Sexual Orientation Self-Concept Ambiguity and Alcohol Use Disorder Symptomology: The Roles of Motivated Psychological Distancing and Drinking to Cope

DAVID W. HANCOCK, M.A.,^a AMELIA E. TALLEY, PH.D.,^{a,*} JENNIFER BOHANEK, PH.D.,^b MICAH D. ISERMAN, B.A.,^a & MOLLY IRELAND, PH.D.^a

^aDepartment of Psychological Sciences, Texas Tech University, Lubbock, Texas

^bDepartment of Psychological Sciences, University of Missouri, Columbia, Missouri

ABSTRACT. Objective: Women whose sexual identity is not exclusively heterosexual are at risk for alcohol use disorder (AUD) and problematic drinking. A textual analytic approach focusing on motivated psychological distancing in language style use was used to detect sexual minority women who are at greatest risk for an AUD. **Method:** Young adult women ($N = 254$) were asked to complete a self-report measure of sexual orientation self-concept ambiguity as well as free-write about their sexuality. In addition, they completed a questionnaire assessing AUD symptoms according to criteria from the *Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition*. The Linguistic Inquiry and Word Count (LIWC) program assessed language markers within participant-written essays that reflected acute states of aversive self-focus (i.e., fewer first-person pronouns, fewer present-tense verbs). **Results:** Drinking to cope with negative affectivity mediated the relationship

between sexual orientation self-concept ambiguity and AUD symptomology. This indirect effect was conditional, moderated by higher use of language reflecting motivated psychological distancing, such that the indirect effect was significant only for women whose writing included fewer instances of first-person pronouns and present-tense verbs ($-1 SD$) compared with those with greater instances of first-person pronouns and present-tense verbs ($+1 SD$), reflecting motivated psychological distancing. **Conclusions:** Sexual minority women are at an increased risk for AUD. Further, this study suggests mechanisms that may exacerbate the relationship between sexual identity uncertainty and problematic drinking. The study presents a novel method of identifying individuals most at risk for alcohol misuse: detecting aversive self-focus in language style and word choice. (*J. Stud. Alcohol Drugs*, 79, 96–101, 2018)

HEALTH DISPARITIES IN RATES OF alcohol misuse are apparent in national studies when comparing individuals who self-identify as exclusively heterosexual with those who self-identify with other sexual identity labels (e.g., gay/lesbian; McCabe et al., 2009). Alcohol use disparities are especially apparent among women, across a range of minority sexual identities, including those who self-identify as (a) mostly heterosexual (Hughes et al., 2015; Ziyadeh et al., 2007), (b) bisexual (Marshal et al., 2008; Newcomb et al., 2012), (c) gay/lesbian (McCabe et al., 2009; Newcomb et al., 2012), and (d) questioning/unsure (Ziyadeh et al., 2007). Studies have sought to examine identity-related characteristics believed to exacerbate or ameliorate alcohol use disparities based on a person's self-ascribed sexual identity (Marshal et al., 2008; Talley et al., 2014).

Sexual orientation self-concept ambiguity

An important identity-related characteristic that has been theorized to affect alcohol use is sexual orientation

self-concept ambiguity (SSA; Talley & Littlefield, 2014; Talley & Stevens, 2017), defined as the extent to which a person views aspects of their sexual orientation as ill-defined, incongruent, or transitory. SSA is an individual difference characteristic that requires self-awareness of incongruence or ambiguity among three primary facets of sexual orientation (self-identification, attraction, behavior) and may reflect difficulty integrating aspects of a marginalized sexual identity into the self-concept (Talley & Stevens, 2017).

Conversely, it may also reflect individuals' attempts to revise previous characterizations of their sexual orientation self-concept, particularly during active identity exploration, the initiation or dissolution of romantic relationships, or increasing awareness of changes in sexual attraction. Further, given that prior research shows that women experience sexual fluidity (Diamond, 2008), it may be that sexual self-concept ambiguity results from trying to conform experiences of sexual fluidity, or changes in sexual attractions, with societal demands of a sexual orientation binary.

Women who endorse higher levels of SSA (compared with low) report experiencing more frequent alcohol use disorder (AUD) symptomology (Talley et al., 2014). This effect persisted when adjusting for estimates of participants' self-reported sexual identity (e.g., bisexual, lesbian). The present study uses a theory-driven, textual-analytic approach to test whether the relation between SSA and risk of AUD

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*Correspondence may be sent to Amelia E. Talley at the Department of Psychological Sciences, Texas Tech University, Box 42051, Lubbock, TX 79409-2051, or via email at: amelia.talley@ttu.edu.

is explained, in part, by motivations to consume alcohol to alleviate negative affectivity, particularly among women for whom writing about sexuality appears to invoke distress and discomfort.

Negative/aversive self-focus

Talley and Littlefield (2014) theorize that acknowledgment of self-relevant discrepancies with regard to aspects of an individual's sexual orientation self-concept can lead to heightened distress and aversive self-focus. Indeed, Meyer (2003) hypothesized that individuals who are unable to adequately integrate their sexual orientation identity into their larger self-concept are at risk for psychosocial stress. An integrated sexual identity is believed to be desirable for positive identity development (Eliason, 1996; Quinn & Earnshaw, 2011). One implication is that individuals who are higher in SSA might be likely to experience greater levels of psychological distress in general.

Previous work, using this same data set, has indeed shown positive relations between women's levels of SSA and depression and anxiety symptoms (Talley & Stevens, 2017). Based on previous theorizing (Talley & Littlefield, 2014), women who report heightened SSA are believed to misuse alcohol as a means to alleviate negative self-focus. Affect regulation (Sher & Grekin, 2007) and escape (Cooper et al., 1995) theories of alcohol use explicate the motivating value of alcohol consumption as a means to ameliorate negative emotionality, particularly negative self-focus. Work by Hull (1981) and others (Hull et al., 1983) suggests that alcohol can serve as a source of psychological relief for states of negative self-focus. Previous empirical data have supported that drinking-to-cope motivations mediate the association between sexual orientation stress and alcohol-related disparities (Hatzenbuehler et al., 2011). Our theoretical assertion, that sexual minority women experiencing heightened ambiguity with regard to their sexual orientation may be at risk for alcohol-related disparities because of motivations to consume alcohol as a means to alleviate distress, has yet to be tested.

Work by McAdams (2001) suggests that individuals construct self-identity as a narrative process; thus, an examination of textual narratives of sexuality may help explain sexual identity ambiguity. States of negative self-focus may be reflected implicitly in the relatively spontaneous language used in expressive writing of self-focused topics. Previous work has supported that people naturally self-distance in response to negative self-focus, reflected in writing containing a lower proportion of first-person pronouns (e.g., I, me, my, mine) and a lower proportion of verbs in the present tense (Kross & Ayduk, 2011; for a review, see Tausczik & Pennebaker, 2010). Accordingly, we tested potential moderating effects to examine whether the indirect effect between SSA and AUD symptomology via motivations to drink to cope

FIGURE 1. Conceptual diagram of the proposed moderated mediation, wherein drinking to cope mediates the relationship between sexual orientation self-concept ambiguity (SSA) and alcohol use disorder (AUD) symptoms, in which mediation is moderated by language style markers (LSM) of first-person pronoun usage and present-tense verb usage

was conditional on the use of language indicating discomfort or distress with one's sexuality.

Current study

The present study sought to test a novel hypothesis to identify a subpopulation of women who may be at higher risk for an AUD. Specifically, the current research sought to determine whether women whose expressive writing contained indicators of motivated psychological distancing (e.g., fewer first-person pronouns and present-tense verbs) would evidence more robust indirect effects between SSA scores and AUD symptom counts as explained via drinking-to-cope motives. Based on recent theorizing (Talley & Littlefield, 2014), we hypothesized that the indirect effect of sexual self-concept ambiguity (the independent variable) on AUD symptomology (the dependent variable) through drinking to cope with negative affectivity (a mediator) would be conditional. Specifically, we expected that the indirect effect of the mediator would be significant only for those whose language contained indicators of psychological distancing (a moderator, see Figure 1, i.e., moderated mediation; Preacher et al., 2007). Thus, language style (moderator) is predicted to moderate the path from SSA (independent variable) to drinking to cope (mediator) as well as the path between SSA (independent variable) and AUD symptomology (dependent variable).

Method

Participants

Women were young adults recruited from a large mid-western public university and the community surrounding the university ($N = 254$) as part of a larger study on sexuality and alcohol use. The writing prompt was included at the end of the online self-administered survey and explicitly described as optional.

Procedure

Participants were pre-screened by phone to determine eligibility for the study. Eligible participants completed an emailed 2-hour online survey and were compensated with a \$25 Amazon gift card. All procedures were run in accordance with local institutional review board policies and procedures.

Measures

Sexual orientation self-concept ambiguity (SSA) scale. The SSA scale (Talley & Stevens, 2017) was adapted from Campbell and colleagues' (1996) Self-Concept Clarity Scale. The SSA scale contains 10 items and uses Likert-type response options, ranging from 1 (*strongly disagree*) to 4 (*strongly agree*) ($\alpha = .95$). Higher scores reflect increased ambiguity.

Drinking Motives Questionnaire. The Drinking Motives Questionnaire is a 20-item Likert-style measure that assesses individuals' motivations to consume alcohol (Cooper, 1994). The scale contains four subscales: social, coping, enhancement, and conformity. The current hypotheses and analyses pertain to the coping subscale (five items, $\alpha = .88$).

Alcohol use disorder symptomatology. Items adapted from the Young Adult Alcohol Problems Screening Test (Hurlbut & Sher, 1992) were used to calculate whether participants had experienced each of nine AUD symptoms according to criteria from the *Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition* (DSM-5; American Psychiatric Association, 2013), in the previous 12 months. The response scale ranged from *never* to *40 or more times* in the past year. Only symptoms endorsed in the past year were included in a count of DSM-5 AUD symptoms.

Participant feelings about sexuality.

(A) *WRITING PROMPT:* All participants were asked to respond to the following writing prompt: "Describe the feelings that come to mind when you think about your own sexuality" and "Describe how you think your sexuality has developed over time." Participants were given unlimited time to respond, with a minimum of 2 minutes required to pass before participants were able to advance to the next screen (word count: $M = 82.63$, $SD = 69.75$). These prompts were adapted from other salience manipulations (Greenberg et al., 1994).

(B) *LINGUISTIC INQUIRY AND WORD COUNT (LIWC):* LIWC2007 (Pennebaker et al., 2007) was used to analyze the content of the essays responding to the writing prompts. The program categorizes words using internal dictionaries and returns the percentage of total words used in each category for each participant. Relevant outcomes, indicative of psychological distancing (e.g., Sutin & Robins, 2008; Tausczik & Pennebaker, 2010), were calculated as follows:

$$\text{First person} = (I + \text{We}) - (\text{You} + \text{She/He} + \text{They}) \quad (1)$$

$$\text{Present tense} = \text{Count of active, present tense verbs} \quad (2)$$

Data analytic plan

Poisson regression, with a full maximum likelihood estimator, was used to examine hypothesized predictors of a count of AUD symptoms in the prior year. To test the conditional indirect effects, analyses were run in MPlus (Muthén & Muthén, 2015). Because we are testing interactions with latent variables, the integration algorithm was used and no standardized values were given by MPlus. Effect sizes reported herein result from the exponentiation of model-derived unstandardized estimates. Respondent ethnic/racial minority status, age, and sexual identity were included as covariates given known differences in alcohol consumption.

Results

Descriptive results

Participant characteristics are displayed in Table 1. Participants were generally young, White women, with some degree of SSA. In addition, two participants' AUD scores were recoded from nine symptoms to eight symptoms because the scores were shown to be univariate outliers at three standard deviations above the sample mean.

SSA and AUD symptoms moderated-mediation

Recall that the hypothesized model predicted mediation between SSA and AUD symptoms via drinking-to-cope motives, and that this indirect effect would be moderated by language-style markers indicative of psychological distancing (Figure 1). All manifest SSA items were specified as categorical in the latent variable model, and the latent factor was constrained to have a variance of 1. Drinking-to-cope motives were included as a manifest indicator, which was the average of the five scale items. The values of the psychological distancing language variables, for the conditional indirect effect, were computed at 1 *SD*. The statistical model is presented in Figure 2. Results are reported simultaneously for both pronoun use and present-tense language use given the similar pattern of effects. The indirect effects of the model were significant for women who used fewer (-1 *SD*) present-tense verbs and for women who used fewer personal pronouns, respectively. The indirect effects (IE) of the models were less robust among women who used more ($+1$ *SD*) present-tense verbs (IE = .06, odds ratio = 1.06, $SE = .03$, $p = .08$) and personal pronouns (IE = .06, odds ratio = 1.06, $SE = .04$, $p = .08$). Results suggest that the relationship between SSA and AUD symptoms is mediated by drinking-to-cope motives, such that this relationship is explained, in

TABLE 1. Primary sample characteristics

Variable	<i>n</i>	<i>M</i>	<i>SD</i>	Range	Correlations							
					1.	2.	3.	4.	5.	6.	7.	8.
1. Age	254	20.82	2.78	18.0-30.0	1							
2. SSA	253	1.46	0.66	1.0-4.0	.07	1						
3. Drinking to cope	253	2.40	1.05	1.0-5.0	.04	.14*	1					
4. First-person pronouns	253	13.21	5.08	-4.4-28.6	-.11	-.18**	-.12*	1				
5. Present-tense verbs	253	11.97	5.15	0-33.3	-.10	-.18**	-.08	.35**	1			
6. DSM-5 AUD symptoms	253	2.52	2.07	0-8.0	-.07	.11	.45**	-.03	.04	1		
	<i>n</i>	%										
7. Race ^a	253											
White		86.66										
Black/African American		8.63										
Asian		5.10										
Hispanic		4.00										
American Indian/Alaskan Native		1.96										
8. Sexual identity	254				.15*	.52**	-.01	-.12	-.21**	0	-.01	1
Exclusively heterosexual		61.4										
Primarily heterosexual		22.4										
Bisexual		9.1										
Primarily gay/lesbian		3.5										
Exclusively gay/lesbian		3.5										

Notes: Spearman correlation coefficients are presented due to nonnormal variable distributions. ^aParticipants were able to select more than one race, so percentages exceed 100%. SSA = Sexual Self-concept Ambiguity scale score; DSM-5 = *Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition*; AUD = alcohol use disorder.

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

part, by individuals using alcohol to cope with distressing life events. Further, this mediated effect is stronger among women whose language contained indicators of psychological distancing.

Discussion

Results suggest that SSA is a significant identity-related contributor to risk of alcohol misuse among young adult women, such that the more ambiguity women acknowledge about aspects of their sexual orientation, the greater their risk of reporting elevations in AUD symptomology. Further, this study provides initial evidence of textual analysis as a means to identify women who, based on their use of language with indicators of psychological distancing, may be at elevated risk for alcohol misuse because of motivations to drink to cope with distress.

Consistent with prior literature (Hull, 1981), we showed initial evidence that, among women who report heightened levels of sexual self-concept ambiguity, evocations of aversive self-focus, as a consequence of feelings of ambiguity and reflected in fewer self-references and less present-tense writing, may potentiate risk of alcohol misuse, through drinking-to-cope motives.

Implications

Assessing individuals' level of aversive self-focus is difficult because people may be unable to accurately report on defensive processes that likely occur outside of conscious

awareness (Cramer, 2000) and are influenced by social desirability (Fisher, 1993). By contrast, language style (or function word) choices are argued to be less controllable (Tausczik & Pennebaker, 2010). Tausczik and Pennebaker (2010) have argued that these language style outcomes reflect motivated distancing. Therefore, the present research presents a novel method to identify at-risk populations: a short essay on one's sexuality and its development over time, which can be easily collected and examined to help clinicians identify young adult clients at risk for alcohol misuse. Further, the present research suggests that individuals with an ambiguous sexual orientation are a unique subgroup, independent of sexual minority individuals as a whole, indicating the need for stronger (more tailored) interventions to improve health and well-being.

Limitations and future directions

The present study was a secondary analysis of written sexuality self-descriptions. Data came from a cross-sectional correlational design, so information about the causal relations among key variables was indeterminable. Future research should attempt to manipulate negative self-focus in an experimental paradigm to triangulate on the causal roles of identity-related characteristics, such as SSA, in alcohol misuse.

Future research should also attempt to disentangle the influence of general predispositions to experience aversive self-focus from aversive self-focus that is precipitated by identity-related characteristics of one's sexual orientation.

FIGURE 2. Moderated-mediation model. LSM = language style markers; int. = interaction term between language style markers and sexual orientation self-concept ambiguity (SSA); AUD = alcohol use disorder. First terms are for model with moderator of personal pronouns, second for model with present-tense verbs. **Bolded** estimates are significant at $p < .05$. Indirect effects = 0.046/0.057, odds ratio = 1.05/1.06, $p = .038/.023$, 95% CI [0.003, 0.089/0.008, 0.106].

There are likely to be additional individual difference factors that moderate the association between sexual identity ambiguity and risk of AUD. For example, how central one's sexual identity is to one's overall self-concept may be an important additional moderator (Chaudoir et al., 2013). Furthermore, the present study relied on a sample of women in young adulthood. The relations between SSA and alcohol misuse may be distinct for men, vary based on gender identity, or differ for individuals at various developmental life stages. Future research might investigate additional qualitative details in such narratives surrounding issues of sexual identity, acceptance, and cultural norms to identify persons at greatest risk for substance misuse. Finally, the results of this study may be used to inform future, community-based interventions focused on reducing feelings of sexual orientation ambiguity.

Conclusion

Our findings provide evidence that feelings of ambiguity regarding aspects of one's sexual orientation do appear to increase risk of AUD symptomology. Moreover, this direct relationship appears to be explained, in part, by elevated motivations to drink to cope with negative emotions, particu-

larly for a subgroup of young adult women who experience negative self-focus in response to topics surrounding their sexuality.

These findings also provide support for an alternative approach in the assessment of aversive self-focus; text-based analysis showed that use of distancing language increased risk of alcohol misuse among women with elevated levels of SSA. In conjunction with other reliable and validated self-report assessments, textual analysis may prove to be a complementary behavior-based tool for unobtrusively identifying young adult women who are at an increased risk for AUDs because of identity-related stressors. In addition, the effectiveness of expressive writing interventions, which are intended to alleviate the deleterious impacts of identity-related stress in sexual minority individuals (e.g., Lewis et al., 2005; Pachankis & Goldfried, 2010), may prove fruitful for reducing alcohol misuse that is motivated by cognitive escape or distancing from sexual identity-related stress (e.g., McKirnan & Peterson, 1988).

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