total and subscales performed similarly to—or outperformed—the NHAI and NHAI-SR in predicting substance use/abuse. The brief Self and brief Disclosure subscales performed similarly to—or outperformed—the larger Self and Disclosure subscales in predicting substance use/abuse. In summation, positive attitudes towards homosexuality were associated with only small increases in substance use/abuse when significant correlations were present, and measurement using the alternative and Brief scales was generally sufficient.

Sexual Risk

Small or non-significant correlations are characteristic of the relationships observed between attitudes towards homosexuality and the measured sexual risk constructs (see Table 20). In the instance of lifetime unprotected receptive anal intercourse (variable 1), positive attitudes towards disclosure were most strongly related to having engaged in the behavior, $r(789) = .13, p < .01$. NHAI and suggested alternative Self measures were also related to lifetime unprotected receptive anal intercourse (URAI). Overall totals for all three versions of the scale were also related to the behavior in a small positive fashion. The number of partners with which participants engaged in URAI in the past three months (variable 2) was unrelated to attitudes towards homosexuality. Correlations between URAI partners and attitudes towards homosexuality were also examined among the subset of participants who reported currently

TABLE 20. Attitudes Towards Homosexuality, Correlations with Sexual Risk Constructs

Variable	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]
NHAI Total	.12**	.01	.01	-.02	-.04	.08*	.00	-.02	-.02	-.07	.05	.16**	.11**
Self	.07*	.01	.02	.02	.01	.07*	-.02	-.06	.00	-.03	.02	.12**	.09*
Other	.05	-.04	-.01	-.09*	-.03	.01	.00	.06	-.04	-.03	-.01	.04	.03
Disclosure	.13**	.04	.01	.00	-.07	.09**	.01	-.02	-.01	-.09	.07*	.19**	.13**
NHAI-SR Total	.09*	.01	.01	-.03	-.04	.07	-.01	-.01	-.03	-.06	.05	.15**	.10**
SR-Self	.02	.02	.03	-.01	.02	.02	-.02	-.02	-.04	-.02	.03	.09*	.06
SR-Other	.05	-.04	-.01	-.09*	-.02	.03	-.01	.05	-.04	-.03	-.01	.06	.04
SR-Disclosure	.13**	.03	-.01	.00	-.09	.10**	.01	-.02	-.01	-.09	.08*	.20**	.13**
Alternative Total	.11**	.02	.01	-.01	-.06	.09**	.00	-.01	.00	-.04	.06	.18**	.14**
Alt-Self	.08*	.02	.04	.01	.00	.06	-.02	-.02	.00	-.01	.03	.11**	.09**
Alt-Other	.05	-.01	.01	-.10**	-.02	.04	.00	.10	.00	.04	-.03	.06	.07
Alt-Disclosure	.12**	.03	-.02	.01	-.10	.09**	.01	-.02	.01	-.08	.08*	.20**	.15**
Brief Self	.07	.01	.02	.00	-.04	.05	-.02	-.03	-.01	-.03	.03	.12**	.09**
Brief Disclosure	.13**	.02	-.05	.02	-.13*	.10**	.01	-.04	.01	-.09	.09*	.22**	.15**
Descriptives													
N	791	791	250	787	248	791	790	262	788	261	791	791	727
Mean	0.76	0.57	1.2	1.52	2.3	0.79	0.65	1.40	1.65	2.78	0.08	0.91	0.66
SD	0.43	1.51	2.05	5.42	6.02	0.41	1.65	2.24	5.72	6.45	0.27	0.28	0.47
Skew	-1.21	4.78	3.06	6.70	5.78	-1.41	4.40	2.99	6.35	5.27	3.08	-2.93	-0.67
Kurtosis	-0.54	30.76	12.33	56.17	42.98	-0.02	24.47	11.59	48.88	36.26	7.50	6.61	-1.55

* $p < .05$. ** $p < .01$.

- [1] Unprotected Receptive Anal Intercourse Lifetime
- [2] URAI Partners, 3-Month
- [3] URAI Partners, 3-Month (among those who engaged in RAI in the past 3 months and are not currently in a monogamous relationship)
- [4] URAI Frequency, 3-Month
- [5] URAI Frequency, 3-Month (among those who engaged in RAI in the past 3 months and are not currently in a monogamous relationship)
- [6] Unprotected Insertive Anal Intercourse Lifetime
- [7] UIAI Partners, 3-Month
- [8] UIAI Partners, 3-Month (among those who engaged in IAI in the past 3 months and are not currently in a monogamous relationship)
- [9] UIAI Frequency, 3-Month
- [10] UIAI Frequency, 3-Month (among those who engaged in IAI in the past 3 months and are not currently in a monogamous relationship)
- [11] HIV Positive
- [12] HIV Test Lifetime
- [13] HIV Test Past-Year (Among Negative and Unsure)

engaging in receptive anal intercourse (use of protection unspecified) and who were not in a monogamous relationship (variable 3). These associations were also small and non-significant. The number of times in which participants engaged in URAI in the past 3 months (variable 4) was related in a small negative fashion to the 3 Other subscale scores, with positive attitudes towards other homosexuals being associated with a reduction in URAI frequency. Correlations between URAI frequency and attitudes towards homosexuality were also examined among the subset of participants who reported currently engaging in receptive anal intercourse (use of protection unspecified) and who were not in a monogamous relationship (variable 5). Only the

brief Disclosure subscale was related to URAI frequency among those participants, with positive attitudes towards disclosure being related to a small decrease in URAI frequency.

Having ever engaged in unprotected anal intercourse in the insertive role (lifetime UIAI [variable 6]) was most strongly related to attitudes towards disclosure. All measures of disclosure were related to lifetime UIAI in a small positive fashion. The NHAI Self subscale was also related to lifetime UIAI in a small positive fashion, as were the overall totals for the NHAI and the suggested alternative measure. UIAI partners in the past 3 months (variables 7 and 8), and UIAI frequency in the past three months (variables 9 and 10) were unrelated to attitudes towards homosexuality in the larger dataset as well as among the subset of participants who reported currently engaging in insertive anal intercourse (use of protection unspecified).

HIV serostatus (variable 11) was related to all measures of Disclosure in a small positive fashion, with comfort with disclosure being associated with participant reports of being HIV positive. In regards to HIV testing behavior, having ever been tested (variable 12) was related in a small positive fashion to all measures of Self and Disclosure, as well as the 3 overall scale totals. Of the measures, Disclosure was most strongly related to lifetime testing behavior. Among those who reported being HIV negative or unsure, past-year HIV testing (variable 13) was associated with attitudes towards homosexuality in a similar fashion to lifetime testing behavior.

In predicting sexual risk behavior, the suggested scale alternative behaved in a fashion similar to the NHAI and NHAI-SR. The Brief Self and Brief Disclosure scales also performed similarly to the more extensive subscales. In general, measurement using the suggested alternative scale and the Brief Self and Disclosure scales was sufficient in predicting sexual risk variables. In summation, comfort with disclosure was most strongly related to sexual risk,

followed by positive attitudes towards one's own homosexual identity. The observed correlations were generally small and often non-significant.

Orientation-Related Abuse

Small or non-significant correlations were characteristic of the relationship between attitudes towards homosexuality and orientation-based victimization (see Table 21). In regards to the past-year victimization composite (variable 1), experiences of orientation-based victimization in the past year shared a small negative relationship with the 3 disclosure subscales, but the correlation with the Brief Disclosure scale was non-significant. The NHAI-SR Self subscale and the brief Self measure were related to past-year victimization in a small negative fashion. The NHAI and NHAI-SR scale totals were related to past-year victimization with small negative correlations, but the suggested scale alternative total was not significantly related. Instances of past-year orientation-based verbal abuse (variable 2) showed small negative correlations with the NHAI and NHAI-SR Disclosure subscales, but the suggested alternative disclosure subscale and the Brief Disclosure scale were not significantly correlated with the measure. The NHAI and NHAI-SR Self subscales exhibited small negative correlations with past-year verbal abuse, as did the Brief Self scale, but the correlation was non-significant for the Self subscale of the suggested alternative. Total scores for the NHAI and the NHAI-SR shared small negative correlations with past-year verbal abuse, but the total for the suggested alternative scale did not. In the instances of past-year orientation-related property damage or threats to safety (variable 3) and past-year orientation-related physical abuse or sexual assault (variable 4), the measures were unrelated to attitudes towards homosexuality.

Lifetime experiences of orientation-based victimization (variable 5) were significantly related to all measures of Other in a small positive fashion, to the suggested alternative

TABLE 21. Attitudes Towards Homosexuality, Correlations with Orientation-Based Victimization

Variable	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
NHAI Total	-.08 [†]	-.08 [†]	-.05	-.02	.07	.09 [†]	.06	.00
Self	-.07	-.07 [†]	-.04	-.01	.03	.04	.03	.00
Other	.00	-.01	-.01	.04	.10 ^{**}	.12 ^{**}	.08 [†]	.03
Disclosure	-.09 ^{**}	-.09 [†]	-.06	-.04	.06	.07 [†]	.06	-.01
NHAI-SR Total	-.10 ^{**}	-.11 ^{**}	-.05	-.03	.04	.06	.04	-.02
SR-Self	-.11 ^{**}	-.13 ^{**}	-.05	-.02	-.04	-.03	-.01	-.05
SR-Other	-.01	-.02	-.01	.03	.10 ^{**}	.14 ^{**}	.08 [†]	.01
SR-Disclosure	-.09 [†]	-.08 [†]	-.06	-.05	.07	.09 [†]	.06	.00
Alternative Total	-.07	-.06	-.05	-.03	.08 [*]	.10 ^{**}	.07	.02
Alt-Self	-.05	-.06	-.02	-.01	.05	.06	.04	.01
Alt-Other	.00	.00	-.02	.02	.09 [†]	.13 ^{**}	.05	.03
Alt-Disclosure	-.07 [*]	-.06	-.06	-.05	.08 [*]	.09 ^{**}	.07 [*]	.01
Brief Self	-.07 [†]	-.08 [†]	-.03	-.02	.04	.06	.04	.00
Brief Disclosure	-.03	-.01	-.02	-.04	.13 ^{**}	.15 ^{**}	.11 ^{**}	.04
<u>Descriptives</u>								
N	784	784	784	784	784	784	784	784
Mean	3.76	1.60	1.10	1.05	6.32	3.08	1.78	1.46
SD	1.35	0.99	0.42	0.30	2.66	1.22	1.17	0.92
Skew	2.33	1.47	4.89	7.62	0.62	-0.82	1.09	1.90
Kurtosis	6.65	0.78	25.94	64.96	-0.47	-1.06	-0.52	2.23

* $p < .05$. ** $p < .01$.

- [1] Past-Year Orientation-Based Victimization Composite
- [2] Past-Year Orientation-Based Verbal Abuse
- [3] Past-Year Orientation-Based Property Damage or Threats to Safety
- [4] Past-Year Orientation-Based Physical Abuse or Sexual Assault
- [5] Lifetime Orientation-Based Victimization Composite
- [6] Lifetime Orientation-Based Verbal Abuse
- [7] Lifetime Orientation-Based Property Damage or Threats to Safety
- [8] Lifetime Orientation-Based Physical Abuse or Sexual Assault

Disclosure and the Brief Disclosure scales in a small but significant positive fashion, and to the total scores for the suggested alternative in a small but significant positive fashion. Lifetime experiences of orientation-based verbal abuse (variable 6) were significantly related to all measures of Other and Disclosure in a small positive fashion, as well as the NHAI and suggested alternative totals. Lifetime experiences of orientation-based property damage or threats to safety

(variable 7) were significantly related to the NHAI and NHAI-SR Other subscales in a small positive fashion, and to the suggested alternative Disclosure subscale and the Brief Disclosure scale in a similar fashion. Lifetime experiences of orientation-based physical abuse or sexual assault (variable 8) were not significantly related to any of the employed measures of attitudes towards homosexuality.

The suggested scale alternative performed similarly to the more extensive NHAI and NHAI-SR scales in predicting orientation-based victimization, only slightly underperforming or outperforming the two in several instances. The Brief Self scale also performed similarly to the more extensive scales. The Brief Disclosure subscale underperformed in terms of predicting variables 1 and 2, but outperformed the more extensive scales in predicting variables 5-7. In general, recent victimization was associated with more negative views towards homosexuality, while lifetime victimization was associated with more positive views towards homosexuality. Measurement using the more succinct suggested alternative and the Brief Self and Disclosure scales was sufficient in detecting these very small correlations in most instances.

CHAPTER 5: DISCUSSION

The results of these two studies suggest that the original NHAI and the NHAI-SR may exhibit questionable psychometric properties. While the recent nature of the current samples limits the ability to speak to past measurement characteristics, these findings cast doubt on the wisdom of using these scales in contemporary research. As an alternative, a trimmed revised version of the scale was proposed and examined, showing greater promise in regards to measurement characteristics. In addition, proposed Brief Self and Disclosure scales—each consisting of four items from the original NHAI—showed promising psychometric properties and utility similar to that of the larger scale in examining the relationships between attitudes towards homosexuality and external constructs. It may be the case that greater parsimony in measurement is not only advisable for practical purposes, but that it is also accompanied by an improvement in measurement characteristics in this instance of attitudes towards homosexuality.

Measurement

Shidlo Revisions

Results of the principal components analyses performed in Study I suggest that the six items added to the Self subscale by Shidlo are incongruent with the original items in that subscale as well as the larger body of scale items. Results of the confirmatory factor analyses conducted in Study II further suggest that these items are distinct, loading poorly onto the Self factor and contributing to a marked deterioration of subscale fit in a single-subscale model as well a substantial deterioration of fit when included in Shidlo's overall suggested model of the scale items. The results of Study II did however suggest that Shidlo's suggested omission of items 9, 25, and 39 resulted in an improvement in measurement. While internal consistency was acceptable for the overall SR, it should be noted that the large number of items (36) likely

inflated that figure. In the instances of the original NHAI—which uses 3 fewer items—and the suggested scale alternative which uses 17 fewer items—or approximately half that of the SR—internal consistency is equal to that of the SR. In terms of external validity, the Shidlo measure outperformed the other versions of the scale only in the instance of predicting suicide attempt variables, likely due to the inclusion of three prominent suicide items in that scale. Due to the extensive nature of the SR, the poor fit of its structure to the data, and the inclusion of items tapping content tangential to attitudes towards homosexuality, this scale is not recommended for use in research.

NHAI

Results from Study I suggest a solution consistent with Nungesser’s original three-factor solution. While two items from the Other subscale loaded strongly with the Self items, and a number of scale items resulted in low loadings, most loadings corresponded to the suggested subscale structure. Results of the confirmatory factor analyses performed in Study II showed that the NHAI structure constitutes an improvement in fit over the Shidlo-suggested version of the scale. While fit for the NHAI is non-optimal according to the criteria previously provided, in light of the size and complexity of the measure, this finding may have been expected. Internal consistency for the scale was high, but again, item number (33) was large. Similar to the SR, the NHAI shows greatest utility in predicting mental health, and lesser utility in predicting substance abuse, sexual risk, and victimization. While results of these two studies may not provide compelling evidence for the use of this measure, neither do they provide overwhelming evidence against it.

Suggested Alternative

The results of Study I suggested the proposal of an alternative to the NHAI, in which 19 of the original items are hypothesized to form a factor structure similar to that originally proposed by Nungesser (1983). Resulting item loadings are high and unique, each corresponding to its proposed subscale. Results of the confirmatory factor analyses performed in Study II suggest that this model constitutes a substantial improvement in fit over the NHAI-SR and NHAI models. Results of the individual analyses of each subscale using a single-factor model also show an improvement of fit in each instance. While the suggested scale alternative uses only 19 items to measure attitudes towards homosexuality, internal consistency is equal to that of the more extensive NHAI and NHAI-SR. Internal consistency was higher for the suggested alternative Self and Disclosure subscales in comparison to the NHAI and NHAI-SR, and internal consistency was only slightly lower for the suggested Other subscale, which used fewer than half of the items employed by the larger scales to measure that construct. External validity for the suggested alternative was similar to that of the NHAI and NHAI-SR. In light of these findings, the suggested scale alternative may prove useful for those wishing to measure attitudes towards homosexuality in a more parsimonious fashion.

Methods Factors

The results of Study II showed that methods factors alone are not an adequate explanation of the variance in NHAI item responses, with the models using only methods factors exhibiting poorer fit than those specified according to Nungesser's (1983) original NHAI factor structure, Shidlo's (1994) factor structure, and the factor structure suggested by the results of Study I. However, the addition of methods factors to the hypothesized scale structures improved model fit in all instances. The inclusion of these factors most notably reduced item loadings onto the Self factors. The effects of methods on the Self factor may warrant further investigation. At present,

it is unknown why the Self factor, and Other factor to a lesser extent, showed marked deterioration in loadings when methods factors were included while the Disclosure factor did not. While these findings indicate that positive versus negative wording helps explain variance in NHAI items, the originally hypothesized factors may remain the best primary explanation for that variance, exhibiting better fit and more optimal loadings in comparison to the models using only methods factors. The influence of methods factors bears note, but may not negate the validity of a three-factor solution.

Other Subscale

The most problematic measurement of attitudes towards homosexuality appears to be in the instance of Other/Global attitudes. Of the 10 items initially hypothesized to measure the construct, the results of Study I show that items 16 and 22 load highly and uniquely with the Self items. When the initial 10 items were tested in a single-factor Other model in Study II, those two items were shown to dominate loadings on the factor. A majority of the remaining items load poorly onto the Other factor with or without the influence of items 16 and 22. When item retention is restricted by the criteria of unique loadings of .4 or above, only four items remain. While those four items exhibit problematic internal consistency, it should be noted that this internal consistency estimate was roughly equivalent to that obtained using the initial 10 items.

While a recommendation may be made to add new items to the Other subscale, difficulties present in formulating specific additions. The self may be an unavoidable reference point for evaluations of others. For instance, while item 16 posits “Homosexuality is not as satisfying as heterosexuality,” participants may construe the item as an evaluation of the satisfaction associated with their *own* lifestyle, and while item 22 states “Gay persons’ lives are not as fulfilling as heterosexuals’ lives,” the statement may be interpreted in much the same way

as item 16. The retained items—17, 19, 23, and 24—might be better conceptualized as evaluations of the social acceptability of homosexuality or broad evaluations of its morality than they are expressions of attitudes towards other homosexual men.

In formulating additions or revisions of current items, it may be crucial to avoid the self as a reference point. For instance, while item 20 is currently worded, “Gay men are overly promiscuous,” it may be of benefit for the item to specify that many *other* gay men are overly promiscuous. The use of qualitative methods in the search for new items for inclusion may be advisable. Until such revisions are made, the suggested four-item Other subscale may be most appropriate for use in measuring the construct. Additionally, in the instances in which the larger Other subscales correlate with the external constructs measured in Study II, the four-item version typically correlates with the variables as well.

Brief Self and Brief Disclosure Scales

While the single-factor solution proposed for the four items comprising the Brief Self scale is not entirely sufficient in explaining the high correlations among those items (as measured by the RMSEA), the model otherwise exhibits markedly improved fit in relation to the larger Self subscales. Internal consistency for those four items was acceptable, surpassing the internal consistency of the 9 items comprising the NHAI Self subscale as well as the 14 items comprising the SR Self subscale. In the instances in which the more extensive Self subscales correlated with the external constructs measured in Study II, the Brief Self scale generally correlated with those variables in a similar fashion. Together, this evidence leads to the conclusion that the Brief Self scale may be a viable alternative for researchers wishing to measure attitudes towards one’s own homosexual identity in a parsimonious fashion.

The single-factor solution proposed for the four items comprising the Brief Disclosure scale fit the data well, and constituted a substantial improvement over the fit of the larger Disclosure subscales. Internal consistency for those four items was acceptable, approaching that obtained for the 14 items comprising the NHAI Disclosure subscale and the 13 items comprising the SR Disclosure subscale. In the instances in which the larger subscales correlated with the external constructs measured in Study II, the Brief Disclosure scale generally exhibited a similar relationship with those variables. In the instances of alcohol use and abuse and URAI frequency, the Brief Disclosure scale exhibited significant correlations with those variables when the larger subscales did not. In the instances of the past-year victimization composite and past-year verbal abuse, the Brief Disclosure scale did not exhibit significant correlations with the measures while the larger subscales did (albeit in a very small fashion [$r < .10$]). In general, the Brief Disclosure scale appears to be a valid alternative for researchers wishing to measure attitudes towards disclosure in a parsimonious fashion.

External Validity

Mental Health and Suicide

While direct comparisons of results across studies are difficult due to the various measures employed, the correlations observed between mental health and attitudes towards homosexuality observed in Study II were generally of the size and direction expected. Newcomb and Mustanski's (2010) meta-analysis of 31 studies investigating the link between IH and internalizing mental health problems among LGB participants resulted in a small to medium effect observed for both depression and anxiety, with a slightly higher effect for depressive symptomology. These results closely match those obtained in the current study, with correlations between depression and attitudes towards homosexuality approaching the large

threshold, and correlations between anxiety and homosexuality being between medium and large. Igartua, Gill, and Montoro (2003) found that the NHAI Self subscale was most strongly related to depression and anxiety scores. That finding was also matched in this study. These findings may be consistent with Meyer's (1995, 2003) conceptualization of internalized homophobia as a type of minority stress factor, contributing to the development of negative psychological outcomes among gay men. It is also important to note that the current studies used cross-sectional correlational designs. The direction of causation cannot be determined, nor can the effects of additional variables be ruled out. That being stated, it appears that attitudes towards homosexuality may have substantial utility as independent direct predictors in regards to mental health.

The relationships observed between attitudes towards homosexuality and suicide ideation among Study II participants was similar to the correlation observed by D'Augelli, Grossman, Hershberger, and O'Connell (2001) between personal homonegativity (measured by a subset of NHAI-SR items) and lifetime suicidal ideation among LGB older adults ($r = .26$). Igartua et al. found that there was no relationship between attitudes towards homosexuality and actual attempts independent of depression. Without controlling for the effects of depression, the results of the current study also suggested no significant bivariate relationship between attitudes towards homosexuality and suicide attempts (aside from the small correlations obtained using the NHAI-SR Self subscale). Attitudes towards homosexuality may have some utility in predicting suicide ideation, but it is unlikely that they have substantial utility as independent direct predictors of actual attempts.

Substance Use/Abuse

Both Cherry (1996) and Nicely (2001) reported that IH significantly correlated with alcohol use among gay and bisexual men (respectively: Kendall's tau- $b = .17$, and $r = .26$), and Cherry reported that IH was significantly correlated with alcohol-related problems ($r = .26$). Further, these authors found Self and Other components to be more strongly related to alcohol use than Disclosure. In contrast with these findings, the results of the current study found little or no relationship between attitudes towards homosexuality and alcohol use or abuse. *Only* the Brief Disclosure Scale was correlated with alcohol use and abuse in a small and unexpected direction, with those who are more comfortable with the disclosure of their homosexual identity exhibiting higher levels of alcohol use and greater likelihood of fitting the employed abuse criteria (AUDIT > 7). These largely null results are similar to those found by Allen (2001), D'Augelli et al. (2001), Ross et al. (2001), and Amadio and Chung (2004). The positive association between comfort with disclosure and alcohol use may serve as a partial replication of results found by Rosario, Schrimshaw, and Hunter (2004). The authors report a small bivariate relationship between comfort with disclosure measured at initial baseline and alcohol use among LGB youths at the 6-month assessment ($r = .18$), but not at the 12-month assessment. In sum, it appears that the utility of attitudes towards homosexuality as independent direct predictors of alcohol use and abuse may be limited.

Cherry (2001) reported that IH was related to drug-abuse problems among gay and bisexual men ($r = .30$), but not with drug use frequency. Farnsworth (2002) found relationships between IH and the use of several illicit substances (methamphetamine, ecstasy, and psilocybin), and Ross et al. (2001) found a relationship between a lack of social comfort with other gay men and the use of drugs. In contrast, the results of the current study found largely no relationship between drug use or abuse and attitudes towards homosexuality. A small relationship between

attitudes towards homosexuality and drug use was found only in the instance of disclosure, and as with alcohol use, in an unexpected direction. Those who were more comfortable with the disclosure of their homosexual identity scored higher on the employed measure of drug use. No significant relationships were found between attitudes towards homosexuality and the employed drug abuse criteria (DAST-10 > 2). These largely null results are similar to those found by Allen (2001), D'Augelli et al. (2001), and Amadio and Chung (2004). As with alcohol use and abuse, it appears that the utility of IH as an independent direct predictor of substance abuse may be limited.

While Farnsworth (2002) found a link between IH and tobacco use ($r = .20$), the results of the current study show small but significant links between attitudes towards homosexuality and smoking in the opposite direction. Among the larger sample, comfort with disclosure was associated with an increase in scores on the employed smoking measure, as were positive attitudes towards one's own homosexual identity (as measured by the Brief Self scale and the Self subscale of the suggested alternative), and positive general attitudes (measured by total scores on the suggested alternative). Among the larger sample, the number of days smoked in the past month was positively associated with measures of attitudes towards one's own homosexual identity as well as overall attitudes (as measured by the suggested alternative scale), and the number of cigarettes smoked per day was positively associated with all measures of comfort with disclosure and all measures of attitudes towards one's own homosexual identity (save for the NHAI-SR Self) as well as all overall measures of attitudes towards homosexuality. Among past-month smokers, positive attitudes towards other homosexuals were associated with an increase in smoking measure scores as well as an increase in cigarettes smoked per day, while days smoked was not related to any measures of attitudes towards homosexuality among past-

month smokers. Lifetime smoking behavior was not related to any of the employed measures of attitudes towards homosexuality.

The direction and size of these correlations are more consistent with findings reported by Holloway et al. (2012) in which no significant bivariate relationship was found between smoking and internalized homophobia among young men, but IH was negatively related to smoking in a larger model ($\beta = .10, p < .05$). Rosario et al. (2004) found initial baseline comfort with homosexuality was positively related to tobacco use in a bivariate fashion among LGB youths at the 12-month ($r = .24$) but not 6-month assessment. Amadio and Chung (2004) found no significant bivariate relationship between IH and lifetime or monthly smoking among a sample of gay men. Together with the results of the current study, it appears that in the instance of smoking, the utility of attitudes towards homosexuality as independent direct predictors may be limited.

Sexual Risk

Newcomb and Mustanski (2011) recently reported the results of a meta-analysis examining the association between IH and sexual risk behaviors. A small positive effect was found among the results of 16 studies ($N = 2,837$). Sexual risk measures varied among the studies. Interestingly, the year of data collection exerted a significant moderating effect on the relationship. Ross et al. (2013) found a significant relationship in a similar direction between IH and sexual risk behavior (particularly condom use) among a large European sample ($N = 181,495$). The results of the current study provide mixed support for these findings. Among the current sample, negative attitudes towards other homosexuals were associated with an increase in URAI frequency, and decreased comfort with disclosure (as measured by the Brief Disclosure

scale) was associated with an increase in URAI frequency among those who currently engaged in receptive anal intercourse outside of a monogamous relationship.

In contrast, positive attitudes towards homosexuality were associated with having ever engaged in URAI and having ever engaged in unprotected insertive anal intercourse. These findings are more similar the small number of studies showing a negative relationship between IH and sexual risk. While Preston, D'Augelli, Kassab, and Starks (2007) reported no significant bivariate relationship between attitudes towards homosexuality and sexual risk among a sample of rural homosexual men, when included in a larger model, positive attitudes towards homosexuality were related to an increase in risk behaviors. Reilly (2004) found a significant negative relationship between the NHAI Self subscale and unprotected anal sex ($\beta = -.30, p < .01$), and Jacobs et al. (2010) found that lower IH scores were associated with higher risk for URAI (OR = 0.9) among gay men 40 and older. As with aspects of alcohol use, drug use, and smoking, it is possible that the positive relationship between attitudes towards homosexuality and aspects of sexual risk may be due to positive attitudes leading to an increase in interaction and identification with a minority community where such behaviors are met with greater acceptance. While this is an interesting possibility, overall, the weak and mixed bivariate relationships between attitudes towards homosexuality and sexual risk cast doubt on the utility of these attitudes as independent direct predictors of risk.

In measuring IH, Ross et al. (2013) used a 7-item scale that does not tap disclosure or “outness.” Disclosure was measured separately using a single item. Those authors found no direct relationship between IH and HIV testing (the two were related only through the mediating variable of “outness”). The results of the current study showed significant bivariate associations. HIV testing behaviors (lifetime and past-year) were associated with positive attitudes towards

homosexuality as measured by all scale totals, all measures of disclosure, and all measures of self (save for the NHAI-SR Self subscale). Disclosure was not tested as a mediator. Participant reports of being HIV positive were associated with increased comfort with disclosure.

It is possible that the small but significant links between positive attitudes towards homosexuality and HIV testing may be due to an increase in the valuation of the self leading to a greater concern for one's own health and increased comfort with disclosure leading to a greater likelihood of testing for what is still largely seen as a gay man's disease. In other words, among those with decreased comfort with disclosure, HIV testing may be seen as an aversive form of identifying oneself as homosexual. It is possible that the link between comfort with disclosure and reported HIV serostatus may be mediated by HIV testing, with those who are more comfortable with disclosure being more likely to have been tested, and therefore more likely to have knowledge of their positive status. It is also possible that the link between disclosure and reported HIV serostatus may be mediated by actual sexual risk practices. These potential relationships bear further investigation. However, the observed correlations between attitudes towards homosexuality and HIV testing behavior and status were small, and the utility of these attitudes as independent direct predictors of HIV testing and risk may be limited.

Orientation-Related Abuse

Skinta (2007) reported no significant bivariate links between IH and childhood orientation-based victimization type or severity, however, Carragher (1999) reported that retrospective reports of high school orientation-based bullying were associated with increases in personal homonegativity, and Dragowski, Halkitis, Grossman, and D'Augelli (2011) reported that physical (but not verbal) orientation-based victimization was related to IH among a sample of LGB youth. An interesting pattern of results was obtained in the current study in which recent

victimization—composite scores and verbal victimization—was related to negative attitudes towards homosexuality, while lifetime victimization was primarily linked to comfort with disclosure, and both lifetime verbal abuse and lifetime property damage or threats to safety were linked to positive attitudes towards other homosexuals and comfort with disclosure.

It is possible that orientation related abuse directly impacts attitudes towards homosexuality in a negative fashion, at least initially. This would be consistent with Meyer's (1995, 2003) conceptualization of IH as stemming from negative interactions with the social environment. The correlational nature of these findings also leaves open the possibility that negative attitudes towards homosexuality may signal to potential abusers the vulnerable nature of the potential victim. Finally, it may be possible that a hostile social environment promotes both victimization and the internalization of negative attitudes towards homosexuality. Regardless of the direction of causation, the initial negative association between attitudes towards homosexuality and victimization appears to be reversed over time. It may be possible that initial harm sets in motion a compensatory reaction in which victimized individuals draw closer to other gay men for support, reflected in more positive attitudes towards the group. While this trend is interesting, it bears repeating that the observed correlations were small. The utility of either variable as an independent and direct predictor of the other may be limited.

Limitations

Three primary factors may serve to limit the generalizability of the current results. First, the current studies used convenience samples. The current samples may differ from the general population of gay men, particularly in regards to racial characteristics. Due to the nature of the employed methods of sampling, it is also likely that openly gay or bisexual men are overrepresented and that more closeted gay men are underrepresented. This problem may be

characteristic of much of the literature on internalized homophobia. The nature of the construct makes it less likely that high IH men can be reached through the most common and feasible methods of recruitment, and reduces the likelihood that they would be willing to participate in homosexuality-related studies. Second, a cross-sectional correlational design was employed, and the nature of causation cannot be determined from these data. The distinction between cause and effect can only be speculated. Third, only direct bivariate relationships between attitudes towards homosexuality and potential correlates were tested. It is possible that more complex mediational relationships may exist, in which case bivariate correlations would serve as insufficient or inappropriate indicators of the potential relationships between attitudes towards homosexuality and the proposed correlates.

Directions for Further Research

As the results of these studies generally confirmed the NHAI subscales as factors, and these factors often correlated differently with external constructs of interest, the use of subscale scores may be advisable in future research. In the instance of previous null findings, it may be the case that overall scores were not associated with constructs of interest, but possible associations between subscale scores and constructs of interest may have been overlooked. For instance, among the current sample, measures of Disclosure related to smoking scale scores among the larger sample, and measures of Other were related to smoking scale scores and cigarette smoking frequency among past month smokers, but the remaining categories of attitudes towards homosexuality were generally not associated with those aspects of smoking. A reliance on NHAI or NHAI-SR total scores would have led to null results in these instances. Further, had these relationships not been tested among sub-samples, the relationship between Other and smoking would not have been apparent. In sum, these examples suggest that the use

of subscale scores in analyses is warranted and that it may be inadvisable to conceptualize the gay male population as being homogeneous in all instances. Incorporating these principals in research designs may help resolve inconsistencies among findings.

Unfortunately, the Other subscale may be problematic in terms of appropriately tapping the construct of global attitudes towards homosexuality and attitudes towards other homosexuals. It may be the case that further attempts at revising and bolstering the Other subscale are warranted. Until that time, it may be wise to recognize that research findings rely heavily on the quality of construct measurement, and findings derived through the use of the Other subscale may be suspect. Further, the NHAI and NHAI-SR include a large number of items in the Other subscale, suggesting that it may have a substantial impact on scale totals as well. The suggested alternative uses only four items in that subscale, perhaps the strongest and most appropriate items. The problematic measurement of Other should therefore have a lesser impact on total scores for the suggested alternative measure. At current, measurement using the suggested abbreviated subscale may be more advisable and parsimonious than the use of the NHAI and NHAI-SR alternatives, until such a time when the problematic nature of measurement in the instance of that construct has been improved.

Concluding the discussion of measurement of attitudes towards homosexuality, the use of brief Self and Disclosure subscales may be appropriate and advisable, particularly in instances in which the use of larger subscales is impractical or prohibitive. The Brief Self and Brief Disclosure scales exhibited strong psychometric properties, and typically correlated with external constructs in a manner consistent with the lengthier subscales of the NHAI, NHAI-SR, and the suggested alternative. While large health surveys using probability sampling do not typically include measures of IH, the researchers responsible for such efforts may be more amenable to the

inclusion of two four-item measures. As a majority of the current literature on IH is based on the use of convenience samples of questionable representativeness, the inclusion of IH measurement in larger studies using more optimal sampling techniques would constitute a substantial advance in this area of inquiry.

The current body of research—as well as the results of this particular effort—seems to suggest that attitudes towards homosexuality are limited in their utility as direct predictors of negative outcomes. Bivariate associations between attitudes towards homosexuality and potential correlates appear to be substantial and consistent primarily in the instance of mental health. In the remainder of instances, investigations have typically produced small, null, and often conflicting results. Attitudes are often poor predictors of behavior in general, and it may be of use to investigate a possible interaction between specific circumstances (such as situational determinants) and the ability of IH to predict risk behaviors. It may also be advisable for future efforts to focus less on the bivariate relationships between IH and risk in favor of investigating the potential contribution of IH to risk in more complex systems involving mediation. An exemplary program of research has been advanced by Rosario and colleagues, in which the indirect impact of IH on risk among LBG persons has been considered (Rosario, Hunter, Maguen, Gwadz, & Smith, 2001; Rosario, Schrimshaw, & Hunter, 2004a; Rosario, Schrimshaw, & Hunter, 2004b; Rosario, Schrimshaw, & Hunter, 2006; Rosario, Schrimshaw, & Hunter, 2008; Rosario, Schrimshaw, Hunter, & Braun, 2006; Rosario, Schrimshaw, Hunter, & Gwadz, 2002). In line with exploring the complexities of these relationships, the potential moderating effects of demographic variables such as race and region have been largely unexplored in relation to the link between IH and risk. This line of investigation may be advisable to pursue in further investigations. On a broader note, it may be possible that the link between negative views of

one's own sexuality and risk is not limited to sexual minority populations. Should it be the case that general feelings and comfort with one's own sexuality are linked with risk among heterosexuals, IH may be an overly specific term for a general phenomenon.

Finally, the common use of terms such as internalized homophobia and internalized homonegativity may exhibit powerful framing effects in regards to investigations and the literature in this area. It is important to remember that measures such as the NHAI tap attitudes towards homosexuality whether they be negative *or* positive. Advances in the field of Positive Psychology may serve as a reminder that the larger field has often been traditionally and perhaps unnecessarily self-limited to investigations of negative outcomes and pathology. While it does not yet appear to be time to abandon the investigation of the role of negative attitudes towards homosexuality in the development of negative outcomes and pathology, it may be due time to begin investigating the role of positive attitudes towards homosexuality in the development of beneficial outcomes. Suggestions include (but are not limited to) the effects of positive attitudes towards homosexuality in areas such as creativity, psychological resilience, and health in later life.

Conclusions

The environment in which gay men develop and live is one characterized by rapid change. The evolving nature of the social environment is likely associated with corresponding changes in the attitudes, beliefs, and behaviors of sexual minority men. It is also likely that this evolution may require a reexamination of the measures used to assess psychological constructs among this population. The psychometric properties of the predominant measure of attitudes towards homosexuality used among gay men—the NHAI—were examined. The results of Study I suggested a need and direction for revisions. Study II suggested these revisions improve

measurement characteristics. Brief alternatives were also proposed and evaluated in regards to measuring attitudes towards one's own homosexual identity and comfort with disclosure.

Depending on the requirements of the research, the larger revised alternative or the briefer Self and Disclosure scales are suggested for use in research.

The utility of attitudes towards homosexuality as direct and independent predictors of risk appears to be substantial only in the instance of mental health variables. It is suggested that further studies utilize more complex conceptualizations of the impact of IH on the health crises facing the sexual minority male community. Also suggested is the need for a reevaluation of measurement in regards to Other/Global attitudes. Finally, suggestions for future research include an investigation of the potential benefits of positive attitudes towards homosexuality. While it is true that the current findings and suggestions challenge much of the conventional wisdom in regards to IH, in a rapidly changing social world, it may be that a new lens on internalized homophobia is in order.

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APPENDIX

THE TEMPLE UNIVERSITY GAY MEN'S HEALTH SURVEY

*1) CONSENT FORM

Temple University Gay Men's Health Survey

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This study involves research. The purpose of the research is gain a broad knowledge base in regards to the factors influencing psychological and behavioral health in non-heterosexual men.

What you should know about a research study:

- * Someone will explain this research study to you.
- * You volunteer to be in a research study.
- * Whether you take part is up to you.
- * You can choose not to take part in the research study.
- * You can agree to take part now and later change your mind.
- * Whatever you decide, it will not be held against you.
- * Feel free to ask all the questions you want before and after you decide.
- * By signing this consent form, you are not waiving any of the legal rights that you otherwise would have as a participant in a research study.

The estimated duration of your study participation is 20 minutes

The study procedures consist of online survey responses.

The reasonably foreseeable risks or discomforts are minimal. You may be asked to answer personal questions in regards to your psychological, physical, and behavioral health. Questions may be uncomfortable or cause you to reflect on personal behavior. You are free to terminate participation at any time by simply closing out the survey browser.

The benefit you will obtain from the research is knowing that you have contributed to the understanding of this topic. Besides providing a service to the general community, there is no personal benefit beyond the opportunity to reflect on your own ideas and behaviors.

Participation is completely voluntary.

Please contact the research team with questions, concerns, or complaints about the research and any research-related injuries by calling (215) 204-5950 or e-mailing cohen96@temple.edu

This research has been reviewed and approved by the Temple University Institutional Review Board. Please contact them at (215) 707-3390 or e-mail them at: irb@temple.edu for any of the following: questions, concerns, or complaints about the research; questions about your rights; to obtain information; or to offer input.

Confidentiality: While you will not provide ANY identifying information, regulations require the inclusion of the following statement: Efforts will be made to limit the disclosure of your personal information, including research study records, to people who have a need to review this information. However, the study team cannot promise complete secrecy. For example, although the study team has put in safeguards to protect your information, there is always a potential risk of loss of confidentiality. There are several organizations that may inspect and copy your information to make sure that the study team is following the rules and regulations regarding research and the protection of human subjects. These organizations include the IRB, Temple University, its affiliates and agents, Temple University Health System, Inc., its affiliates and agents, and the Office for Human Research Protections.

To ensure maximum confidentiality, always use a computer with active and updated security software. You may also choose to clear your web browser history after survey completion.

You are asked to provide your "electronic signature" by clicking on that option below. Should you choose not to participate, you may close out your internet browser at this time.

I consent and wish to participate. I do not wish to participate and will close out the browser page.

Page Break



Survey participation is likely to require 20 minutes. Please complete the survey in one sitting, as responses cannot be saved, and multiple attempts from any one individual are counterproductive. If you are not able to dedicate 20-30 minutes at this time, please close out the browser and take the survey when you are able. Please be sure to answer as honestly as possible. Thank you for participating in research designed to benefit the gay community. Your contribution is invaluable!

***2)**

I am:

Male Female Other (please specify)

***3)**

Please enter your age in years.

4)

Please indicate your racial category. You may choose more than one if appropriate.

White, non-Hispanic Black or African American Hispanic, Latino, or Spanish Asian American Indian or Alaskan Native Native Hawaiian or Other Pacific Islander

***5)**

Please indicate the highest level of education that you have completed.

Less than high school High school graduate Some college no degree Associate's degree Bachelor's degree Master's degree Professional degree Doctoral degree

***6)**

In which state do you currently reside? (If non-US, please choose "other" enter name of country)

Other:

***7)**

Please indicate your household income.

- Less than \$25,000 \$25,000 to \$49,999 \$50,000 to \$74,999 \$75,000 to \$99,999 \$100,000 or over

***8)**

My political beliefs are best characterized as:

- Very conservative Conservative Somewhat conservative Neutral Somewhat liberal Liberal
 Very liberal

***9)**

Please characterize your sexual preference.

- Exclusively heterosexual Predominantly heterosexual, only incidentally homosexual Predominantly heterosexual, but more than incidentally homosexual Equally heterosexual and homosexual Predominantly homosexual, but more than incidentally heterosexual Predominantly homosexual, only incidentally heterosexual
 Exclusively homosexual

***10)**

I self-identify as:

- Gay Bisexual Transgender Straight Other (please specify)

***11)**

Please indicate your relationship status.

- Single Monogamous relationship Open, non-monogamous relationship

***12)**

Which of the following best describes the social atmosphere in the area in which you grew up?

- Conservative Somewhat conservative In the middle Somewhat liberal Liberal

***13)**

Which of the following best describes the social atmosphere in your family growing up?

- Conservative Somewhat conservative In the middle Somewhat liberal Liberal

Page Break



- *14) When I am in a conversation with a gay man and he touches me, it does not make me uncomfortable.
- strongly agree agree slightly agree neutral slightly disagree disagree strongly disagree
- *15) Whenever I think a lot about being gay, I feel depressed.
- strongly agree agree slightly agree neutral slightly disagree disagree strongly disagree
- *16) I am glad to be gay.
- strongly agree agree slightly agree neutral slightly disagree disagree strongly disagree
- *17) When I am sexually attracted to another gay man, I feel uncomfortable.
- strongly agree agree slightly agree neutral slightly disagree disagree strongly disagree
- *18) I am proud to be a part of the gay community.
- strongly agree agree slightly agree neutral slightly disagree disagree strongly disagree
- *19) My homosexuality does not make me unhappy.
- strongly agree agree slightly agree neutral slightly disagree disagree strongly disagree
- *20) Whenever I think a lot about being gay, I feel critical about myself.
- strongly agree agree slightly agree neutral slightly disagree disagree strongly disagree
- *21) I do not think I will be able to have a long-term relationship with another man.
- strongly agree agree slightly agree neutral slightly disagree disagree strongly disagree
- *22) I wish I were heterosexual.
- strongly agree agree slightly agree neutral slightly disagree disagree strongly disagree
- *23) I have been in counseling because I wanted to stop having sexual feelings for other men.
- strongly agree agree slightly agree neutral slightly disagree disagree strongly disagree
- *24) I have tried killing myself because I couldn't accept my homosexuality.
- strongly agree agree slightly agree neutral slightly disagree disagree strongly disagree
- *25) There have been times when I've felt so bad about being gay that I wanted to be dead.
- strongly agree agree slightly agree neutral slightly disagree disagree strongly disagree

- *26) I have tried killing myself because it seemed that my life as a gay person was too miserable to bear.
- strongly agree agree slightly agree neutral slightly disagree disagree strongly disagree
- *27) I find it important that I read gay books or newspapers.
- strongly agree agree slightly agree neutral slightly disagree disagree strongly disagree
- *28) It's important to me to feel part of the gay community.
- strongly agree agree slightly agree neutral slightly disagree disagree strongly disagree
- *29) Homosexuality is not as satisfying as heterosexuality.
- strongly agree agree slightly agree neutral slightly disagree disagree strongly disagree
- *30) Homosexuality is a natural expression of sexuality in humans.
- strongly agree agree slightly agree neutral slightly disagree disagree strongly disagree
- *31) Gay men do not dislike women any more than heterosexual men dislike women.
- strongly agree agree slightly agree neutral slightly disagree disagree strongly disagree
- *32) Marriage between gay people should be legalized.
- strongly agree agree slightly agree neutral slightly disagree disagree strongly disagree
- *33) Gay men are overly promiscuous.
- strongly agree agree slightly agree neutral slightly disagree disagree strongly disagree
- *34) Most problems that gay persons have come from their status as an oppressed minority, not their homosexuality per se.
- strongly agree agree slightly agree neutral slightly disagree disagree strongly disagree
- *35) Gay persons' lives are not as fulfilling as heterosexuals' lives.
- strongly agree agree slightly agree neutral slightly disagree disagree strongly disagree
- *36) Children should be taught that being gay is a normal and healthy way for people to be.
- strongly agree agree slightly agree neutral slightly disagree disagree strongly disagree
- *37) Homosexuality is a sexual perversion.
- strongly agree agree slightly agree neutral slightly disagree disagree strongly disagree

- *38) Adult homosexual males who have sex with boys under eighteen years of age should be punished by law.
- strongly agree agree slightly agree neutral slightly disagree disagree strongly disagree
- *39) I wouldn't mind if my boss knew that I was gay.
- strongly agree agree slightly agree neutral slightly disagree disagree strongly disagree
- *40) When I tell my straight friends about my homosexuality, I do not worry that they will try to remember things about me that would make me appear to fit the stereotype of a homosexual.
- strongly agree agree slightly agree neutral slightly disagree disagree strongly disagree
- *41) When I am sexually attracted to another gay man, I do not mind if someone else knows how I feel.
- strongly agree agree slightly agree neutral slightly disagree disagree strongly disagree
- *42) When women know about my homosexuality, I am afraid that they will not relate to me as a man.
- strongly agree agree slightly agree neutral slightly disagree disagree strongly disagree
- *43) I would not mind if my neighbors knew that I am gay.
- strongly agree agree slightly agree neutral slightly disagree disagree strongly disagree
- *44) It is important to me to conceal the fact that I am gay from most people.
- strongly agree agree slightly agree neutral slightly disagree disagree strongly disagree
- *45) If my straight friends knew of my homosexuality, I would feel uncomfortable.
- strongly agree agree slightly agree neutral slightly disagree disagree strongly disagree
- *46) If men knew about my homosexuality, I am afraid that they would begin to avoid me.
- strongly agree agree slightly agree neutral slightly disagree disagree strongly disagree
- *47) If it were made public that I am gay, I would be extremely unhappy.
- strongly agree agree slightly agree neutral slightly disagree disagree strongly disagree
- *48) If my peers knew of my homosexuality, I am afraid that not many would want to be friends with me.
- strongly agree agree slightly agree neutral slightly disagree disagree strongly disagree
- *49) If others knew of my homosexuality, I wouldn't worry particularly that they would think of me as effeminate.
- strongly agree agree slightly agree neutral slightly disagree disagree strongly disagree

- *50) When I think about coming out to peers, I am afraid that they will pay more attention to my body movements and voice inflections.
- strongly agree agree slightly agree neutral slightly disagree disagree strongly disagree
- *51) I am afraid that people will harass me if I come out more publicly.
- strongly agree agree slightly agree neutral slightly disagree disagree strongly disagree
- *52) When I think about coming out to a heterosexual male friend, I do not worry that he might watch me to see if I do things that are stereotypically homosexual.
- strongly agree agree slightly agree neutral slightly disagree disagree strongly disagree

Page Break



- *53)
I feel tense or wound up:
- Most of the time A lot of the time From time to time, occasionally Not at all
- *54)
I still enjoy the things I used to enjoy:
- Definitely as much Not quite so much Only a little Hardly at all
- *55)
I get a sort of frightened feeling as if something awful is about to happen:
- Very definitely and quite badly Yes, but not too badly A little, but it doesn't worry me Not at all
- *56)
I can laugh and see the funny side of things:
- As much as I always could Not quite so much now Definitely not so much now Not at all
- *57)
Worrying thoughts go through my mind:
- A great deal of the time A lot of the time From time to time but not too often Only occasionally
- *58)
I feel cheerful:

Not at all Not often Sometimes Most of the time

***59)**

I can sit at ease and feel relaxed:

Definitely Usually Not often Not at all

***60)**

I feel as if I am slowed down:

Nearly all the time Very often Sometimes Not at all

***61)**

I get a sort of frightened feeling like 'butterflies' in the stomach:

Not at all Occasionally Quite often Very often

***62)**

I have lost interest in my appearance:

Definitely I don't take as much care as I should I may not take quite as much care I take just as much care as ever

***63)**

I feel restless as if I have to be on the move:

Very much indeed Quite a lot Not very much Not at all

***64)**

I look forward with enjoyment to things:

As much as I ever did Rather less than I used to Definitely less than I used to Hardly at all

***65)**

I get sudden feelings of panic:

Very often indeed Quite often Not very often Not at all

***66)**

I can enjoy a good book or radio or TV program:

Often Sometimes Not often Very seldom

***67)**

Have you ever thought about killing yourself?

No Briefly but not seriously More than just briefly Seriously considered Seriously considered and formed plan for attempt

***68)**

Have you ever attempted to kill yourself?

- No Yes but I am not sure that I wanted to die Yes and I think I wanted to die

***69)**

How often have you thought about killing yourself in the past year?

- Never Rarely (1 time) Sometimes (2 times) Often (3-4 times) Very often (5 or more times)

***70)**

Have you ever told someone that you were going to commit suicide, or that you might do it?

- No Yes, at one time, but did not really want to die Yes, at one time, and really wanted to die Yes, more than once, but did not want to do it Yes, more than once, and really wanted to do it

***71)**

How likely is it that you will attempt suicide someday?

- Never No chance at all Rather unlikely Unlikely Likely Rather likely Very likely

Page Break



***72)**

How often do you have a drink containing alcohol?

- Never Monthly or less 2-4 times a month 2-3 times a week 4 or more times a week

***73)**

How many drinks containing alcohol do you have on a typical day when you are drinking?

- 0 - 2 3 or 4 5 or 6 7 to 9 10 or more

***74)**

How often do you have six or more drinks on one occasion?

- Never Less than monthly Monthly Weekly Daily or almost daily

***75)**

How often during the last year have you found that you were not able to stop drinking once you had started?

- Never Less than monthly Monthly Weekly Daily or almost daily

***76)**

How often during the last year have you failed to do what was normally expected of you because of drinking?

Never Less than monthly Monthly Weekly Daily or almost daily

***77)**

How often during the last year have you needed a first drink in the morning to get yourself going after a heavy drinking session?

Never Less than monthly Monthly Weekly Daily or almost daily

***78)**

How often during the last year have you had a feeling of guilt or remorse after drinking?

Never Less than monthly Monthly Weekly Daily or almost daily

***79)**

How often during the last year have you been unable to remember what happened the night before because of your drinking?

Never Less than monthly Monthly Weekly Daily or almost daily

***80)**

Have you or someone else been injured because of your drinking?

No Yes, but not in the last year Yes, during the last year

***81)**

Has a relative, friend, doctor, or other health care worker been concerned about your drinking or suggested you cut down?

No Yes, but not in the last year Yes, during the last year

***82)**

I currently abstain from the use of alcohol because of my own personal history of abuse.

True False Other (please specify)

***83)**

Have you ever smoked a cigarette?

Yes No

***84)**

Please enter the number of days out of the past 30 during which you have smoked a cigarette. If none, enter 0.

***85)**

On the typical day in which you smoked during the past month, how many cigarettes did you smoke?

I did not smoke in the past 30 days 1 per day 2-10 per day 11-20 per day More than a pack per day

***86)** Have you used drugs other than those required for medical reasons?

Yes No

***87)** Do you abuse more than one drug at a time?

Yes No

***88)** Are you unable to stop using drugs when you want to?

Yes No

***89)** Have you ever had blackouts or flashbacks as a result of drug use?

Yes No

***90)** Do you ever feel bad or guilty about your drug use?

Yes No

***91)** Does your spouse (or parents) ever complain about your involvement with drugs?

Yes No

***92)** Have you neglected your family because of your use of drugs?

Yes No

***93)** Have you engaged in illegal activities in order to obtain drugs?

Yes No

***94)** Have you ever experienced withdrawal symptoms (felt sick) when you stopped taking drugs?

Yes No

***95)** Have you had medical problems as a result of your drug use (eg, memory loss, hepatitis, convulsions, bleeding)?

Yes No

***96)**

I currently abstain from the use of drugs because of my own personal history of abuse.

True False Other (please specify)

Page Break



***97)**

Please indicate the number of partners with which you have had receptive anal intercourse in the past 3 months (you bottomed).

***98)**

Have you ever had unprotected receptive anal intercourse (bottomed, no condom)?

Yes No

***99)**

In the past 3 months, have you had unprotected receptive anal intercourse with a primary relationship partner of known HIV status?

Yes No

***100)**

In the past 3 months, how many partners have you had unprotected receptive anal intercourse with (not including a primary partner of known HIV status)?

***101)**

In the past 3 months, how many times have you had unprotected receptive anal intercourse (not including a primary partner of known HIV status)?

***102)**

Please indicate the number of partners with which you have had insertive anal intercourse in the past 3 months (you topped).

***103)**

Have you ever had unprotected insertive anal intercourse (topped, no condom)?

Yes No

***104)**

In the past 3 months, have you had unprotected insertive anal intercourse with a primary relationship partner of known HIV status?

Yes No

***105)**

In the past 3 months, how many partners have you had unprotected insertive anal intercourse with (not including a primary partner of known HIV status)?

***106)**

In the past 3 months, how many times have you had unprotected insertive anal intercourse (not including a primary partner of known HIV status)?

***107)**

Have you ever been tested for HIV?

Yes No

***108)**

Have you been tested for HIV in the past year?

Yes No

***109)**

Please indicate your HIV status.

HIV positive HIV negative Status unknown

Page Break



***110)** How many times in your life have you been subject to verbal abuse due to your sexual orientation?

None Once Twice Three or more times

***111)** How many times in the past year have you been subject to verbal abuse due to your sexual orientation?

None Once Twice Three or more times

*112) How many times in your life have you had property damaged or destroyed, been chased, followed, spat upon, or had objects thrown at you due to your sexual orientation?

None Once Twice Three or more times

*113) How many times in the past year have you had property damaged or destroyed, been chased, followed, spat upon, or had objects thrown at you due to your sexual orientation?

None Once Twice Three or more times

*114) How many times in your life have you been punched, hit, kicked, beaten, sexually assaulted, or assaulted with a weapon due to your sexual orientation?

None Once Twice Three or more times

*115) How many times in the past year have you been punched, hit, kicked, beaten, sexually assaulted, or assaulted with a weapon due to your sexual orientation?

None Once Twice Three or more times

*116)

I often find myself to be more attracted to straight men than to gay men.

Strongly agree Agree Somewhat agree Neutral Somewhat disagree Disagree Strongly disagree

[End of Survey]

Automatic Page Break

Don't forget to spread the word! Here's a link to post or tweet! <https://www.psychdata.com/s.asp?SID=153146>
Thank you for participating in research designed to benefit the gay community!

Should you wish to provide contact information so that you may be informed of future surveys, please use the following link. Your contact information cannot be linked to the responses you have just provided.
[PROVIDE CONTACT INFORMATION](#)