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# Development and Evaluation of the Atheist Identity Concealment Scale (AICS)

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## Abstract

The Atheist Identity Concealment Scale (AICS) was developed as a tool to assess the degree to which atheists conceal their atheist identity from others. Drawing on concealable stigmatized identity (CSI) theory, the aim of this study was to provide researchers with a valid means to effectively assess atheist identity concealment. Using three separate samples of more than 500 adults in the USA, exploratory and confirmatory factor analyses were conducted which ultimately resulted in a short, robust measure that comprised eight items. Additional validity evidence was provided by examining the relationship between the AICS and several previously validated tools (i.e., outness, nonreligiosity, depression, anxiety, stress, and self-esteem).

**Keywords:** atheism, disclosure, outness, stigmatized identities, scale development

## Introduction

In the USA, atheism, the absence of belief in god(s) (Bullivant, 2013), is a stigmatized group membership able to be hidden and therefore considered a concealable stigmatized identity (CSI; Quinn & Chaudoir, 2009). Having an atheist identity, like other CSIs (e.g., mental

illness, being a sexual minority) and concomitant discrimination experiences, are positively associated with distress and compromised psychological well-being (Brewster et al., 2016; Doane & Elliott, 2015). There is a well-documented association between outness, the degree to which one's CSI is known to others (Mohr & Fassinger, 2000), and psychological well-being among other CSIs (Camacho et al., 2020). There is also a growing body of literature examining the construct of outness among atheists (Authors, masked for review, 2018; Brewster et al., 2020). In particular, concealment of identity, as opposed to disclosure, appears to be a more reliable predictor of well-being for CSIs, such that disclosure is often weakly or unrelated to well-being, whereas concealment is associated with psychological distress (Camacho et al., 2020). Likewise, among atheists, concealment is associated with lower psychological well-being (Abbott et al., 2020; Abbott & Mollen, 2018; Brewster et al., 2020) and may be a result of stigma consciousness (Mackey et al., 2020). However, to date, rather than developing unique measures for atheists specifically, researchers have mainly adapted scales initially developed for use with gender and sexual minority (GSM) populations (Brewster et al., 2020). To address this omission, the purpose of this study was to develop a scale specifically designed to assess atheist identity concealment among an atheist population.

### **Atheists in the USA**

Although a larger proportion of US Americans currently identify as religiously unaffiliated (26%) than at any other time in history, many people retain belief in a higher power or identify as "nothing in particular," agnostic, or spiritual. People who self-identify as atheist represent a small minority of the unaffiliated and the US general population (4%). The highest rate of atheist identification is found among Millennials (8%), those born between 1981 and 1996, as compared to earlier generations (Generation X = 4%; Baby Boomers = 2%; Silent Generation = 2%; Pew Research Center, 2019), suggesting increasing rates of atheism over time. Gervais and Najle (2018) inferred that actual rates of atheism may be significantly higher than national surveys capture, estimating that 26% of adults in the USA may be atheist. One possible explanation for the discrepancy between national surveys and other estimates of rates of atheism is the reluctance to identify as an atheist explicitly, despite nonbelief in god(s), due to anti-atheist bias in the USA (Scheitle et al., 2018).

### ***Anti-Atheist Stigma in the USA***

Anti-atheist stigma in the USA is common and robust. In two studies published a decade apart, participants identified atheists among the groups that were most incongruent with their vision of American society and among those they would least like to have a member marry into their family. Notably, atheists, along with Muslims, were identified at significantly higher rates of incongruence compared to all other groups surveyed (e.g., immigrants, gay men, and lesbians; Edgell et al., 2006, 2016). Anti-atheist prejudice appears to be fueled in part by a distrust of atheists (Gervais, 2011).

Distrust of atheists is associated with the perception of immorality, the most common stereotype of atheists. When presented with immoral acts ranging from victimless crimes to rape and murder, participants were more likely to attribute engagement in those acts

and crimes to atheists than religious people or members of other marginalized groups in the USA (Gervais, 2014; Wright & Nichols, 2014). In fact, atheists are no more likely to engage in immoral acts than theists (Didyoung et al., 2013). Other stereotypes and misperceptions of atheists include that they are angry (Meier et al., 2015) and the conflation of atheism with satanism (Abbott et al., 2020).

Typically, atheists report discrimination including experiencing overt anti-atheist messages communicated individually, via media sources, and nonconsensually, as in the case of mandated participation in religious activities (Hammer et al., 2012). In addition, atheists experience microaggressions including assumptions of inferiority, denial of the existence of nonreligious prejudice, assumptions of religiosity, endorsement of stereotypes about nonreligious people, and associating nonreligion with pathology. Further, higher incidence of microaggressions has been associated with more depressive symptoms with atheists reporting higher frequencies of nonreligious microaggressions than any other nonreligious group (e.g., agnostics; Cheng et al., 2018). Because anti-atheist stigma is commonplace in the USA and negatively impacts atheists' well-being, atheists must weigh the possible benefits and consequences of disclosing their atheist identity to others.

### **Concealable Stigmatized Identities and Outness**

CSIs comprise *valenced content*, the various forms of stigma associated with the identity, and *magnitude*, the centrality and salience of the identity, which influence the psychological well-being of people with CSIs and, in turn, physical well-being and health behaviors (e.g., healthcare utilization; Quinn & Earnshaw, 2011). Considering the manner by which valenced content influences well-being, people with CSIs, including atheists, may deliberate about the degree to which they should disclose and conceal their identity, referred to as *outness*. Among CSIs generally, outness, and specifically the disclosure of identity, is associated with positive outcomes including reduced self-stigma (Corrigan et al., 2013), improved self-esteem (Chaudoir & Quinn, 2010), and role congruency (Ragins, 2008). Disclosure may also strengthen the effect of existing social support, such that receiving support from others who are aware of one's CSI is more beneficial to health than support from the same people when the CSI is concealed (Weisz et al., 2016). Smith (2011) suggested that disclosure represented the final stage of atheist identity development in which atheism was incorporated into overall self-concept, a positive experience fostering authenticity and liberation from the constriction of concealment (Smith, 2011).

Importantly, Legate and colleagues (2012) suggested the benefits of outness were context-dependent. Among lesbian, gay, and bisexual participants, disclosure of identity was associated with less anger, fewer depressive symptoms, and higher self-esteem, but only in settings in which disclosure supported autonomy (Legate et al., 2012). In other words, concealment may be a better choice than disclosure within potentially harmful and unsupportive environments. In general, however, concealment of an identity is a more reliable, negative predictor of well-being than disclosure is of positive health outcomes (Camacho et al., 2020). Newheiser and Barreto (2014), for example, found participants with a CSI (e.g., sexual minority or mental illness) preferred to hide their identities in social interactions and subsequently reported a lack of belonging detected by external observers,

which resulted in observers' unfavorable impressions of participants. A study of gay men suggested concealment led to a divided self, in which a person's public and private self were distinctly separate, resulting in harm to psychological health (Sedlovskaya, 2013). Thus, although concealment may offer some benefits, including passing as a nonstigmatized person and reducing frequency of experiencing discrimination, concealment often reduces one's sense of belonging and well-being, particularly when people engage in active attempts to conceal rather than passive nondisclosure (Camacho et al., 2020).

Determinations about when to conceal occur during a process of strategic outness, in which participants engage in careful decision-making regarding with whom and in what settings to disclose their identities repeatedly over the course of their lives with different people across contexts (Orne, 2011). In an exploration of the experiences of people of color (POC) who identified as atheist, participants described using more palatable identifications (e.g., agnostic) to ease disclosure and concealing from others while employing tests of emotional safety (Authors, masked for review). Mackey (2020) found, among atheists in the Southern USA, atheists higher in stigma consciousness were less likely to identify as atheist in public settings and, as compared to neutral and control groups, when primed with negative information about atheists, were more likely to conceal their atheism.

In the few studies in which researchers have examined outness among atheists, outness appears to be beneficial to psychological health. Although outness may increase the frequency of discrimination experiences among atheists (Hammer et al., 2012), in general, higher disclosure and lower concealment is associated with less psychological distress and higher psychological well-being (Abbott et al., 2020; Abbott & Mollen, 2018; Brewster et al., 2020), at least in predominantly White samples. However, to date, researchers studying outness among atheists have primarily utilized and adapted measures initially developed for use with sexual minority populations, and often survey outness rather than disclosure and concealment as independent, though related, constructs. Though Mackey (2020) measured concealment among nonreligious people, the development and validation data for the scale employed were unpublished and only utilized a single sample. There are no published scales designed specifically for use with atheist populations, and emerging evidence suggests that concealment may be of particular importance in predicting well-being among people with CSIs. As such, the present study was conducted to develop a measure of concealment of atheist identity in the interest of learning more about the relationship between concealment and other variables within CSI theory among atheists.

To examine the factor structure and criterion validity of the Atheist Identity Concealment Scale (AICS), two separate studies were conducted (Hinkin et al., 1997; Reise et al., 2000). In Study 1, items were generated and administered to a general sample of adult atheists living across the USA. Exploratory factor analysis (EFA) was conducted to examine the factor structure of the initial pool of items. Following EFA, the scale was revised and administered to a second sample of adult atheists in the USA (Study 2). Confirmatory factor analyses (CFA) were examined, along with tests of reliability and criterion validity. After reviewing results from Study 1 and 2, it was determined that a third sample would be recruited (Study 3) to provide additional validity evidence.

## Study 1: Instrument Development

### *Method*

#### *Participants*

Participants included 111 adults from the USA with a mean age of 52.07,  $SD = 14.70$ . The sample was primarily White (91.9%) and was roughly evenly split between male-identified (47.7%) and female-identified (49.5%) participants. Regarding geographic region, 38.7% of the sample was from the Southern USA, 25.2% was from the Northeast, 19.8% was from the Midwest, and 15.4% reported living in the Western USA. The majority of the sample identified as heterosexual (77%), followed by gay or lesbian (8.1%), bisexual (8.1%), pansexual (3.6%), queer (1.8%), and asexual (0.9%). The sample reported being an atheist for a mean of 25.36,  $SD = 16.05$  years. Finally, regarding specific nonreligious identity, the majority of the sample identified as atheist (63.1%), followed by humanist (18.0%), freethinker (4.5%), agnostic (3.6%), secular (2.7%), nonreligious (1.8%), and other (6.3%).

#### *Procedure*

Participants were primarily recruited via email to a participant pool established by a collaborative of researchers studying atheism. Data were collected using an online survey platform (psychdata.com). To ensure participants' privacy and anonymity, no email addresses or other identifiable information was collected. Once they provided informed consent, participants completed a survey which included atheist identity concealment items along with demographics questions. Inclusion criteria included identifying as any of the following: atheist, agnostic, freethinker, humanist, secular, or nonreligious. No explicit incentive was provided to participants. Assessment of missing data patterns indicated only 0.06% of data were missing (i.e., nonresponse items). Thus, the data set was nearly fully complete; multiple imputation was not necessary.

#### *Instruments*

Initially, in accordance with scale development recommendations (Cabrera-Nguyen, 2010; Hinkin et al., 1997), an initial 20-item pool was developed to measure atheist identity concealment. Deductive and inductive methods were used to define the construct and identify potential questions to assess it (Boateng et al., 2018). As part of a previous study, semi-structured interviews were conducted with nonreligious participants to learn more about the contexts in which and reasons why they concealed or disclosed their atheist identity (Abbott et al., 2020). In addition, a review of the literature aided in defining concealment as part of the CSI theory. Items were developed by the current researchers, and the initial 20 items were chosen based on ratings provided by the research team.

Items were consistent in terms of perspective and simple enough to be easily understood by participants; "double-barreled" items were avoided. In addition to Hinkin et al.'s recommendations, items were developed using the CSI framework (Quinn & Chaudoir, 2009) in conjunction with previously developed tools designed to measure disclosure and concealment of identities (e.g., the Outness Inventory, Mohr & Fassinger, 2000), and extant atheism scholarship, including studies that measured atheist outness (Abbott & Mollen,

2018; Brewster et al., 2020). A pool of 20 items was chosen for initial data collection to allow for trimming following the first round of factor analyses (Boateng et al., 2018). Respondents were asked to indicate their level of agreement with each statement on a 7-point scale ranging from 1 (*Strongly disagree*) to 7 (*Strongly agree*).

### Results

To determine the initial factor structure of the concealment scale, an EFA was conducted using principal axis factoring. No rotation techniques were necessary as the scale was developed to be unidimensional. Initially, parallel analysis confirmed that a single factor should be retained. Parallel analysis compares randomly generated eigenvalues to eigenvalues extracted from the sample data (Henson & Roberts, 2006). Results indicated that only one eigenvalue was greater than the randomly generated value. Inspection of the scree plot corroborated results of parallel analysis. With the final goal of measuring concealment using the most consistent items possible, items with low ( $< 0.4$ ) pattern coefficients (sometimes ambiguously called “loadings”) were removed from the scale (Henson & Roberts, 2006). The initial EFA results that examined all 20 items are located in Table 1.

**Table 1.** Study 1 EFA, Initial 20 Items

Item	Pattern coefficient
1. In general, I prefer to conceal my identity as an atheist	0.91
2. I prefer to use alternative terms like nonreligious, humanist, agnostic, or free thinker rather than the term atheist	0.44
3. When socializing with religious friends, I typically do not mention that I am an atheist	0.77
4. It can be stressful to inform religious people that I am an atheist	0.60
5. I conceal my identity as an atheist from people at work/school	0.71
6. Not many of my friends know I am an atheist	0.68
7. It is important to me that others do not know I am an atheist	0.71
8. I typically do not tell religious people I am an atheist	0.82
9. When I meet new people, I am likely to mention that I am an atheist	-0.54
10. People I care about know that I am an atheist	-0.21
11. I enjoy discussing atheist-related issues with other nonreligious people	-0.24
12. The majority of people I know are aware that I am an atheist	-0.66
13. I openly identify myself as an atheist online	-0.44
14. I feel comfortable disclosing that I am an atheist to new acquaintances	-0.78
15. I am proud to identify as an atheist	-0.44
16. It is important to me that others know I am an atheist	-0.54
17. I tell nonreligious people that I am an atheist	-0.29
18. I worry people would think of me differently if they knew I was an atheist	0.61
19. I put a lot of thought into decisions about with whom I will share my atheist identity	0.70
20. I am a member of an organization that advocate for atheists/nonreligious people	-0.24

Standardized coefficients are displayed. Maximum likelihood estimation was used.

Following several iterations of EFA, a final scale of eight items was chosen. A single factor explained 52.78% of variance in the items, and pattern coefficients ranged from 0.41 to 0.91 (see Table 2). Reliability analysis indicated that the final eight-item scale had acceptable internal consistency reliability,  $\alpha = 0.85$ . After determining the final eight items, a second study was conducted to confirm the factorial and criterion validity of the scale.

**Table 2.** Study 1 EFA, Final 8-Item Scale

Item	Pattern coefficient
1. In general, I prefer to conceal my identity as an atheist	0.91
2. I have shared my atheist identity with the majority of people I know. (rev)	0.68
3. I conceal my identity as an atheist from people at work/school	0.76
4. Not many of my friends know I am an atheist	0.75
5. People I care about know that I am an atheist. (rev) 0.41	0.41
6. It is important to me that others do not know I am an atheist	0.78
7. I feel comfortable mentioning that I am an atheist to new acquaintances. (rev)	0.82
8. I worry people would think of me differently if they knew I was an atheist	0.67

Standardized coefficients are displayed. Maximum likelihood estimation was used.

## Study 2: Initial Validity and Reliability Evidence

### Method

#### Participants

Participants included 215 adults with a mean age of 36.53,  $SD = 14.72$  years. Participants identified as male (61.2%), female (34.7%), nonbinary (1.8%), gender-queer (0.5%), and other (1.8%). The sample was 84.2% White, 5.1% Multiracial, 3.3% Hispanic/Latino, 2.8% Asian American, and 3.3% other. Regarding geographic region, 32.0% of the sample reported residing in the Southern USA, 27.9% in the Western USA, 26.6% in the Midwest, and 12.6% in the Northeast. The sample primarily identified as heterosexual (77.2%) followed by bisexual (9.3%), gay or lesbian (5.6%), asexual (3.7%), questioning (1.4%), pansexual (0.9%), queer (0.5%), and other (1.4%). The sample reported being an atheist for a mean of 18.24,  $SD = 16.21$  years. Lastly, regarding specific nonreligious identity, the majority of the sample identified as atheist (64.9%), followed by freethinker (12.2%), agnostic (8.6%), nonreligious (4.5%), secular (2.7%), and other (7.2%). Based on simulations by Wolf et al. (2013), a sample of 215 was considered adequate to produce stable fit statistics and path coefficients.

#### Procedure

Participants were recruited via Reddit.com, an online social news aggregation and discussion website; specifically, invitations to participate were posted in established Reddit discussion groups (i.e., subreddits) for nonreligious people. Participants completed the survey instrument by accessing a link to Qualtrics, an online survey platform. Participants' anonymity was ensured by not collecting any identifiable information. After providing informed



consent, participants were asked if they considered themselves to be atheist, agnostic, free-thinker, humanist, secular, or nonreligious with definitions of each term provided. Given many nonreligious people meet the definition of atheism but identify by other terms, perhaps due to pervasive anti-atheist stigma (Scheitle et al., 2018), all participants who identified with one of these labels were retained. Participants were asked to substitute their personal nonreligious identification anywhere they saw the word “atheist” in the subsequent measures. Assessment of missing data patterns indicated only 1.81% of all data were missing (i.e., nonresponse items). Because the overall proportion of missing data was less than 5%, complete case analysis was used (Jakobsen et al., 2017).

#### *Instruments*

Several other theoretically related measures were used along with the AICS to establish convergent and concurrent validity evidence. Convergent and concurrent validity can be gauged by examining the bivariate relationship between two measures that should theoretically relate, such as concealment and outness of atheist identity (Bryman, 2016).

**Atheist Identity Concealment Scale.** To confirm the factor structure and reliability results found in Study 1, participants in Study 2 completed the final 8-item version of the Atheist Identity Concealment Scale. Items (displayed in Fig. 1) were responded to on a 7-point scale ranging from 1 (*Strongly disagree*) to 7 (*Strongly agree*). Validity and internal consistency reliability information are presented below.

<b>Atheist Identity Concealment Scale (AICS)</b>
For each item, please indicate if you (1) strongly disagree, (2) moderately disagree, (3) slightly disagree, (4) neither agree nor disagree, (5) slightly agree, (6) moderately agree, or (7) strongly agree.
1. In general, I prefer to conceal my identity as an atheist.
2. I have shared my atheist identity with the majority of people I know.
3. I conceal my identity as an atheist from people at work/school.
4. Not many of my friends know I am an atheist.
5. People I care about know that I am an atheist.
6. It is important to me that others do not know I am an atheist.
7. I feel comfortable mentioning that I am an atheist to new acquaintances.
8. I worry people would think of me differently if they knew I was an atheist
<b>Scoring:</b> Reverse score items 2, 5, and 7. Total scores can be created by calculating an overall mean score for each participant. Higher scores indicate greater concealment of atheist identity.

**Figure 1.** Complete AICS instrument

**Depression, Anxiety, Stress Scale.** The Depression, Anxiety, Stress Scale (DASS-21; Lovibond & Lovibond, 1995) is a 21-item self-report measure designed to measure three emotional states via three subscales: depression, anxiety, and tension/stress. On a 4-point scale ranging from, “Did not apply to me at all” to “Applied to me very much or most of the time,” participants indicated the frequency with which they have experienced a variety of states over the past week. Example items included, “I found it hard to wind down,” “I felt

I had nothing to look forward to,” and “I felt that I was rather touchy.” The DASS-21 is widely used in English-speaking countries, and emerging data suggest it is reliable cross-culturally (Scholten et al., 2017). Internal consistency reliability in the current sample was good to excellent: depression  $\alpha = 0.91$ , anxiety  $\alpha = 0.78$ , and stress  $\alpha = 0.86$ .

**Outness Inventory.** The Outness Inventory (OI; Mohr & Fassinger, 2000) is an 11-item scale originally designed to assess outness, the degree to which lesbian women, gay men, and bisexual people’s sexual orientation is known to and discussed with others in their lives. For the purposes of this study, “sexual orientation” was changed to “atheist identity” and modified items consistent with Brewster and colleagues’ study (2020) that adapted the OI to assess atheist outness. Participants indicate the likelihood that people in their life know about and to what extent they discuss their atheist identity. Items correspond to people in participants’ lives, including parents, siblings, work supervisor, and friends, recent and past. Internal consistency reliability among atheists was  $\alpha = 0.85$  (Brewster et al., 2020). The current scale also demonstrated adequate reliability,  $\alpha = 0.78$ .

**(Non)Religious/(Non)Spiritual Scale.** Previous research has examined (non)religiosity and (non)spirituality as discrete identification rather than as a spectrum ranging from non-religious and nonspiritual, to nonreligious and spiritual, to religious and spiritual. The current study measured (non)religiosity and (non)spirituality through the (Non)religious/(Non)Spiritual Scale (NRNSS; Cragun et al., 2015). The 14-item scale included items such as, “I would describe myself as a religious person” and “Spirituality is important to me.” Responses were indicated on a 5-point Likert scale ranging from 1 (*Strongly Agree*) to 5 (*Strongly Disagree*), such that lower scores are associated with higher (non)religiosity and (non)spirituality. Analyses across gender, age, race, and education subgroups demonstrated strong reliability ( $\alpha = 0.94$ ).

**Rosenberg Self-Esteem Scale.** Participants’ global self-esteem was assessed using the Rosenberg Self-Esteem Scale (Rosenberg, 1965). The 10-item questionnaire uses questions such as “On the whole, I am satisfied with myself” to attain an overall score for self-esteem. Individual items are rated on a 5-point scale ranging from 1 (*Strongly Disagree*) to 5 (*Strongly Agree*). The Rosenberg Self-Esteem Scale has demonstrated strong internal consistency and test-retest reliability over several decades of use (Sinclair et al., 2010). Internal consistency reliability in the current sample was  $\alpha = 0.91$ .

### **Results**

Confirmatory factor analysis (CFA) was conducted with Mplus v8 to further examine the factor structure of the 8-item Atheist Identity Concealment Scale. The analysis used maximum likelihood estimation to examine how well the data supported a single factor solution. Results of the CFA indicated excellent fit,  $\chi^2 = 61.70$  ( $p = 0.001$ ), RMSEA = 0.10, 90% CI [0.07–0.13], CFI = 0.94, SRMR = 0.05. Specific items and standardized path coefficients are displayed in Table 1. Overall, results indicated that the single concealment factor fit the data well. Internal consistency reliability analysis supported this conclusion,  $\alpha = 0.86$  (Table 3).

**Table 3.** CFA results from Study 2 and Study 3

Item	Standardized path coefficient	
	Study 2	Study 3
1. In general, I prefer to conceal my identity as an atheist	0.80	0.88
2. I have shared my atheist identity with the majority of people I know. (rev)	0.68	0.48
3. I conceal my identity as an atheist from people at work/school	0.70	0.85
4. Not many of my friends know I am an atheist	0.46	0.47
5. People I care about know that I am an atheist. (rev)	0.45	0.21
6. It is important to me that others do not know I am an atheist	0.77	0.65
7. I feel comfortable mentioning that I am an atheist to new acquaintances. (rev)	0.64	0.65
8. I worry people would think of me differently if they knew I was an atheist	0.70	0.71

Maximum likelihood estimation was used in each analysis. All coefficients in Study 2 and Study 3 CFA were statistically significant,  $p < 0.01$ .

To provide convergent and concurrent validity evidence, correlation analysis was conducted to examine the bivariate relationship between the AICS and the OI, NRNSS, DASS-Depression, DASS-Anxiety, DASS-Stress, and the Rosenberg Self-Esteem Scale. All correlation analysis results are included in Table 4. Because the Outness Inventory is the most theoretically similar to the concealment scale, though measuring opposing constructs, it was hypothesized that the two variables would share a moderate to strong negative correlation. Results supported this assumption; the two variables had a correlation of  $r = -0.54$ ,  $p < 0.001$ .

**Table 4.** Study 2: means, standard deviations, and bivariate correlations of all variables

Measures	<i>M</i>	<i>SD</i>	1	2	3	4	5	6
1. Concealment	3.46	1.34	—					
2. Outness	3.84	1.19	-0.54**	—				
3. NRNSS	4.29	0.35	-0.18*	0.05	—			
4. Depression	11.16	4.48	0.15*	-0.17*	-0.10	—		
5. Anxiety	9.34	2.99	0.16*	-0.10	-0.18**	0.48**	—	
6. Stress	11.79	4.04	0.28**	-0.16*	-0.21**	0.57**	.61**	—
7. Self-esteem	2.27	0.25	-0.18**	0.02	.08	-0.30**	-0.25**	-0.21**

NRNSS Non-Religious/Non-Spiritual Scale (higher scores indicate less institutional religiosity and less individual spirituality)

\* $p < 0.05$ , \*\* $p < 0.01$

### Demographic Comparisons

Several additional analyses were conducted to investigate potential differences based on participants' demographic characteristics (gender, race, sexual orientation, and age). First, an independent samples *t*-test was conducted to examine gender differences on levels of concealment. Results indicated that male-identified atheists ( $M = 3.25$ ,  $SD = 1.25$ ) reported significantly lower concealment compared to female-identified atheists ( $M = 3.77$ ,  $SD = 1.43$ ),  $t(202) = 2.75$ ,  $p = 0.006$ ,  $d = 0.39$ . A second independent samples *t*-test was conducted to examine racial differences in concealment. Due to the large majority of White

participants, it was not feasible to use an ANOVA to examine differences among *all* racial groups. A *t*-test comparing White and Black participants indicated that there were not significant differences in concealment between White ( $M = 3.50$ ,  $SD = 1.28$ ) and Black ( $M = 3.25$ ,  $SD = 1.61$ ) participants,  $t(41.40) = 0.84$ ,  $p = 0.41$ ,  $d = 0.17$ . A similar *t*-test was used to examine differences in concealment between heterosexual and sexually marginalized participants. Results indicated that there were not significant differences in concealment between heterosexual participants ( $M = 3.37$ ,  $SD = 1.31$ ) and sexually marginalized participants ( $M = 3.76$ ,  $SD = 1.39$ ),  $t(211) = 1.79$ ,  $p = 0.08$ ,  $d = 0.29$ . It should be noted that the effect size of 0.29 could be considered noteworthy. A post hoc power analysis indicated that power was 0.55 for the analysis; thus, a Type 2 error may have been committed. Finally, a correlation analysis was used to examine the relationship between age and concealment. Results indicated there was a weak, negative relationship between age and concealment,  $r = -0.24$ ,  $p = 0.001$ , such that older participants tended to report lower levels of concealment.

### Study 3: Additional Factorial Validity Evidence

After reviewing the results of Study 1 and 2, it was determined that a third sample would be beneficial to further establish the factorial validity of the scale. This decision was primarily based on the fact that Study 1 utilized a rather small sample ( $n = 111$ ). When small samples are used in EFA, pattern coefficients can be unstable (Kyriazos, 2018). Thus, a small survey containing only the AICS and items to assess demographic information was distributed to a third sample of nonreligious adults in the USA.

#### *Method*

##### *Participants*

The sample included 183 adults with a mean age of 34.90,  $SD = 13.92$  years. Participants primarily identified as female (47.8%), followed by male (37.7%), other (9.5%), and nonbinary (3.9%). The sample was 82% White, 5.6% Asian, 4.5% multiracial, 4.5% other, 1.7% Hispanic American, 1.1% Native American, and 0.6% Black or African American. Regarding geographic region, 27.0% of the sample reported residing in the Southern USA, 24.7% in the Western USA, 19.7% in the Midwest, and 28.7% in the Northeast. The sample reported being an atheist for a mean of 20.10 years,  $SD = 13.54$ . Regarding sexual orientation, the sample primarily identified as heterosexual (62.9%), followed by bisexual (16.3%), gay or lesbian (7.9%), pansexual (3.9%), other (3.9%), queer (2.8%), and questioning (2.2%). Finally, when asked about specific nonreligious identity, 59.6% identified as atheist, 14.8% agnostic, 9.8% humanist, 6.6% nonreligious, 4.9% free thinker, 3.3% other, and 1.1% secular.

##### *Procedure*

Overall, Study 3 procedures mirrored those utilized in Study 1 and 2. Participants were recruited via social media (Facebook.com and Reddit.com). After providing informed consent, participants complete a brief survey instrument that included the 8-item AICS along

with standard demographic information. Assessment of missing data patterns indicated only 1.64% of all data were missing (i.e., nonresponse items).

### **Results**

Confirmatory factor analysis (CFA) was conducted with Mplus v8 to further examine the factor structure of the 8-item AICS. As with previous studies, the analysis used maximum likelihood estimation to examine the factorial validity of the single factor scale. Results of the CFA indicated acceptable model fit,  $\chi^2 = 61.11$  ( $p < 0.001$ ), RMSEA = 0.11, 90% CI [0.08–0.15], CFI = 0.93, SRMR = 0.07. Standardized path coefficients for each item are located in Table 3. As shown, coefficients were statistically significant,  $p < 0.01$ . Analysis of internal consistency reliability continued to support the reliability of the AICS,  $\alpha = 0.85$ .

### **Discussion**

This study presents a valid and reliable measure by which to assess the concealment of atheist identity. A concise 8-item scale was developed and validated using standard factor analytic techniques among two US-based samples. After using EFA to establish initial validity evidence of the 8-item scale in Study 1, Study 2 and Study 3 utilized CFA to corroborate findings from Study 1. Results of the CFAs yielded good model fit, and path coefficients were all moderate to large and statistically significant. In addition, internal consistency reliability analyses provided reliability evidence. Previous researchers have generally relied on adapting other established measures for distinct CSIs (i.e., identifying as a sexual minority; Mohr & Fassinger, 2000). Thus, the AICS offers a psychometrically sound scale for researchers and practitioners interested in capturing the experience of outness, an important contributor to psychological wellness and health, among atheists.

There were notable age differences between the three studies. Study 1 utilized an older adult population ( $M_{\text{age}} = 52.07 \pm 14.70$ ), while Study 2 and Study 3 were made up of relatively younger adults ( $M_{\text{age}} = 36.53 \pm 14.72$  and  $34.90 \pm 13.92$ , respectively). The fact that the concealment construct appeared stable in the two age groups provides initial external validity evidence. Initially, it appears that the scale may be generalizable across adults of varying age cohorts; however, additional research using the AICS is needed to confirm this.

Concerning the scale's validity, concealment was negatively related to an adapted measure of outness (Mohr & Fassinger, 2000). This finding provided support for the scale's construct validity, as it was theoretically expected that those who reported higher levels of concealment would report lower levels of outness. Similarly, concealment shared a negative relationship with the Non-Religious/Non-Spiritual Scale. This result indicated that those who conceal their atheist identity more frequently tended to report being more spiritual/religious. Results also indicated that concealment related to several markers of psychological well-being. Specifically, there was a positive relationship between concealment and depression, anxiety, and stress, and a negative relationship between concealment and self-esteem. These results indicated that, overall, higher levels of concealment relate to lower levels of psychological well-being.

***Integration with Previous Research***

Consistent with recent scholarship suggesting concealment of a stigmatized identity, as compared to disclosure, is particularly important in determining well-being, higher concealment via the AICS was associated with higher rates of depressive, anxiety, and stress symptoms as well as lower self-esteem. Relatedly, lower rates of atheist identity concealment were associated with stronger nonreligious and nonspiritual orientation. This finding may indicate a higher likelihood of concealment among atheists who are questioning, early in the development of their atheist identity, or less solidified in their belief in the absence of a god or gods. Though measured differently than in the development of the AICS, Doane and Elliott (2015) found strength of atheist identification was positively related to psychological well-being and distress, although they did not measure concealment. Similarly, previous research has found atheist group identification, the feeling of connectedness to other atheists, predicted less concealment and higher psychological well-being (Abbott & Mollen, 2018). Thus, the present study's findings are congruent with the past research examining atheism as a CSI. Further, given use of measures adapted for use with atheists in the past research, future CSI studies of atheists, particularly those testing a model including strength of atheist identification, concealment of atheist identity, and psychological well-being and/or distress associated with atheism-related discrimination, may benefit from using the AICS and other measures developed for use with nonreligious participants utilized in the current examination.

***Study Limitations***

Several noteworthy limitations existed in the current study. First, all the data were self-reported. As such, it is possible that the participants may have responded in socially desirable or expected ways. For example, participants may have over- or underreported their levels of concealment based on individual psychosocial pressures or perceived expectations. Second, samples were recruited via social media outlets, which may limit the generalizability of results, as social media users may differ from non-social media users on their interpretation of atheist identity concealment. The utilization of social media also requires respondents to self-select to participate. Therefore, results of the current study may not generalize as well to those who chose not to respond to the survey. On a similar note, the samples had a larger than expected percentage of nonheterosexual respondents. This presents a threat to the external validity (i.e., generalizability) of these results.

Internet access likely precluded participants who represented a broader sample of atheists. Furthermore, participants were recruited from groups specifically designed for participation by atheists. Atheists who actively engage in such groups may be less likely to conceal their atheist identity compared to atheists who do not engage in these types of social media groups.

***Future Directions***

Future research would benefit from a more diverse sample with more representation of minoritized racial groups, gender expansive, and sexually diverse participants. Similarly, an examination of differences in concealment, if any, based on social class is needed. Given the overrepresentation of White, heterosexual atheists in the present study, group

comparisons by race and sexual orientation must be interpreted with caution. However, man- and woman-identified participants were roughly equally represented in the current study, and women were more likely to conceal their atheist identity compared to men. Given that women are more likely to identify as religious than men (Schnabel, 2017) and men are more likely to identify as atheist (Mahlamaki, 2012), the finding that women in the current sample were more likely to conceal their atheist identity makes cogent sense and is an avenue for future researchers to explore further. Future studies of atheist concealment may center the experiences of woman atheists attending to the intersection of gender and nonfaith.

## Conclusion

The AICS is the first instrument to capture the experiences of concealment among three groups of self-identified atheists and other nonreligious participants. Previously, researchers interested in studying atheists' experiences with outness or concealment have most often adapted existing instruments that captured this construct among sexually marginalized people. Consistent with atheism as a CSI and the existing research that shows concealment is associated with decreased psychological wellness, the current study demonstrated theoretical and empirical support for the AICS. With initial psychometric soundness established across three studies with more than 500 participants, the AICS demonstrated early promise as an instrument that can be utilized by researchers and practitioners who work with atheists and other nonreligious people.

**Conflict of interest declaration** – The current study was conducted in compliance with ethical standards.

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