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# Heterocentric Language in Commonly Used Measures of Social Anxiety: Recommended Alternate Wording

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## Abstract

A number of self-report measures of social anxiety contain language that appears to assume heterosexuality. It is unclear how such items should be answered by individuals who are not exclusively heterosexual, which may lead to inaccurate measurement of symptoms, perpetuation of stigma, and alienation of respondents. More specific wording could improve measurement accuracy for sexual minorities as well as heterosexual respondents. Gender-neutral wording was developed for items containing the phrase “opposite sex” in commonly used self-report measures of social anxiety (Interaction Anxiousness Scale [Leary, 1983], Social Avoidance and Distress Scale [Watson & Friend, 1969], Social Interaction Anxiety Scale [Mattick & Clarke, 1998], and Social Phobia and Anxiety Inventory [Turner, Beidel, Dancu, & Stanley, 1989]). Undergraduate college students ( $N = 405$ ; mean age = 19.88,  $SD = 2.05$ ) completed measures containing original and revised items. Overall, results indicated that the alternate-worded items demonstrated equivalent or slightly stronger psychometric properties compared to original items. Select alternate-worded items are recommended for clinical and research use, and directions for future research are recommended.

**Keywords:** bisexual, gay, lesbian, measurement, social anxiety disorder

A number of widely used self-report measures for the assessment of social anxiety that have good psychometric properties are flawed by heterocentric language that assumes heterosexuality, thereby limiting their appropriateness in contemporary clinical and research

settings. For example, a common social situation assessed in measures of social anxiety involves various interactions with members of the *opposite sex*. As written, these items appear to make an implicit assumption that the individual completing the measure is attracted to the opposite sex. This assumption is not valid for individuals who identify as lesbian or gay and is insufficient for individuals who are not exclusively attracted to the opposite sex, including individuals who identify as bisexual and individuals who identify as “mostly heterosexual” (e.g., Vrangalova & Savin-Williams, 2012), collectively referred to as sexual minorities. Use of such items may fail to capture anxiety as intended among respondents who are not attracted, or not attracted exclusively, to persons of the opposite sex. Additionally, “opposite sex” assumes that gender is binary, whereas more recent conceptualizations of gender are more nuanced (Muehlenhard & Peterson, 2011). At a minimum, these items require such respondents to reinterpret the meaning of the items if they are to measure dating anxiety, but it is unknown whether such reinterpretations occur.

Furthermore, the use of the term “opposite sex” may be unclear even for heterosexual respondents. Items assessing “interactions with the opposite sex” could have been included in measures to address interactions with people to whom one is attracted or with whom one wishes to be in a romantic relationship or simply to indicate an identifiable group of people who may share a quality that makes interactions more or less anxiety provoking. Examination of the original articles for the development of social anxiety measures containing heterocentric language finds either no explicit mention of the intent of such items or broad references to the intent to assess dating anxiety (e.g., Leary, 1983). Given the heterogeneity of situations feared by socially anxious individuals (Holt, Heimberg, Hope, & Liebowitz, 1992), strong content validity requires that measures assess multiple domains. Anxiety in dating situations is a key domain to cover because individuals with social anxiety disorder tend to marry later than nonanxious individuals (e.g., Kessler, 2003), and dating anxiety is often a focus of treatment (Hope, Heimberg, & Turk, 2010). The measures with heterocentric language do not have other items that focus on dating anxiety. Thus, whether explicitly stated in published reports or not, we believe the authors intended to assess dating anxiety. The choice of wording simply reflected social convention at the time the measures were developed.

In addition to the measurement issues described above, the heterocentric nature of the language used in some measures of social anxiety presents more nuanced problems. As defined by Herek (2004), heterosexism is “the cultural ideology that perpetuates sexual stigma by denying and denigrating any nonheterosexual form of behavior, identity, relationship, or community” (p. 16) and is ingrained in cultural institutions, including language and law. Particularly relevant to the present work, Herek argued that heterosexism is perpetuated by maintaining the *invisibility* of nonheterosexual people, relationships, and communities. Thus, the use of heterocentric language in psychological measures results in the perpetuation of heterosexism prevalent in most cultures. To combat heterosexism, the American Psychological Association (2011) recommends that clinicians avoid making assumptions that a client is heterosexual, even “in the presence of apparent markers of heterosexuality (e.g., marital status, parenthood, etc.)” (p. 3). Furthermore, in the widely used *Publication Manual of the American Psychological Association* (American Psychological Association, 2009), researchers are urged to avoid using biased language in scientific writing

and “perpetuating demeaning attitudes and biased assumptions about people in their writing” (pp. 70–71).

Finally, the use of noninclusive language may create practical problems as well. Such language may alienate respondents who do not identify as heterosexual, damaging therapeutic rapport and/or decreasing compliance of research participants. For example, we have had participants refuse to complete items containing reference to the *opposite sex*, making a total scale score impossible to compute.

Some researchers have rewritten items on questionnaires on an ad hoc basis for a given study (e.g., Pachankis & Goldfried, 2006; Safren & Pantalone, 2006), but no one has completed rigorous psychometric evaluation of these changes. The goal of the present study was to develop and test alternate wording on commonly used self-report measures of social anxiety that appear to assume heterosexuality. To determine whether items revised to include gender-neutral language demonstrate equivalent psychometric properties as original items, we administered original and newly worded items to a large, unselected sample of participants. We expected that alternate wordings of these items would produce equivalent psychometric properties, but that, because the language is more clearly defined (e.g., “people I’m attracted to” is more precise than “members of the opposite sex”) compared to the original wording, alternate wording may be stronger in psychometric analyses.

## Method

### *Participants*

Participants were 405 undergraduate students at the University of Nebraska–Lincoln, recruited from the psychology department’s subject pool to participate in a study examining different wordings of questions regarding anxiety in social situations. The sample consisted of 246 (60.7%) women, 157 (38.8%) men, 2 (0.5%) declined to answer, and no one indicated transgender. Mean age was 19.88 ( $SD = 2.50$ ). Most participants self-identified as heterosexual ( $N = 388$  or 95.8%); 6 (1.5%) indicated lesbian/gay, 6 (1.5%) bisexual, and 5 (1.2%) declined to answer. No participants chose an “Other” category for sexual orientation. Ethnic distribution was as follows: 289 (71.4%) European American, 18 (4.4%) Hispanic, 16 (4.0%) Asian/Pacific Islander, 15 (3.7%) African American, 13 (3.2%) Asian American, 2 (0.5%) Native American/Eskimo, 30 (7.4%) checked an “Other” option, 13 (3.2%) indicated two or more categories, and 9 (2.2%) declined to answer.

### *Measures*

Empirically based self-report measures for the assessment of anxiety that contained the wording “opposite sex” or other language that appears to assume heterosexuality were considered. In addition to reviewing all measures listed in *Practitioner’s Guide to Empirically Based Measures of Anxiety* (Antony, Orsillo, & Roemer, 2001), measures frequently used in the research literature were identified in searches using PsychInfo. Although measures for all anxiety disorders were examined, only measures designed for the assessment of social anxiety disorder were found to contain heterocentric language. Measures for other anxiety disorders contain questions that assess interference with relationships but do not specify

gender of the other person in the relationship. This review yielded the four measures described below.<sup>1</sup>

*Social Interaction and Anxiety Scale (SIAS)*

The SIAS (Mattick & Clarke, 1998) was developed as a comprehensive measure of anxiety in social interactions. The measure contains 20 statements (e.g., "I get nervous if I have to speak with someone in authority") to which respondents rate the degree to which each is characteristic or true of them on a 6-point Likert scale (where 0 = *not at all* and 5 = *extremely*). One item was considered for rewording: "I have difficulty talking to attractive persons of the opposite sex."

*Interaction Anxiousness Scale (IAS)*

The IAS (Leary, 1983) was designed to measure the affective component of social discomfort, independent of inhibited, reticent, or avoidant behavior. Covering a broad range of social situations, such as parties, job interviews, dealing with authority figures, and telephone conversations, the IAS consists of 15 statements (e.g., "Parties often make me feel anxious and uncomfortable"), rated on a scale of 1 (*not at all characteristic of me*) to 5 (*extremely characteristic of me*). Three items were considered for rewording: "I am usually at ease when speaking to a member of the opposite sex" (reverse scored), "I often feel nervous when talking to an attractive member of the opposite sex," and "I sometimes feel tense when talking to people of my own sex if I don't know them very well." Sexual orientation of the respondent is most relevant with the second item. The other two items could be influenced by whether the individuals are potential dating partners or not but could also refer to opposite/same sex as an identifiable group of people.

*Social Phobia and Anxiety Inventory (SPAI)*

The SPAI (Turner, Beidel, Dancu, & Stanley, 1989) is a 32-item self-report measure designed to assess anxiety and avoidance in a number of social situations as well as cognitions and somatic symptoms occurring prior to and during such situations. Of the 32 items, 17 items use stem questions (e.g., "I feel anxious when approaching and/or initiating a conversation with . . ."), followed by the phrases completing the stem, which indicate four types of people (e.g., "strangers," "authority figures," "opposite sex," and "people in general"). Responses are rated on 7-point Likert scales ranging from 1 (*never*) to 7 (*always*). Because of the format, "opposite sex" appears in 17 items. See Table 2 for wording on the items included in this study.

*Social Avoidance and Distress Scale (SADS)*

The SADS (Watson & Friend, 1969) is a self-report measure assessing distress and discomfort experienced during and avoidance of social situations. It consists of 28 statements (e.g., "I try to avoid situations that force me to be very sociable"), and respondents indicate whether the statement is true or false about themselves. One item was considered for rewording: "I am usually at ease when talking to someone of the opposite sex" (reverse scored).

*Brief Fear of Negative Evaluation (BFNE)*

The BFNE (Leary, 1983) is a 12-item measure assessing the extent to which respondents worry about others having an unfavorable view of them. Items are rated on a scale of 1 (*not at all characteristic of me*) to 5 (*extremely characteristic of me*). It has demonstrated good internal consistency in a nonclinical population ( $\alpha = .80$ ) and excellent internal consistency in a clinical population ( $\alpha = .97$ ), as well as strong construct, convergent, and discriminant validity (Collins, Westra, Dozios, & Stewart, 2005; Duke, Krishnan, Faith, & Storch, 2006). However, some analyses have revealed that reverse-scored items are less related to theoretically similar constructs than non-reverse-scored items (Rodebaugh et al., 2004; Weeks et al., 2005). The BFNE does not contain any items with heterocentric language but was used to assess convergent validity.

*Procedure*

Participants completed a battery of questionnaires, including the IAS, SIAS, SPAI, SADS, and BFNE. Several potential alternate items were generated by the first and second author in collaboration with clinical psychology doctoral students who were familiar with social anxiety disorder. Alternate wording was intended to be gender neutral and reflect our hypotheses regarding the intended nature of the items. See Table 1 for original and alternative items for each measure. Order of the measures was counterbalanced to control for order effects. New items were interspersed throughout the measure in a fixed order, and each measure included both original and new items.

**Results**

Analyses were conducted in two steps. First, alternate item wordings were evaluated for equivalence with original wording using dependent samples *t* tests comparing original and proposed items and total scale scores calculated with original and proposed items. Also, correlations between original and proposed items were calculated for individual items and for scale totals. Next, preliminary psychometric characteristics of the selected alternate wordings were examined using confirmatory factor analysis to evaluate stability of the factor structure and correlation with the BFNE to evaluate convergent validity.

**Table 1.** Means, Standard Deviations, Zero-Order Correlations, and Mean Differences for Alternate-Worded Items

Measure	Item	<i>M</i> ( <i>SD</i> )	<i>r</i>	<i>t</i>	<i>df</i>	<i>p</i>
SIAS	"I have difficulty talking to attractive persons of the opposite sex."	1.21 (1.05)				
	Someone I'm attracted to	1.47 (1.08)	.76	7.05	403	< .001
	Someone I could date	1.24 (1.06)	.73	.84	400	.399
	An attractive person	1.18 (1.03)	.84	1.37	401	.17
	A potential romantic partner	1.21 (1.04)	.78	.07	404	.942
IAS	"I am usually at ease when speaking to a member of the opposite sex."	2.54 (1.04)				
	Someone I'm attracted to	2.87 (1.01)	.66	8.26	401	< .001
	Someone I could date	2.79 (1.05)	.59	5.18	401	< .001
	An attractive person	2.82 (1.04)	.66	6.58	403	< .001
	A potential romantic partner	2.87 (1.08)	.60	6.78	399	< .001
	"I often feel nervous when talking to an attractive member of the opposite sex."	2.49 (1.10)				
	A potential romantic dating partner	2.60 (1.08)	.55	2.03	398	.043
	Someone I'm attracted to	2.55 (1.02)	.71	1.36	399	.176
	Someone I could date	2.50 (.99)	.65	.34	398	.734
	An attractive person	2.40 (.99)	.73	2.46	400	.014
	"I sometimes feel tense when talking to people of my own sex, if I don't know them very well."	2.30 (1.07)				
	People I don't know very well, even if I wouldn't be interested in dating them	2.36 (.99)	.42	1.17	402	.244
	SPAI	"Opposite sex" [stem used for items 9 to 25]	2.86 (1.49)			
People I'm attracted to		3.04 (1.56)	.81	3.72	400-404	< .001-.95
People I could date		3.09 (1.55)	.79	4.59	401-404	< .001-.93
Attractive people		2.93 (1.55)	.82	1.52	401-404	.04-.96
Potential romantic partners		3.15 (1.60)	.81	6.10	400-404	< .001-.69
SADS	"I am usually at ease when talking to someone of the opposite sex."	.19 (.39)				
	Someone I'm attracted to	.30 (.46)	.56	5.80	403	< .001
	Someone I could date	.28 (.45)	.61	4.96	401	< .001
	An attractive person	.28 (.45)	.61	5.05	402	< .001
	A potential romantic partner	.28 (.45)	.53	4.50	401	< .001

**Note:** Original items are in quotes. Means, standard deviations, and mean differences for the SPAI are averaged across items; correlations are between original and alternate wording of items. SIAS = Social Interaction and Anxiety Scale; IAS = Interaction Anxiety Scale; SPAI = Social Phobia and Anxiety Inventory; SADS = Social Avoidance and Distress Scale.

**Alternative Item Selection***Mean Differences for Items*

Mean differences between original wording and alternate wording of items are presented in Table 1. For the SIAS, the only alternate wording that resulted in a significantly different item mean compared with the original item was “someone I’m attracted to.” Three items of the IAS were evaluated. For the first item (“opposite sex”), each of the alternate wordings resulted in means that significantly differed from the mean of the original item; the alternate wording, “someone I could date,” resulted in the mean closest to the mean of the original item, though the difference was larger than observed with the other measures. For the second item (“an attractive member of the opposite sex”), two alternate wordings (“someone I could date” and “someone I’m attracted to”) resulted in means that did not significantly differ from the mean of the original item. For the third item (“people of my own sex, if I don’t know them very well”), only one alternate wording (“people I don’t know very well, even if I wouldn’t be interested in dating them”) was evaluated, which resulted in a mean that was not significantly different from the mean of the original item. Results were inconsistent for the SPAI depending on the item, but “attractive people” was the only alternate wording to result in item means that did not significantly differ from original item means for each item (see Table 2). Each of the alternate wordings for the SADS resulted in significantly different means compared to the original item wording.

**Table 2.** SPAI Means, Standard Deviations, and Mean Differences for Alternate Wording Compared to Original Wording

Item	Item	<i>M (SD)</i>	<i>f</i>	<i>t</i>	<i>df</i>	<i>p</i>
9	“I feel anxious when in a small gathering with . . .”					
	“Opposite sex”	2.86 (1.49)				
	People I’m attracted to	3.04 (1.56)	0.811	3.72	402	< .001
	People I could date	3.09 (1.55)	0.789	4.59	402	< .001
	Attractive people	2.93 (1.55)	0.818	1.52	403	0.13
10	Potential romantic partners	3.15 (1.6)	0.814	6.1	402	< .001
	“I feel anxious when in large gatherings with . . .”					
	“Opposite sex”	2.7 (1.45)				
	People I’m attracted to	2.88 (1.46)	.778	3.69	402	< .001
	People I could date	2.9 (1.5)	.752	3.99	402	< .001
	Attractive people	2.79 (1.55)	.776	1.87	404	0.062
	Potential romantic partners	2.99 (1.58)	.749	5.31	403	< .001

Table 2 continued

Item	Item	<i>M</i> ( <i>SD</i> )	<i>f</i>	<i>t</i>	<i>df</i>	<i>p</i>
11	"I feel anxious when in a bar or restaurant with . . ."					
	"Opposite sex"	2.47 (1.41)				
	People I am attracted to	2.64 (1.47)	.824	3.82	404	.001
	People I could date	2.74 (1.49)	.787	5.45	403	< .001
	Attractive people	2.55 (1.46)	.809	1.74	404	0.084
	Potential romantic partners	1.81 (1.55)	.805	7.09	403	< .001
12	"I feel anxious and I do not know what to do when in a new situation with . . ."					
	"Opposite sex"	3.04 (1.54)				
	People I'm attracted to	3.19 (1.61)	.841	3.47	402	.001
	People I could date	3.27 (1.58)	.847	5.42	403	< .001
	Attractive people	3.09 (1.59)	.877	1.47	404	.144
	Potential romantic partners	3.34 (1.61)	.841	6.87	403	< .001
13	"I feel anxious and I do not know what to do when in a situation involving confrontation with . . ."					
	"Opposite sex"	3.52 (1.58)				
	People I'm attracted to	3.61 (1.67)	.791	1.75	402	.081
	People I could date	3.72 (1.67)	.804	3.87	401	< .001
	Attractive people	3.47 (1.64)	.835	1.13	402	.259
	Potential romantic partners	3.79 (1.72)	.782	4.95	401	< .001
14	"I feel anxious and I do not know what to do when in an embarrassing situation with . . ."					
	"Opposite sex"	4.35 (1.65)				
	People I'm attracted to	4.49 (1.67)	.822	2.91	404	.004
	People I could date	4.6 (1.68)	.835	5.1	403	< .001
	Attractive people	4.25 (1.76)	.849	2.11	404	.036
	Potential romantic partners	4.61 (1.7)	.821	5.1	403	< .001
15	"I feel anxious discussing intimate feelings with . . ."					
	"Opposite sex"	4.14 (1.72)				
	People I'm attracted to	4.39 (1.79)	.796	4.56	403	< .001
	People I could date	4.41 (1.79)	.775	4.66	401	< .001
	Attractive people	4.18 (1.73)	.753	.66	402	0.51
	Potential romantic partners	4.45 (1.82)	.724	4.62	401	< .001
16	"I feel anxious when stating an opinion to . . ."					
	"Opposite sex"	2.92 (1.46)				
	People I'm attracted to	3.04 (1.51)	.817	2.72	402	.007
	People I could date	3.08 (1.53)	.823	3.74	403	< .001
	Attractive people	2.91 (1.46)	.832	.24	402	.814
	Potential romantic partners	3.1 (1.54)	.807	3.88	403	< .001

Table 2 continued

Item	Item	<i>M</i> ( <i>SD</i> )	<i>f</i>	<i>t</i>	<i>df</i>	<i>p</i>
17	"I feel anxious when talking about business with . . ."					
	"Opposite sex"	2.54 (1.36)				
	People I'm attracted to	2.57 (1.38)	.809	.59	401	.556
	People I could date	2.59 (1.38)	.82	1.15	401	.251
	Attractive people	2.49 (1.35)	.832	1.4	401	.163
	Potential romantic partners	2.64 (1.45)	.817	2.28	401	.023
18	"I feel anxious when approaching and/or initiating a conversation with . . ."					
	"Opposite sex"	3.58 (1.7)				
	People I'm attracted to	3.78 (1.74)	.796	3.7	404	< .001
	People I could date	3.79 (1.73)	.81	3.997	404	< .001
	Attractive people	3.59 (1.75)	.824	0.29	404	.771
	Potential romantic partners	3.81 (1.79)	.767	3.84	404	< .001
19	"I feel anxious when having to interact for longer than a few minutes with . . ."					
	"Opposite sex"	3.01 (1.61)				
	People I'm attracted to	3.11 (1.63)	0.785	1.97	404	.05
	People I could date	3.1 (1.65)	0.802	1.84	404	.066
	Attractive people	3.03 (1.69)	0.841	0.48	403	.633
	Potential romantic partners	3.12 (1.71)	0.768	2.11	403	.035
20	"I feel anxious when drinking (any type of beverage) and/or eating in front of . . ."					
	"Opposite sex"	2.91 (1.76)				
	People I'm attracted to	3.06 (1.81)	0.873	3.26	403	.001
	People I could date	3.13 (1.85)	0.886	5.12	403	< .001
	Attractive people	2.91 (1.81)	0.867	0.05	403	.957
	Potential romantic partners	3.15 (1.9)	0.885	5.38	403	< .001
21	"I feel anxious when writing or typing in front of . . ."					
	"Opposite sex"	1.79 (1.26)				
	People I'm attracted to	1.82 (1.28)	0.851	0.87	401	.387
	People I could date	1.82 (1.29)	0.886	0.9	401	.368
	Attractive people	1.83 (1.33)	0.91	1.54	401	.125
	Potential romantic partners	1.85 (1.36)	0.83	1.56	401	.12
22	"I feel anxious when speaking in front of . . ."					
	"Opposite sex"	3.89 (1.81)				
	People I'm attracted to	4.05 (1.81)	0.871	3.36	401	.001
	People I could date	4.06 (1.78)	0.875	3.72	401	< .001
	Attractive people	3.91 (1.81)	0.901	0.37	401	.71
	Potential romantic partners	4.1 (1.8)	0.813	3.66	401	< .001

Table 2 continued

Item	Item	<i>M</i> ( <i>SD</i> )	<i>f</i>	<i>t</i>	<i>df</i>	<i>p</i>
23	"I feel anxious when being criticized or rejected by . . ."					
	"Opposite sex"	4.73 (1.72)				
	People I'm attracted to	4.97 (1.67)	0.823	4.75	400	< .001
	People I could date	5.02 (1.66)	0.821	5.61	401	< .001
	Attractive people	4.64 (1.79)	0.826	1.78	401	.075
24	Potential romantic partners	5.03 (1.7)	0.787	5.27	401	< .001
	"I attempt to avoid social situations where there are . . ."					
	"Opposite sex"	1.75 (1.11)				
	People I'm attracted to	1.75 (1.12)	0.787	0.07	400	.945
	People I could date	1.78 (1.12)	0.797	0.63	400	.528
25	Attractive people	1.8 (1.18)	0.852	1.51	400	.132
	Potential romantic partners	1.78 (1.18)	0.822	0.65	400	.513
	"I leave social situations where there are . . ."					
	"Opposite sex"	1.53 (0.92)				
	People I'm attracted to	1.5 (0.93)	0.864	1.03	401	.303
	People I could date	1.53 (1.00)	0.828	0.09	401	.93
	Attractive people	1.55 (1.02)	0.86	0.86	401	.389
	Potential romantic partners	1.54 (1.02)	0.797	0.4	400	.69

**Note:** Original items are in quotes. SPAI = Social Phobia and Anxiety Inventory.

#### *Mean Differences for Total Scores*

Mean differences between total scores using original or alternate item wording are presented in Table 3. For the SIAS, only the alternate wording, "someone I'm attracted to," yielded a total score mean that significantly differed from the total score mean using the original item wording. Each of the alternate item wordings for the IAS and SADS yielded total scores that were significantly different from the total score mean using the original item, and total score means for alternate items were virtually identical to each other. For the SPAI, "attractive people" was the only alternate wording that resulted in a total score mean that did not significantly differ from the total score mean using the original item.

#### *Zero-Order Correlations between Original and New Items and Total Scores*

Zero-order correlations were calculated between original and alternate items for each scale (see Table 3). Correlations between original and alternate items were strong for the SIAS and SPAI, moderate for the SADS, and weak to moderate for the IAS. Surprisingly, the strongest correlations between original and alternate items did not correspond with alternate items that had a mean closest to the mean of the original item for the SIAS, and IAS; however, this correspondence was observed with the alternate wording, "attractive people," for the SPAI. Zero-order correlations between total scores using original and alternate items were virtually identical for each alternate wording. All alternative wordings had the same correlation with the total score for the SADS, perhaps due to the true/false format.

**Table 3.** Means, Standard Deviations, Correlations, and Mean Differences in Total Scores for Alternate-Worded Items

Measure	Item	<i>M</i> ( <i>SD</i> )	<i>r</i>	<i>t</i>	<i>df</i>	<i>p</i>
SIAS	"I have difficulty talking to attractive persons of the opposite sex."	24.06 (13.48)				
	Someone I'm attracted to	24.38 (13.44)	.999	7.40	388	< .001
	Someone I could date	24.15 (13.39)	.998	1.08	385	.28
	An attractive person	24.12 (13.47)	.999	1.15	386	.25
	A potential romantic partner	24.07 (13.48)	.999	.23	389	.82
IAS	"I am usually at ease when speaking to . . ." "opposite sex; an attractive member of the opposite sex; people of my own sex, if I don't know them very well"	39.72 (9.52)				
	Someone I'm attracted to; a potential romantic dating partner; people of my own sex, if I don't know them very well	40.19 (9.48)	.984	5.54	379	< .001
	Someone I'm attracted to; someone I'm attracted to; people of my own sex, if I don't know them very well	40.16 (9.55)	.986	5.51	379	< .001
	Someone I'm attracted to; an attractive person; people of my own sex, if I don't know them very well	40.00 (9.50)	.986	3.67	379	< .001
	Someone I'm attracted to; someone I could date; people of my own sex, if I don't know them very well	40.14 (9.52)	.985	4.92	379	< .001
SPAI	"Opposite sex" [stem used for items 9 to 25]	68.17 (27.07)				
	People I'm attracted to	68.73 (26.95)	.997	5.50	396	< .001
	People I could date	68.92 (26.97)	.998	8.06	396	< .001
	Attractive people	68.27 (27.94)	.998	.61	395	.54
	Potential romantic partners	69.06 (27.10)	.997	8.40	396	< .001
SADS	"I am usually at ease when talking to someone of the opposite sex."	6.13 (6.31)				
	Someone I'm attracted to	6.24 (6.29)	.998	5.53	393	< .001
	Someone I could date	6.23 (6.32)	.998	4.66	391	< .001
	An attractive person	6.23 (6.33)	.998	4.76	392	< .001
	A potential romantic partner	6.24 (6.33)	.998	4.21	391	< .001

**Note:** Original items are in quotes. SIAS = Social Interaction and Anxiety Scale; IAS = Interaction Anxiety Scale; SPAI = Social Phobia and Anxiety Inventory; SADS = Social Avoidance and Distress Scale.

Based on these analyses and conceptual considerations, as outlined below in the discussion, the following alternate items were chosen for further psychometric analyses: "A potential romantic partner" for the SIAS; "someone I'm attracted to" and "people of my own

sex, if I don't know them very well" for the IAS; "someone I'm attracted to" for the SADS; and "attractive people" for the SPAI.

### *Preliminary Psychometric Evaluation Using New Items*

#### *Stability of Factor Structure*

In order to test the stability of the factor structure of the scales using the alternate item wording determined above, we performed a confirmatory factor analysis on the SIAS, IAS, and SPAI for both the original scale and the new scale using the selected alternate wording. Confirmatory factor analysis was not performed for the SADS given its binary response options. A model was first calculated using the original wording, and an alternate model was then calculated using selected newly worded item(s). Analyses of model fit were conducted with MPlus Version 5.2 (Muthén & Muthén, 2008), using maximum likelihood estimation and anchoring the model by fixing the factor mean to zero and the factor variance to one. Models were evaluated according to criteria recommended by Hu and Bentler (1999).

#### *Social Interaction and Anxiety Scale*

Single-factor models were fit for the SIAS using the original item wording and selected alternate wording ("a potential romantic partner"). The fit of the model using the original item wording ranged from acceptable to good, chi-square (170) = 507.10,  $p < .0001$ , CFI = .896, indicating acceptable fit; RMSEA = .072, indicating acceptable fit; and SRMR = .048, indicating good fit. The fit of the model using the alternate wording also ranged from acceptable to good, chi-square (170) = 512.52,  $p < .0001$ , CFI = .895, indicating acceptable fit; RMSEA = .073, indicating acceptable fit; and SRMR = .048, indicating good fit. Indices of model fit were virtually identical for both models, suggesting a comparable factor structure.<sup>2</sup>

#### *Interaction Anxiety Scale*

Single-factor models were fit for the SIAS using the original item wording and selected alternate wording ("someone I'm attracted to," and "people of my own sex, if I don't know them very well"). The fit of the model using the original item wording ranged from unacceptable to good, chi-square (90) = 455.49,  $p < .0001$ , CFI = .774, indicating not acceptable fit; RMSEA = .104, indicating unacceptable fit; and SRMR = .067, indicating good fit. The fit of the model using the alternate wording also ranged from unacceptable to good, chi-square (90) = 431.46,  $p < .0001$ , CFI = .795, indicating not acceptable fit; RMSEA = .101, indicating unacceptable fit; and SRMR = .063, indicating good fit. Indices of model fit were virtually identical for both models, suggesting a comparable factor structure.

#### *Social Phobia and Anxiety Inventory*

Single-factor models were fit for the SPAI using the original item wording and selected alternate wording ("attractive people"). The fit of the model using the original item wording ranged from unacceptable to good, chi-square (464) = 2053.94,  $p < .0001$ , CFI = .763, indicating not acceptable fit; RMSEA = .097, indicating unacceptable fit; and SRMR = .064, indicating good fit. The fit of the model using the alternate wording ranged from not acceptable to good, chi-square (464) = 1952.95,  $p < .0001$ , CFI = .775, indicating not acceptable

fit; RMSEA = .094, indicating mediocre fit; and SRMR = .062, indicating good fit. Indices of model fit were virtually identical for both models, suggesting a comparable factor structure.

#### *Convergent Validity*

Convergent validity of the scales using the new items was evaluated by correlating total scores with the BFNE ( $M = 36.88$ ,  $SD = 10.10$ ). Correlations between the BFNE and each scale were moderate, SIAS:  $r = .55$ ; IAS:  $r = .54$ ; SPAI:  $r = .53$ ; and SADS:  $r = .46$ ; all  $ps < .05$ . For comparison, correlations between the BFNE and scales with original items in the current sample were as follows: SIAS:  $r = .55$ ; IAS:  $r = .55$ ; SPAI:  $r = .52$ ; and SADS:  $r = .46$ ; all  $ps < .05$ .

### **Discussion**

This study examined the utility of gender-neutral items in measures of social anxiety in order to reduce heterocentrism and make the scales more appropriate for general clinical and research samples. Item equivalence was evaluated via differences in item means and total scores, correlations between original and new items, confirmatory factor analysis using selected items, and correlation between the BFNE and scales using the newly selected items.

Surprisingly, no single wording emerged across all of the measures. Using the statistical analyses, review of the intent of the original item, and conceptual information about social anxiety, alternate wording for each scale is proposed.

Selection of alternate wording for the SIAS item was the most clear-cut with the item "I have difficulty talking to attractive persons of the opposite sex" being replaced with "I have difficulty talking to a potential romantic partner." The proposed item was rated very similar to the original wording, leading to a nearly identical total scale score. Correlations between the BFNE and original and revised scales were numerically equivalent. Similarity was apparent in the confirmatory factor analyses as well. This psychometric similarity may be due to the specificity of the original item. Mattick and Clarke (1998) indicated that they intended their scale to measure social interaction anxiety, including "dating anxiety, heterosexual anxiety . . ." (p. 456), so the revised wording is consistent with their original intent but expands applicability to dating anxiety in sexual minority individuals as well.

Selection of alternate wording was more complex for the IAS. Two of the three original items had alternate wordings that received ratings similar to the original items and contributed to a similar total score. "I often feel nervous when talking to an attractive member of the opposite sex" can be replaced with "I often feel nervous when talking to someone I am attracted to." Conceptually, Leary (1983) intended the scale to measure contingent social interactions, explicitly including dating anxiety. This revised wording is consistent with that intent but does not introduce dating explicitly, which may be influenced by other factors such as marital status. Rather, it focuses on attraction only. The original item "I sometimes feel tense when talking to people of my own sex, if I don't know them very well" appears to assess conversations that are explicitly NOT confounded with dating anx-

iety for heterosexuals. Therefore, changing to “I sometimes feel tense when talking to people I don’t know very well, even if I wouldn’t be interested in dating them” has a similar conceptual framework. Given that specificity, no other alternatives were considered, but comparisons to items and performance in the total scale appear acceptable. The item “I am usually at ease when speaking to a member of the opposite sex” appears to assess anxiety with another gender as a group because when potential alternate wordings explicitly mentioned attraction or dating, item scores increased significantly. Given the psychometric data do not indicate a clear choice of gender-neutral wording, conceptual issues must guide the selection. “Someone I’m attracted to” is recommended, which explicitly makes it another dating anxiety item. Although choice of wording is admittedly arbitrary, this wording assesses dating anxiety without reference to whether either partner is available for dating, uses simple language, and is highly correlated with the original item. Changing all three items on the IAS increases the total score slightly in our sample (.45, which is 4.7% of the total standard deviation). Although this is statistically significant in our sample, it seems unlikely to present a problem in comparing across studies given the original and revised scales are highly correlated ( $r = .986$ ).

For the SADS, all alternate wordings increased the score slightly and yielded fairly similar correlations. However, the statistical analyses were interpreted cautiously, given the limitations of the binary response format. Therefore, “someone I’m attracted to” is recommended as alternate wording for all the reasons listed for the other measures. This is the only dating anxiety item on the SADS, so keeping it limited to dating, rather than all attractive people, has a conceptual advantage.

For the SPAI, “attractive people” resulted in item means and a total score equivalent to the original “opposite sex” wording and a nearly identical factor structure, as well as demonstrating convergent validity. Review of the original article about the SPAI revealed that the authors intended to assess “specific symptoms in specific situations with specific types of people” (Turner et al., 1989, p. 40). Items were generated by reviewing complaints of individuals seeking treatment for social anxiety disorder, which most certainly would have included dating anxiety. Therefore, it seems likely that the authors intended to assess anxiety with potential romantic partners with the specific type of people and situations being conversations and other activities with members of the opposite sex. No other items appear to specifically focus on dating. However, it also appears that the authors intended “opposite sex” to refer to a general group of people as indicated by “For example, although a patient might be fearful of presenting to an audience, perusal of the rating on the SPAI might reveal that the fear is really of presenting to an audience of male strangers . . .” (p. 40). No gender is indicated for the hypothetical patient, and presentational fears are generally separate from dating anxiety. Thus, updating the wording to “attractive people” may be statistically equivalent in our sample, but it may violate the intended spirit of the items in a scale that was arguably the most carefully developed measure of social anxiety (e.g., Peters, 2000).

One possible solution for the SPAI would be to substitute “another gender” for “opposite sex.” This option was not evaluated in this study because of fears that the term “gender” is not commonly understood in the general population, and it is problematic in that it unintentionally promotes heterosexism as there is no parallel option for same sex/gender

included and dating anxiety for sexual minority individuals is excluded (American Psychological Association, 2011). "Attractive people" introduces a focus on dating anxiety where it may not have been intended by the authors but appears to be the best option available and is therefore recommended.

The goal of this study was to explore alternate wording for items in self-report measures related to anxiety that appeared to assume heterosexuality and two genders. A convenience sample of undergraduate research participants was used, consistent with previous psychometric studies of these measures (e.g., Beidel, Turner, Stanley, & Dancu, 1989). It is not known whether the results would generalize to community or clinical samples. However, these measures are regularly used with undergraduate samples, so evaluating the wording with this population is important in and of itself. Only the BFNE was used to assess for validity, but because these measures are well established and the wording changes were modest, there is little reason to be concerned that validity is compromised by the changes. One might argue that changing these items is not appropriate or not worth the unknown risks of measurement error for established measures, unless one is specifically assessing social anxiety among sexual minorities. Not only does such an approach violate recommended standards of practice (American Psychological Association, 2011) because it promotes heterocentrism, but there is also good evidence that same-sex sexuality is an important consideration even among individuals who identify as heterosexual (Lauermann, Gagnon, Michael, & Michaels, 1994; Morales-Knight & Hope, in press; Vrangalova & Savin-Williams, 2012), meaning that the best assessment instruments will make no assumptions about the gender of the person to whom one might be attracted. Finally, it is worth noting that a minor reduction in psychometric strength, as found in the current study with some alternate wording of items, may be far more desirable than possibly alienating respondents and promoting heterocentrism.<sup>3</sup>

Although the current study provides some evidence for equivalence of alternate item wording, it will be important for future studies to examine additional psychometric properties of the newly worded items and validate them with clinical populations. Additionally, it will be important to validate the newly worded items with sexual minority populations, which composed a small percentage of the sample in the current study. It would also be useful for future studies to statistically examine additional alternative wordings for the IAS and SPAI, particularly to determine whether "another gender" is a viable alternative to the now-dated "opposite sex" phrasing. Finally, it may be useful for future research to evaluate the content validity of items related to dating anxiety for sexual minority respondents, as potentially romantic social interactions may vary across the gamut of sexual orientation.

## Notes

1. Given these are well-established measures, detailed psychometrics are not given. See Antony, Orsillo, and Roemer (2001) for detailed reviews of self-report measures of social anxiety.
2. Standardized estimates, standard errors, and significance tests for all models are available upon request.
3. We would like to thank an anonymous reviewer for making this excellent point.

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