

Abstract

Adversity is a pervasive feature of human life, often contributing to poor physical and mental health outcomes. While social support can buffer against the negative consequences associated with stressful life events, the conditions under which people seek to establish potentially-protective social ties with others in times of distress require greater attention. In a classic study of affiliation, Schachter (1959) provided evidence that women exposed to laboratory stressors had an increased desire for being together. While evolutionary theory broadly predicts that women will seek to form beneficial relationships in stressful environments, when faced with acute threat, men may also benefit from affiliation in the form of coalitions. In the current study, following an adaptation of Schachter's (1959) experiment, participants ($N = 72$; 59.7% female; $M_{\text{age}} = 19.56$ yrs; 74.6% White) were randomized into a high-anxiety or low-anxiety group. Logistic regression analyses showed that both men and women in the high-anxiety condition were significantly more likely to desire affiliation than those in the low-stress condition and that participants experiencing anxiety were significantly more likely to desire affiliation than those without anxiety. This study replicates and extends Schachter's (1959) findings, providing evidence that both men and women prefer to affiliate under conditions of acute stress, specifically within the context of physical threat.

Keywords: Stress, Stress Reactivity, Social Support, Affiliation, Gender Differences, Evolutionary Psychology

Introduction

Adversity is a ubiquitous feature of life. Life challenges come in many forms and produce conditions that are conducive to psychological strain and subsequent disturbances to overall well-being (for review, see Schneiderman, Ironson, & Siegel, 2005). These challenges often require one or multiple decisions to be made in an adaptive effort to cope with the problem. As humans are social creatures, many of these decisions are directly and indirectly influenced by social interactions (Fehr & Fischbacher, 2003). Indeed, the very decision to affiliate with others in the presence of a shared challenge or stressor has important implications for problem-solving and successful navigation of each problem's unique challenges—socioemotional, physical, or otherwise. Affiliation is a necessary feature of group cooperation and serves as a powerful tool through which social bonds are formed; it provides a means of protection, caregiving, and assurance during times of distress (Carter & Keverne, 2009). Affiliation involves several complex processes that interact to allow for the development of relationships that are meaningful throughout the life span (Leckman et al., 2004). Importantly, social support provided through affiliation can buffer against stress-related pathology (Taylor et al., 2000; Taylor, 2006), improves multiple indices of health, and is a significant contributor to overall well-being (Cohen, 2004; Uchino, 2004; 2006).

Americans suffer are reporting record-high levels of distress during the COVID-19 pandemic (American Psychological Association, 2020). Understanding how psychosocial stress—a potent contributor to morbidity and mortality in humans (e.g., Russ, Stamatakis, Hamer, Starr, Kivimäki, & Batty, 2012; Yonas, Lange, & Celedón, 2012)—influences social decision making, is a timely and critical issue (Steinbeis, Engert, Linz, & Singer, 2015). The conditions under which people make the decision to affiliate with others in times of adversity

possibly has special relevance to public health, as social support may confer protection from stress-associated illness in the form of enhanced resiliency (see Ozbay, Johnson, Dimoulas, Morgan, Charney, & Southwick, 2007; Umberson & Montez, 2010).

A classic body of research by Schachter (1959) provided evidence of what many of us intuitively believe: social isolation can be anxiety-provoking and distressing life circumstances can make us desire the company of others. Schachter (1959) proposed that people who experience novel threats or challenges will experience an increased desire to affiliate with others, especially those experiencing the same stressor. This prediction was confirmed in experiments manipulating the level of distress experienced by participants (i.e., high-stress vs. low-stress); this research demonstrated that female participants exposed to a high-stress stimulus (i.e., threat of being shocked by a lab confederate) had an increased desire to be with other participants shortly thereafter (Schachter, 1959). However, this influential study of affiliation did not include men for comparison, leaving an important gap in our understanding of the gender differences in affiliative behavior under conditions of acute threats to physical well-being.

Prior research suggests that men and women may differ in their desire for affiliation during times of stress, given the different ecological pressures placed on each gender over the course of human evolution. For example, differences in biological and behavioral responses to stress (e.g., the tendency to seek out others in threatening situations) likely arose because the associated costs and benefits for a given response to an environmental stressor are not equal for men and women—this idea is supported by consistent sex differences observed in life history strategies (for review, see Del Giudice et al., 2011; 2013). In the seminal framework provided by Taylor and colleagues (2000, 2006), women are predicted to engage in more affiliative behavior than men under conditions of stress; during stressful experiences, women are thought to exhibit a

neuroendocrine and behavioral response that is best characterized as a “tend-and-befriend” pattern. This pattern of stress reactivity is marked by nurturing activities that are designed to protect the self and offspring, promote safety, and reduce distress (i.e., tending), while also creating and maintaining social networks that facilitate this process (i.e., befriending). By comparison, when experiencing stress, men are expected to follow a response pattern that is closer to “fight-or-flight”. Available neuroendocrine data appear to support these expected differences in stress reactivity (e.g., Taylor et al, 2000; 2006; Byrd-Craven, Auer, & Kennison, 2015).

However, the benefits of social support may not be exclusive to women, as men have also been observed to form coalitions under conditions of stress, particularly for the purpose for defense, aggression, and war (Taylor et al., 2000). For men and women, acute threats of physical harm, unlike gender differences observed in the context of more specific sex-linked stressors such as achievement or rejection stress (Stroud, Salovey, & Epel, 2002), may be ubiquitous in terms of its ability to generate a stress and affiliative response. As one of the most primal, general, and essential functions of the stress response includes the coordination of an organism’s physiological and behavioral response to immediate threats in the environment—particularly threats with fitness-relevant consequences (e.g., potential for serious bodily harm) (for reviews, see Auer, 2017; Nesse, Bhatnagar, & Young, 2010)—it is possible, though unclear, that gender differences in behavioral stress reactivity did not emerge over time under conditions of acute physical threat. In the current study, we follow Schachter’s original (1959) experimental procedures, while randomizing both genders into a high-anxiety group or a low-anxiety group. We tested the hypothesis that men and women would similarly desire social affiliation when experiencing acute threats to physical well-being.

Method

Participants

A total of 72 adults (43 women, 29 men, $M_{\text{age}} = 19.56$ years, age range: 18–31 years) participated in this study. Participants were recruited through a university subject pool recruitment website. Participant characteristics are presented in Table 1. Participants were rescheduled if they knew other participants included in their active study session. Participants were excluded if they indicated during the study that they were already familiar with the study's experimental procedures.

Table 1 about here.

Measures

Anxiety Status, Feelings about being Shocked, and Affiliation Desire. Measures in this study were adapted from Schachter (1959) to assess participant responses throughout the experiment. Language for each survey varied slightly depending on the condition. The first measure asked participants to rate their current level of anxiety or distress on a five-point scale ranging from “I feel very calm” to “I feel very distressed.” The second measure asked participants to indicate their feeling about “being shocked” (high-anxiety condition) or being “exposed to light electrical current” (low-anxiety condition) on a five-point scale ranging from “I dislike the idea very much” to “I like the idea very much.” The third measure asked participants to indicate one of three waiting preferences: “I prefer being alone,” “I prefer to wait with others,” and “I really don't care.” The fourth measure asked participants to rate the degree of their waiting preference on a five-point scale ranging from “I very much prefer being alone” to “I very much prefer being together with others.” The final measure asked participants to indicate whether they wished to continue participation in the study (i.e., “yes” or “no”).

Sociodemographics. Data related to participants' age, gender, ethnicity, relationship status, and past or current treatment for a mental health disorder were obtained.

Procedure

The study procedures were adapted from previous work (Schachter, 1959) to experimentally induce stress and assess subsequent desire for affiliation in participants. In order to conceal the experiment's manipulation, prior to study arrival, the study was advertised as "Physiological Responses to Arousal", whereby various responses to external stimuli would be examined. Following informed consent, participants completed a demographic questionnaire and were told that they would be involved in an experiment investigating the effects of electrical current on behavior modification in humans. Consistent with Schachter (1959), participants were randomly assigned by coin flip to one of two possible conditions: high-anxiety or low-anxiety. Each experimental condition was delivered in group format consisting of four participants with at least one confederate. All groups were conducted with mixed genders, consisting of at least one man or one woman in each group. Participants were instructed by the research assistant to not interact prior to the confederate's arrival to the experimental room and were monitored for compliance. The schematic diagram of the experimental room is included in Figure 1. All procedures for this study were approved by the Institutional Review Board (IRB).

Figure 1 about here.

High-Anxiety Condition. Participants were escorted by a research assistant to a new room where they were greeted by a confederate (always a trained male research assistant) with a serious expression, white lab coat, and a clipboard. Behind the confederate, a BIOPAC apparatus—a piece of equipment used to measure electrophysiological activity—was placed in plain sight of participants with wires and electrodes stretched across a display table. The

confederate informed participants that he was a doctoral researcher associated with a prisoner rehabilitation program whose work is currently focused on the effect of electrical current on behavior modification in humans. The confederate then gave participants a two to three minute description of the importance of research in behavior modification, citing electroshock therapy, early success in achieving behavior change in prisoners, potential applications in other populations, and relevance of testing an undergraduate population. Following the explanation, the confederate would then state that he would like to give each participant a series of electric shocks using the BIOPAC apparatus facing the participants; he would emphasize that while the shocks would be painful, no permanent harm would result. The confederate would then distribute and collect the first of four brief surveys, which asked participants to rate how they felt about the potential for being shocked during the study. Next, the confederate would inform participants that there would be a 10-minute waiting period leading up to receiving the shock, and that during this time, the participants would need to leave the room while preparations for the remainder of the study were being made. Participants were given two options for waiting: 1) wait alone in a separate room, noted to be spacious and comfortable, and 2) wait with other participants in one of the empty classrooms in the building of the study. Participants were then asked to rate their waiting preference (i.e., alone, with others, or no preference) prior to receiving a shock, and were then asked to rate the degree to which they had that preference. Finally, the confederate would explain that it was possible that some participants would no longer be willing to take part in the study. The final survey was then collected, asking participants to indicate (i.e., “yes” or “no”) if they wished to continue with the study. Following the collection of the final survey, the confederate would announce that the study was over, fully debriefed participants, and asked

participants to not disclose details of the experiment with other potential participants, both orally and by distributing a non-binding, study non-disclosure agreement form.

Low-Anxiety Condition. In the low-anxiety condition, the experimental room and confederate accessories were identical to the high-anxiety condition, with the exception of the BIOPAC electrical apparatus, which was not present. In contrast to the high-anxiety condition, the confederate introduced himself as a research affiliate at the university that had previously studied the effects of electrical current on behavior modification in the prison system, but was currently studying a more normative sample of college students. Next, the confederate informed participants that they would be given a series of “very mild electrical shocks” that closely approximate a “tingle” or “tickle”. The experimental procedures and script in the low-anxiety condition were identical to the high-anxiety condition thereafter.

Analytic Plan

All analyses were carried out using SPSS statistical software, version 24.0 (IBM, Inc). The dependent variable, affiliation preference, composed of “I prefer to wait alone” (N = 2), “I prefer to wait with others” (N = 28), and “I have no preference” (N = 42) was dichotomized into waiting with others preference (i.e., affiliation) (N = 28) and no affiliation (i.e., prefer to wait alone + no preference) (N = 44) groups. Responses to the anxiety status measure were recoded as either “No anxiety” (i.e., reporting feeling very calm, somewhat calm, or neutral) or “Anxiety present” (i.e., reporting feeling somewhat or very distressed), while responses to the feelings about being shocked measure were recoded as either “Dislike the idea” (i.e., reporting disliking the idea or disliking the idea very much), “Like the idea” (i.e., reporting liking the idea or liking the idea very much), or “Do not care.” Logistic regression, a generalized linear model that extends linear regressions to non-continuous outcomes using logit link functions and a Maximum

Likelihood estimator (Aldrich & Nelson, 1984), was used to compare waiting preference between groups. Sample size limitations prevented inclusion of interaction terms and adjustment for all participant characteristics in a final model.

Results

Figure 2 displays the percentage of men and women desiring affiliation as a function of condition and self-reported anxiety level. With respect to gender differences in affiliation desire in the high-stress condition, a higher percentage of men (66.7%) desired affiliation compared to women (52.6%).

Figure 2 about here.

Table 2 reports the logistic regression models to determine the effects of participant characteristics (e.g., age, ethnicity, gender) and study variables (e.g., condition) on affiliation decision (i.e., desire to be with others or no desire to be with others); significant p -values using a .05 criterion of statistical significance are in bold. The most relevant covariate, feelings about being shocked (i.e., doesn't like idea, neutral, or likes idea), was included in separate adjusted models with condition and anxiety level, respectively. The logistic regression model for stress condition, adjusted for feelings about being shocked, was statistically significant, $\chi^2(1) = 10.66$, $p < .001$, explaining 20.9% (Nagelkerke R^2) of the variance in the decision to affiliate with others and correctly classifying 69.4% of cases. The odds ratio for stress condition indicates that participants in the high-anxiety condition were 6.29 times more likely to desire affiliation than those in the low-anxiety condition. Men in the high-anxiety condition were 22.27 times more likely than men in the low-anxiety condition to desire affiliation, $\chi^2(1) = 6.70$, $p < .01$, Nagelkerke $R^2 = .41$. Women in the high-anxiety condition were 4.75 times more likely to desire affiliation than women in the low-anxiety condition, $\chi^2(1) = 4.48$, $p < .05$, Nagelkerke $R^2 = .18$.

The logistic regression model for anxiety level (i.e., reported anxiety vs. no anxiety), adjusted for feelings about being shocked, was also significant, $\chi^2(1) = 5.97, p < .05$, explaining 13.3% (Nagelkerke R^2) of the variance in the decision to affiliate with others and correctly classified 62.5% of cases. The odds ratio for anxiety level indicates that participants experiencing anxiety leading up to the anticipated event (i.e., a “shock” or “tickle”) were 6.05 times more likely to desire affiliation than those with no anxiety. Anxiety level did not predict affiliation desire as a function of gender. No other participant characteristics were related to reported desire for affiliation.

Table 2 about here.

Discussion

In this study, participants exposed to the high-stress condition were significantly more likely to seek the company of others leading up to the anticipated, potentially-threatening event (i.e., receiving painful shocks). This result is consistent with Schachter’s (1959) study of affiliation in women, but importantly extends the findings to include men in the same sample. While the study of stress reactivity in females has recently received more attention, the same cannot be said for males in studies assessing affiliation under conditions of stress, an area of research which has been historically focused on females. Because both genders have received inadequate representation in either field, it is difficult to interpret patterns of response for either males or females due to a lack of data (Taylor et al., 2000). This study helps to address this gap in the stress literature, demonstrating that men and women largely prefer the company of others when confronted with a challenging situation. When experiencing worry in anticipation of a threatening event—perhaps more relevant to health outcomes than merely experiencing a challenging situation without accompanying anxiety—this study shows that participants were

also more likely to desire the company of their peers. There are several possible reasons why those faced with an acute challenge would want to be with one another. Schachter (1959) favored a social comparison interpretation based on Festinger's (1954) theory, where people choose to affiliate under fear-inducing circumstances in order to compare emotional reactions in an effort to evaluate their emotional responses and determine if such responses are appropriate; notably, a number of studies report data supporting this interpretation (e.g., Darley, 1966; Gerard, 1963; Gerard & Rabbie, 1961; Firestone, Kaplan, & Russell, 1973). Alternative explanations considered by Schachter (1959) and others thereafter consisted of affiliation's potential to directly reduce fear, its ability to indirectly reduce fear (e.g., distraction from ruminating and worrying about imminent threats), and its ability to enhance cognitive clarity related to threats (i.e., gaining additional information about the threat and the dangers associated with it) (for a brief review, see Kirkpatrick & Shaver, 1988). We view the affiliative responses of under conditions of anxiety and distress in the current study predominantly through the lens of adaptive coping behavior, whereby participants experiencing a salient life stressor intuitively seek out a support group. Such a support group has potential to directly and indirectly reduce distress, while also lending itself to collective brainstorming and problem-solving.

Social Support and Health Promotion

Humans possess a fundamental desire to form interpersonal relationships (Baumeister, & Leary, 1995). The desire by participants in the current study, and in people more generally, to seek the company—and possibly the support and comfort—of others during times of emotional strain, is likely an adaptive response. Social relationships, in terms of both quantity and quality, are well known to influence mental health, health behavior, physical health, and even mortality risk (for review, see Umberson & Montez, 2010). In attempting to understand the possible

mechanisms (e.g., behavioral, psychosocial, physiological) underlying the connection between social ties and health promotion, social support stands out as a key contributor; volumes of studies link social support to beneficial physical and mental health outcomes (Cohen, 2004; Uchino, 2004; 2006). Social support potentially influences health under conditions of strain through a variety of mechanisms such as improved mental health, reduction of stressor impact and triggering of beneficial physiological sequelae (e.g., reduced blood pressure, heart rate, and stress hormones), among others (Uchino 2006). Social support plays a particularly important role in adaptive coping responses to environmental stressors, where it may moderate genetic and environmental vulnerabilities and confer resilience to stress, possibly through effects on the hypothalamic-pituitary-adrenocortical (HPA) system, the noradrenergic system, and central oxytocin pathways (for review, see Ozbay et al., 2007).

Importantly, the health benefits associated with social support are not limited to those that receive the support, but also extend to those that provide it. A growing literature suggests that the very act of giving support during times of emotional turmoil provides a wide range of health benefits such as lower 5-year mortality rates (Brown, Nesse, Vinokur, & Smith, 2003), reduced number of sick days (Väänänen, Buunk, Kivimaki, Pentti, & Vahtera, 2005), and even improved 24-hour ambulatory blood pressure (Piferi & Lawler, 2006), among others. In a more recent study, Inagaki and colleagues (2015) found that self-reported provision and receiving of social support were related to reduced vulnerability to negative mental health outcomes, with the intriguing finding that provision of support was specifically associated with activity of several neural regions linked to affiliative and reward behavior, stress reactivity, and caregiving (for a recent review of the contexts under which giving support benefits the self, see Inagaki & Orehek, 2017). Indeed, recent work has underscored the emotional benefits tied to prosocial behavior and

challenged the notion of focusing on the self as the ideal strategy for achieving positive psychological outcomes (e.g., Nelson, Layous, Cole, & Lyubomirsky, 2016). The formation of supportive coalitions may also confer several advantages, such as the ability to combine resources (e.g., physical, emotional, cognitive) and engage in group problem-solving efforts. In the current study, the motivation behind an increased desire for affiliation—whether dominated by a need for emotional comfort, a desire to help facilitate group problem-solving, or otherwise—was not considered, but future related studies would benefit from the inclusion of motivational assessments in their design.

Gender Differences in Affiliation

Due to sample size limitations, this study was unable to test several interactions of interest as they related to the affiliation outcome; most notably, the relationship between stress condition and gender. While this study provides evidence that groups consisting of both men and women desire affiliation more under conditions of duress, it is possible that there would be significantly greater interest by either women or men experiencing the same stressor. Based on evolutionary theory, broadly, as well as the Tend-and-Befriend model of biobehavioral responses to stress (Taylor et al., 2000; Taylor, 2006), in particular, women are expected to display more behavioral and physiological responses that promote bonding in the face of threats and environmental challenges. These tendencies in women are thought to draw on the attachment-caregiver system and are supported by sex differences in oxytocin in conjunction with female reproductive hormones and endogenous opioid peptide mechanisms. By comparison, in response to threats or challenges, men are typically expected to exhibit more prototypical fight-or-flight responses (both behavioral and physiological) that are less conducive to creating and maintaining social networks (i.e., befriending) to help overcome such challenges (see Taylor et al., 2000;

Taylor, 2006). However, it has been argued by Geary and Flinn (2002) that Taylor and colleagues' (2000) framework for understanding tending can also be expanded to include men, with an understanding that men's tending and coalition formation does occur within some distressing situations or environments (Storey et al., 2000). In the context of the current study, and in following the Tend-and-Befriend model, female participants in the high-anxiety condition would possibly be expected to desire affiliation more than men experiencing the same stressor. However, our results demonstrated that the high-anxiety condition (acute threat for physical harm) was a particularly powerful predictor of affiliation desire in men, where even a greater percentage of men preferred to affiliate compared to women—with the caveat that we were unable to directly test whether this difference was significant. What is clear, however, is that women in this study did *not* prefer to affiliate more than men in the context of a stressful environment (i.e., the high-anxiety condition) or when reporting anxiety during the experiment. Although gender differences have been described in relation to specific stressors such as achievement or rejection stress (e.g., Stroud, Salovey, & Epel, 2002), and in competitive and cooperative contexts in a laboratory environment (e.g., Nickels, Kubicki, and Maestriperi, 2017), acute threat of physical harm is a potent general stressor and may also be ubiquitous in terms of its ability to generate a stress response and subsequent desire for social affiliation.

There is some evidence to suggest that physical threats are particularly potent stressors for men and may result in the formation of pair bonds. Perhaps the best support for this idea is found in studies of male combat veterans. Physical combat is one of the most stressful experiences a person can face with exceptional threats to both physical and mental health. Demonstrating the influence of physical threat on the development and maintenance of pair bonds, Elder and Clipp (1988) found that combat-related stress resulted in lasting friendships

among approximately 30-60% of veterans; veterans experiencing greater loss (i.e., witnessing the death of a comrade) were most likely to develop lasting relationships with survivors. Indeed, the bonds formed during highly distressing situations may provide lasting experiences with complex emotions that contribute to strong positive emotional attachments (Zautra, 2003). Likewise, it is possible that the threat of physical harm to men in the current study triggered emotional and physiological sequelae conducive to forming relationships. While men and women in the current study both demonstrated increased desire for affiliation in the high-stress condition, the neuroendocrine mechanisms and motivations for affiliation may likely differ. For humans and chimpanzees, male befriending is not only observed among kin, but also seen among those that are unrelated or distantly related, suggesting strong benefits for coalition behaviors (Betzig, 1986; Mitani, Merriwether, & Zhang, 2000, Geary and Flinn, 2002). With this in mind, it is plausible that men facing the threat of imminent physical harm in this study desired time to affiliate with the rest of the group in order to plan an organized defensive response.

Intriguingly, had participants in this study actually experienced pain, the relationship between gender and affiliation preference may have changed, as previous reviews have concluded that women tend to display greater sensitivity to multiple pain modalities compared with men; an interaction of biological, psychological, and sociocultural factors likely contribute to these differences, but are not well understood (for reviews, see Bartley & Fillingim, 2013; Fillingim, King, Ribeiro-Dasilva, Rahim-Williams, Riley, 2009; Racine, Tousignant-Laflamme, Kloda, Dion, Dupuis, & Choinière, 2012). While beyond the scope of the current study, future work should seek to directly test additional hypotheses related to gender differences in affiliation desires under conditions of stress.

Decreasing Support in an Environment of Increasing Stress

The benefits of social support in times of adversity are well established, but there is emerging evidence that people today are experiencing even greater levels of stress, with lower levels of social support, than anyone in recent memory. For example, the Higher Education Research Institute at U.C.L.A. began asking incoming college freshmen in 1985 if they “felt overwhelmed by all I had to do during the previous year”, with 18 percent of students responding that they did. By 2010, the number of students feeling overwhelmed increased to 29 percent; by 2016, the number climbed to 41 percent (Higher Education Research Institute at UCLA, 2016). The experience of stress has only been heightened during the COVID-19 pandemic, which has necessitated social distancing and altered nearly every aspect of life, including health, work, education, and even physical activity. The recent 2020 Stress in America™ poll conducted by the American Psychological Association (APA) shows that stress levels reported in the U.S. are at historically significant levels and have remained consistently high throughout the course of pandemic (APA, 2020). Social support can often aid in coping with life stress, but even prior to the onset of the COVID-19 pandemic, evidence suggests that the amount of time spent socializing has declined dramatically since 1965 (Aguiar & Hurst, 2007) while the percentage of adults with no close friends has more than doubled from 10 to 24 percent between 1985-2004 (McPherson, Brashears, & Smith-Lovin, 2006). Diminishing support systems combined with compulsory social isolation during the pandemic may have serious immediate and long-term implications for mental health in the U.S. Overall, participant responses in the current study suggest that gender preferences for affiliation may not considerably diverge when specifically experienced as part of a mixed-gender in-group with a unifying physical threat. Perhaps within this specific context, the old adage is affirmed: it’s better together.

Limitations

While this study replicated Schachter's (1959) findings on affiliation in women and importantly extended the findings to men, there are several limitations. First, the relatively small sample restricted our ability to test theoretically important interactions (e.g., condition by gender) and control for participant characteristics in a final adjusted model. The sample was also limited by its relative homogeneity (e.g., 74.6% White; age range: 18–31 years). Other markers of stress (e.g., neuroendocrine, electrophysiological) that could inform the results were not included. All study sessions were led by male confederates; it is possible that men and women would react differently to the same script followed by a female confederate. As stressor novelty is a major contributor to stress reactivity in experimental studies (for review, see Dickerson & Kemeny, 2004), it is possible that some participants were aware of the study procedures prior to participation via communication with previous participants, thus limiting the threat associated with the high-stress condition. While the authors took precautions to discourage participants from sharing details of the study, it is possible that not all participants were honest and completed the study while familiar with the study procedures. Finally, this study did not probe participants for information related to *why* they explicitly chose to be with others versus having no preference or remaining in isolation; the motivation behind affiliation may importantly differ as a function of participant characteristics such as gender, age, or level of distress. Future studies should seek to replicate these findings and test relevant interactions in a larger, more diverse sample, while incorporating other established indices of stress and collecting data related to participant motivation.

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Table 1. Characteristics of Study Participants (N = 72).

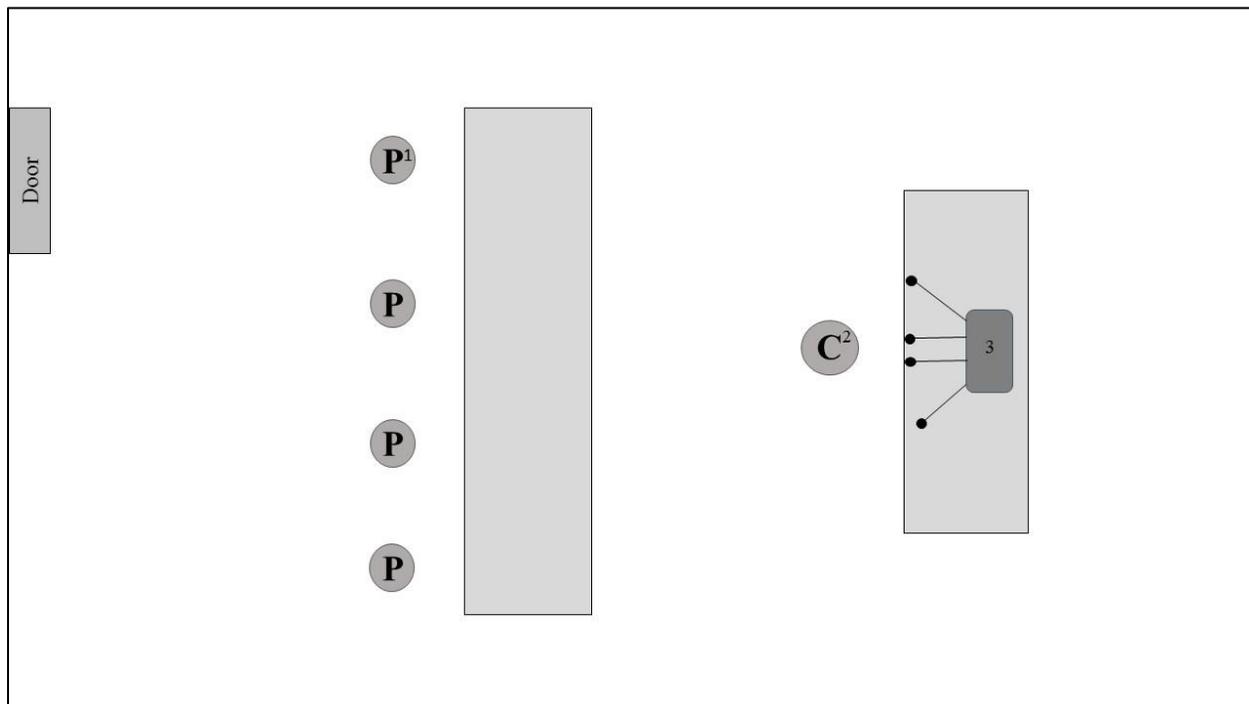
Variable	%
Stress Condition	
High-stress	47.2
Low-stress	52.8
Gender	
Male	40.3
Female	59.7
Age	
18-22	91.7
23-30	8.3
Ethnicity	
White	74.6
Non-White	25.4
Relationship Status	
Single	94.4
Other	5.6
History of a Mental Health Disorder	
Yes	6.9
No	93.1
Feeling about Being Shocked	
Do not care	63.9
Like idea	6.9
Dislike idea	29.2
Anxiety Prior to Experiment	
Anxiety present	73.6
No anxiety	26.4

Table 2. Logistic Regression Predicting Desire for Affiliation from Participant Characteristics and Study Variables (N = 72)^a

Predictor (n)	β	Wald χ^2	<i>p</i> -Value	Odds Ratio	
				Ratio	95% CI ^b
Gender					
Male (29)	0.18	0.13	.722	1.19	0.45-3.12
Female (43)	(ref) ^c	(ref)	(ref)	(ref)	(ref)
Age^d					
18-22 (66)	1.24	1.22	.269	3.46	0.38-31.32
23-30 (6)	(ref)	(ref)	(ref)	(ref)	(ref)
Ethnicity					
White (53)	-0.96	0.34	.558	0.38	0.02-9.46
Non-White (18)	(ref)	(ref)	(ref)	(ref)	(ref)
Relationship Status					
Single (68)	0.68	0.33	.564	1.98	0.20-20.00
Other (4)	(ref)	(ref)	(ref)	(ref)	(ref)
History of Mental Health Disorder					
Yes (5)	-0.99	0.75	.386	0.37	0.04-3.50
No (67)	(ref)	(ref)	(ref)	(ref)	(ref)
Feelings about being Shocked					
Do not care	0.04	0.01	.936	1.05	0.36-3.02
Men (18)	-0.16	0.03	.856	0.85	0.14-5.00
Women (28)	0.15	0.05	.822	1.17	0.31-4.41
Like idea	0.08	0.01	.937	1.08	0.15-7.96
Men (4)	0.29	0.05	.819	1.33	0.11-15.70
Women (1) ^f	-20.62	0.00	1.00	0.00	--
Dislike idea	(ref)	(ref)	(ref)	(ref)	(ref)
Men (7)					
Women (14)					
Anxiety Status^e					
Anxiety present	1.80	5.97	.015	6.05	1.43-25.60
Men	2.20	2.81	.093	9.00	0.69-117.29
Women	1.49	2.75	.097	4.43	0.76-25.74
No anxiety	(ref)	(ref)	(ref)	(ref)	(ref)
Stress Condition^e					
High-Stress	1.84	10.66	.001	6.29	2.09-18.95
Men	3.10	6.70	.010	22.27	2.13-233.28
Women	1.56	4.48	.034	4.75	1.12-20.09
Low-Stress	(ref)	(ref)	(ref)	(ref)	(ref)

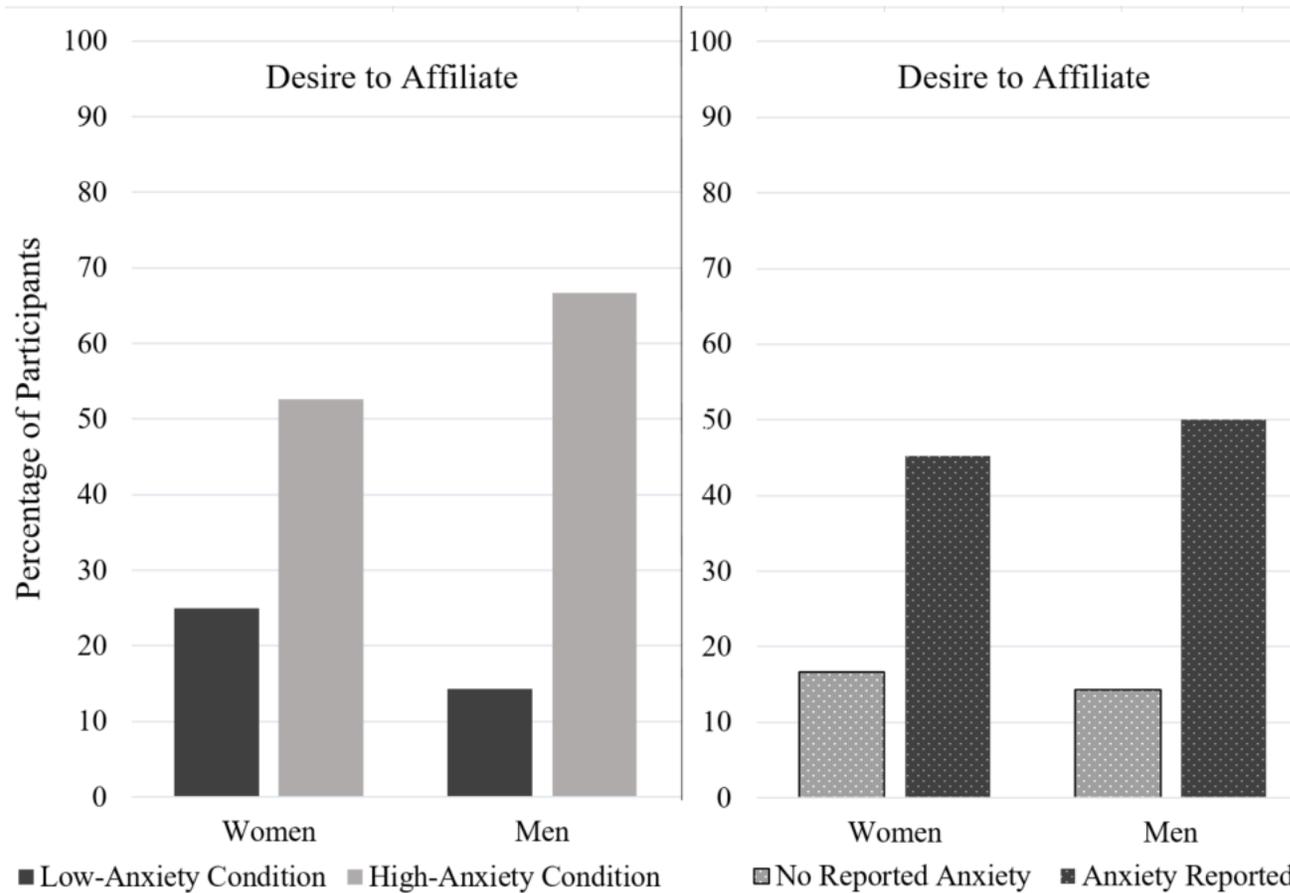
Note. ^a Values reflect individual univariate regression models. ^b 95% CI = 95% confidence interval. ^c ref = reference group. ^d Age range: 18-30. ^e Adjusted for the variable, Feelings about being shocked. ^f

Figure 1. Schematic Diagram of Experimental Setup



Note. ¹ Participants escorted into the experimental room by a research assistant and seated equal distances apart at a long conference table. ² Confederates faces participants and leads them through the experiment. ³ BIOPAC apparatus near confederate faces participants with wires and electrodes stretched across the display table.

Figure 2. Preference for Affiliation by Reported Anxiety and Gender



Note. This figure compares the percentage of men and women reporting an explicit desire to affiliate during the 10-minute waiting period leading up to the anticipated shock by the lab confederate. Participants in the high-anxiety condition and those reporting anxiety desired affiliation more than those in the low-anxiety condition and without anxiety, respectively.