SOCIALIZING TO RECOVER FROM WORK STRESS:

THE BENEFITS OF ACTING EXTRAVERTED

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ABSTRACT

The aim of this study was to examine the effects of socializing, or activities that are characterized by social interaction, on recovery from work stress. Drawing from consistent findings in personality research, we hypothesized that individuals who measure high in extraversion receive the greatest recovery benefits from socializing, and that this relationship is mediated by state positive affect. An online assessment was administered to 238 participants to measure trait extraversion, trait and state affect, and factors related to their social activities across two recent time periods. Hypotheses were tested using correlational and regression-based techniques. The findings provide support for a relationship between state positive affect and recovery from work stress. Contribution during social activities (i.e. acting extraverted) predicted state positive affect while controlling for trait extraversion.
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PANAS-X, Positive and Negative Affectivity Scale – Expanded Form

BFI, Big Five Inventory

NFRRS, Need for Resource Recovery Scale

REQ, Recovery Experiences Questionnaire
CHAPTER I
INTRODUCTION

Work-related stress and its effects are well-documented issues in the field of occupational health psychology (Hahn, Binnewies, Sonnentag, & Mojza, 2011). There has also been much research in recent years exploring how people recuperate from the effects of work stress. Several theoretical models have been developed to explain how stress from work affects performance and how individuals can use their off-work time to recover from work stress (Hobfoll, 1989; Meijman & Mulder, 1998). After-work activities have been found to help workers recover from work stress by facilitating psychological detachment from work-related demands (Fritz & Sonnentag, 2005; Fritz, Sonnentag, Spector, & McInroe, 2010; Rook & Zijlstra, 2006). Many after-work activities have been examined and identified as “recovery experiences.” However, activities involving social interaction have received scant research attention.

Understanding the effects of social activities on recovery from work stress would be especially valuable to stress and recovery researchers and practitioners given the pervasiveness of social activities. Most people are presented with ample opportunities to socialize in work and nonwork roles in a typical day. A better understanding of the relationship between socializing and personal work stress levels and recovery could lead to effective strategies to more easily manage stress from work while on and off the job.

While limited research has specifically examined social activities as a form of recovery, there is a wealth of literature on the effects of socializing behavior on mood. In particular, there
is a large evidence base linking the personality trait extraversion with positive affect. Positive affective states have been found to predict beneficial recovery outcomes (Fritz et al., 2010; Oerlemans, Bakker, & Demerouti, 2014). Interestingly, recent studies examining the link between extraversion and positive affect suggest that individuals can improve their affective state by acting or behaving in an “extraverted” way (Fleeson, Malanos, & Achille, 2002; Smillie, DeYoung, & Hall, 2015; Zelenski, Santoro, & Whelan, 2012). Therefore, the purpose of the present study is to explore whether acting extraverted can help employees recover from work stress.

Work-Related Stress and Recovery

Meijman and Mulder (1998), defined recovery as the process by which our stress-related psychological and physiological response capabilities are restored to their pre-stressor state. The recovery process rebuilds impaired mood and reduces physiological strain indicators. The fundamentals of work-related stress and the recovery process are perhaps best captured and explained by the two most widely applied theoretical models in recovery research, the Effort-Recovery (E-R) model (Meijman & Mulder, 1998) and the Conservation of Resources (COR) model (Hobfoll, 1989).

The E-R model. The E-R model of stress and recovery is based on previous models that attributed job stress to the relationship between the workload and the capacity of the worker to meet workload demand (Meijman & Mulder, 1998). A distinctive characteristic of the E-R model is that it takes into account the worker’s (in)ability to make adjustments to achieve a certain work procedure. The model proposes that the work procedure is determined by three
factors: (1) work demands, which refer to the job tasks and the environmental factors that they have to be completed under, (2) work potential, which includes both the effort supplied by the worker and the worker’s ability to perform, and (3) decision latitude, which is the extent to which the employee can change the work procedure (Meijman & Mulder). These determinants affect the work procedure and its outcomes, which consist of products and short-term psychological and physiological reaction.

Meijman and Mulder (1998) assert that, when experiencing workload, a person’s psychological and physiological reactions are always adverse; however, these can be reversed if the exposure to workload is interrupted. A central tenet to the E-R model is that, when the worker is no longer exposed to workload, recovery occurs and the worker’s systems are able to return to their baseline level. Recovery reduces the negative effects of stress, such as fatigue. However, long-term negative reactions can occur if workers are continually exposed to the workload and not permitted to return to their baseline states (Meijman & Mulder).

The COR model. The COR model identifies stress as what is experienced when a person loses resources, or perceives the threat of resource loss (Hobfoll, 1989). The term resource is used to refer to various concepts in psychological research. Hobfoll (1989) defines resources as, “objects, personal characteristics, conditions, or energies that are valued by the individual or that serve as a means for attainment of these object, personal characteristics, conditions, or energies” (p. 516). Resources can have either practical value to individuals or hold symbolic value, meaning they help individuals define who they are. Social support does not fit within the types of resources mentioned above; however, Hobfoll (1989) does note that social support is a resource
“to the extent that they provide or facilitate the preservation of valued resources, but they can also detract from individuals’ resources” (p. 517).

The COR model differs from most other stress models in that it outlines the types of behaviors that individuals enact when encountering, or not encountering, stress. According to the theory, when individuals are threatened by resource loss, they actively try to reduce this loss. When individuals are not experiencing stress, they try to accumulate a surplus of resources to minimize future loss. Therefore, from a COR perspective, recovery is the process of regaining lost resources and protecting the self against future loss (Hobfoll, 1989).

Both the E-R and COR models suggest that workers make decisions to minimize exposure to stressors and resulting stress experiences. A major class of decisions pertinent to this overarching objective involves what a person will do to recover, replenish, and/or rebuild resources that have been expended in the past or may be needed in the future. The research to date on recovery does not provide clear guidance that could be used to inform good recovery-related decisions. Instead, the general assumption used in recovery-related research is that different people engage in very different forms of activities, any of which may or may not be particularly resource-replenishing depending on the person. In addition, some recovery activities are more likely than others to distract a person from one’s daily work-related stressor exposures and stress experiences. As such, certain types of recovery activities may be more effective than others at helping workers to detach from work and replenish needed resources.

**Recovery Activities in General**

Recent research supports the positive effects of different types of recovery experiences. Most of this research has focused on activities people engage in outside of normal working hours.
(Fritz & Sonnentag, 2005; Fritz et al., 2010; Rook & Zijlstra, 2006), but there is also evidence that resource replenishment is not necessarily restricted to time outside of work (Cranley, Cunningham, & Panda, 2015). The emphasis on recovery outside of work is understandable, given the theoretical emphasis in the E-R model on recovery being possible only when one’s experienced work demands are absent (Meijman & Mulder, 1998).

Instead of focusing on specific activities or classes of activities for the recovery potential, the majority of research on recovery experiences has focused on qualitative features of experiences during nonwork time that are likely to facilitate recovery and resource replenishment (Sonnentag & Fritz, 2007). Most research in this area has identified nonwork experiences as recovery-related if a person associates them strongly with one or more of the following experiences: (1) psychological detachment, involving the mental separation from work-related experiences (Sonnentag, Binnewies, & Mojza, 2008), (2) relaxation, associated with decreased physical indicators of stress such as heart rate and muscle tension (Sonnentag et al., 2008), (3) mastery, which increases the resources of the individual through learning or invoking greater confidence (Hahn et al., 2011; Sonnentag et al., 2008), and (4) control, which is any activity that is related to the individual’s personal goals and desires (Hahn et al., 2011).

One objective in the present study was to demonstrate that it is possible to move beyond the identification of recovery and its effects in a general sense. Specifically, the focus here was on reaching a better understanding of the potential of specific activities to facilitate recovery in most individuals. By focusing on a specific class or type of recovery activity, it may eventually be possible to take steps toward more practical interventions and guidance for workers who need help in establishing recovery routines that maximize their chances of successfully recovering. As already noted briefly and as detailed in the next section, socializing with others is a particularly
relevant class of recovery activity as it is common and easily understood by researchers and non-researchers alike.

**Socializing as a Recovery Activity**

Numerous studies have identified engaging in social activities (i.e., socializing) as a form of recovery enhancing experience (Sonnentag, 2001; Sonnentag & Zijlstra, 2006). Intuitively, social activities would help workers recover from work stress by providing social support, which individuals could use to buffer work demands (Oerlemans et al., 2014). Interestingly, the empirical support for the positive effects of socializing is not entirely consistent. For example, Fritz and Sonnentag (2005) found that social activities over a weekend provided recovery value to individuals and that socializing with friends and family, more specifically, during the weekend predicted task performance and general well-being during the following work week. However, Sonnentag and Bayer (2005) reported that social activities were not related to recovery, and Sonnentag and Natter (2004) found socializing to be negatively related to recovery outcomes. These mixed findings coincide with a point emphasized by Hobfoll (1989), that social support can lead to both replenishment or loss of resources. This inconsistency may be explained by person-level differences in perception and underlying differences in the content of socializing.

**The importance of personality, perception, and content.** Sonnentag and Fritz (2007) suggested that personality may influence the methods by which we achieve recovery experiences. Extraversion may be particularly relevant as a personality trait, given its association with outgoing and generally social behavior. Sonnentag and Fritz suggested that “both extravert and introvert individuals have the potential to psychologically detach from work, to relax, to experience mastery and control—although the specific activities by which they reach these
experiences may largely differ” (p. 209). However, studies exploring these differences have not yet been conducted. There is, however, some theoretical and empirical evidence supporting the notion that the “positivity” of social activities may moderate the effects of socializing on recovery.

Research regarding socializing and work stress is primarily found in the social support literature, specifically in studies examining the relationship between social support and strain (employees’ negative reactions to stressors at work). The hypothesis that emotional social support protects workers from strain has received consistent support and been widely accepted (Beehr, Bowling, & Bennett, 2010). However, the tone of the social interactions was found to be a moderator of this relationship, such that discussion of positive aspects of work was negatively related to strain, but discussion of negative work stressors was positively related to strain outcomes (Beehr et al.).

Similarly, Oerlemans et al. (2014) tested whether happiness, defined as a “pleasurable and mildly activated momentary state” (p. 200) in response to various after-work activities moderated recovery. Results indicated that, when participants experienced high activation and pleasure from after-work social activities, socializing was positively related to recovery. Interestingly, when experiencing low activation and pleasure, social activities were negatively related to recovery. These findings indicate the possibility that the affective states triggered by certain after-work activities and experiences predict whether they will aid, or prevent, the recovery process.

On a related note, Bowling, Beehr, and Swader (2005) found that trait extraversion improves the likelihood of participating in social interactions with coworkers that focused on positive work aspects, but was not related to interactions focused on negative aspects. These
findings suggest that, within the work context, workers with higher levels of trait extraversion appear to experience more frequent and positive social interactions. The higher prevalence of positive social activities may explain some of the variance that has been observed between extraverts and introverts in regard to socializing and recovery benefits.

**Why this Matters: Extraversion and Positive Affect**

Strongly extraverted individuals tend to be bold, assertive, and gregarious, while weakly extraverted (or strongly introverted) individuals are typically passive, quiet, and reserved (John, Naumann, & Soto, 2008). In addition to this overall pattern of extraversion-positive, introversion-negative alignments, an association between trait extraversion, and trait and state positive affect has been among the most consistent findings in personality and individual differences research (Diener & Lucas, 1999; Lucas, Diener, Grob, Suh, & Shao, 2000; Watson & Clark, 1997).

Recent studies have also found that *state* extraversion, or how extraverted an individual’s behavior is in a given moment, also consistently predicts state positive affect. Counter-dispositional behavior studies (i.e., experiments in which dispositional introverts and extraverts were instructed to act extraverted) have found that, when both extraverts and introverts behave in an extraverted way, momentary positive affect consistently increases (Fleeson et al., 2002; Smillie, Wilt, Kabbani, Garratt, & Revelle, 2015; Zelenski et al., 2012).

The extraversion–positive affect connection could have practical implications when considered in the context of socializing as a form of recovery. The link between recovery activities and positive affect is already fairly well-established. For example, Fritz et al. (2010) found that recovery experiences during weekends predicted discrete positive affective states
during the following work week, indicating that recovery experiences may be antecedents of positive affect during work. Affective states are related to many important organizational behaviors (Fritz et al.). More specifically, state positive affect has been found to predict daily job satisfaction (Scott & Judge, 2010) and proactive behavior (Fritz & Sonnentag, 2009). Furthermore, affective states and their work-related outcomes have been found to persist overnight, so off-work activities can influence affective states the following work day (Sonnentag et al., 2008).

If trait and state forms of extraversion are also associated with positive affect, then perhaps being extraverted is in itself a form of inherent resilience (trait) and acting extraverted is likely to enhance recovery (through effects on positive affect and behavioral choices, like socializing with others). How extraversion causes high positive affect is still unknown, though many studies have attempted to explain this relationship through examinations of extraversion’s sociability dimension.

**Sociability as a facet of extraversion.** Social behavior has long been seen as an indication of a person’s underlying general extraversion. This linkage has been supported with theoretical arguments and empirical evidence. In a lexical analysis, McCrae and Costa (1987) found sociable, fun-loving, affectionate, friendly, and talkative to be descriptors most strongly aligned with the extraversion factor. Thus, they concluded that, “sociability— the enjoyment of others’ company—seems to be the core” (p. 87) of extraversion. From a different perspective, Lucas et al. (2000) proposed that extraversion is actually characterized by a person’s reward-sensitivity, or the reactivity of the Behavioral Activation System that regulates a person’s responses to conditioned rewards. After comparing both sociability and reward-sensitivity within the same person, Lucas et al. concluded that reward sensitivity was more strongly related to the
variance between different extraversion factors, supporting the claim that extraverts are “reward-
sensitives”. Lucas et al. also found that sociability and extraversion were still found to be strongly related.

The research just cited is closely aligned with the original conceptualization of the introversion-extraversion distinction by Eysenck (1967). Eysenck argued that this difference may be observed in their underlying physiology, specifically in the activity of their Ascending Reticular Activation System. Eysenck proposed that many of the differences in behavior related to extraversion are connected to this difference in underlying “arousability” or reactivity to stimuli. Specifically, over-aroused introverts are inclined to avoid external stimulation, such as what would be experienced during social interaction, while extraverts actively seek external stimulation to achieve optimal arousal. Eysenck’s explanation of the difference between introverted and extraverted social behavior is reminiscent of current folk explanations of extraversion (e.g., extraverts gain more energy, but introverts lose energy in social situations).

Many researchers have asserted that the positive affectivity of extraverts can be attributed to their general sociability. Research testing this assertion has often been designed around a so-called social activity hypothesis (Lucas, Le, & Dyrenforth, 2008; Watson, Clark, McIntyre, & Hamaker, 1992), which is essentially that participation in social activities should mediate the relationship between trait extraversion and positive affect. In one of the strongest tests of this hypothesis, Watson et al. found, over the course of a 13-week longitudinal study, that weekly social activity levels were related to weekly positive affective states. Specifically, social activities labelled as social entertainment, active participation, and social responsibilities predicted higher state measures of positive affect.
In a similar study, Lucas et al. (2008) tested social activities as a mediator of the relationship between extraversion and positive affect using both global and momentary assessments, and trait and state measures of extraversion, positive affect, and sociability. Lucas et al.’s data provided only weak support for the mediation-by-social activity model, but extraverts were found to socialize more with friends and colleagues than introverts. Of greater importance to the present study, social activity was found to predict equal increases in state positive affect in both extraverted and introverted individuals.

Smillie, Wilt, et al. (2015) examined the quality (rather than quantity) of social activities as a possible mediator of the relationship between extraversion and positive affect. To test this, Smillie et al. examined momentary social well-being, a broad measure of the quality of social activities (Keyes, 1998) as a mediator of extraversion and positive affect. The results showed momentary social well-being to be a strong predictor of positive affect when controlling for extraversion. Specifically, one of the dimensions of the social well-being measure, contribution to the social situations, explained approximately two-thirds of the effects of acting extraverted on positive affect. These findings provide strong support for the possibility that the degree to which people contribute when engaged in socializing may predict their resulting affective state, regardless of trait extraversion. More specifically, both introverts and extraverts could increase their state positive affect by actively contributing during social activities, greatly improving their perceived quality of these activities.

The Present Study

Limited research exists regarding the utility of social activities as a mechanism for recovery; relevant research that does exist has yielded inconsistent results. As presented in the
preceding sections, however, consideration of the broader literature on extraversion, positive affect, and social support offers a potentially more comprehensive perspective on how socializing may be recovery enhancing for some people. The most consistent finding in the research just presented is that socializing (i.e., acting extraverted) can protect individuals from effects of work stress, but that interacting with others socially may not be equally beneficial in terms of recovery value for all people.

The findings obtained from research on the relationship between extraversion and positive affect suggest that socializing may facilitate recovery from work stress. Positive (and negative) affective states have been linked to important work-related behaviors, and there is substantial evidence that engaging in social activity increases state positive affect. Specifically, acting extraverted by engaging in, and contributing to, social activities has been shown to significantly increase positive affect by creating a better quality of social experience (Lucas et al., 2008; Smillie, Wilt, et al., 2015; Watson et al., 1992).

Social activities with a positive tone have also been found to be associated with better recovery outcomes in the recovery research (Oerlemans et al., 2014). Similarly, social support of a positive nature at work can protect workers from strain. Extraverts have been found to be more likely to give and receive positive social support at work, but the relationship between giving positive support and receiving it was still observed when controlling for extraversion (Beehr et al., 2010; Bowling et al., 2005). Therefore, acting extraverted by engaging in mostly positive social activities may also result in greater state positive affect.

In the present study, the effects of different types of socializing on individuals’ affective states will be examined. Theoretical inspiration for this study was obtained from the previously cited models used in work-stress and recovery research, as well as extraversion and positive
affect research; therefore, its findings will contribute to research related to organizational behavior, as well as personality and mood. More specifically, the quantity and quality of participants’ recent past social activities will be evaluated and then linked with positive affective states and the quality of recovery. Moreover, types of social activities, discrete positive affective states, and different recovery experiences will also be examined to obtain a richer information base that can be more easily related to occupational health practices.

Building on the preceding theoretical and empirical background, the following conceptual model will be tested in this study (Figure 1). The present study was designed to test the following hypotheses that extend from this conceptual model:

H1: State positive affect is negatively related to need for resource recovery.

H2: State positive affect mediates the relationship between trait extraversion and the need for resource recovery.

H3: Socializing experience mediates the relationship between trait extraversion and state positive affect, such that “acting” extraverted will be positively related to state positive affect levels, while controlling for trait extraversion. Specifically:

a. Amount of socializing is positively related to state positive affect.

b. Social contribution during social interactions is positively related to state positive affect.

c. Social interactions described as having a generally positive tone are positively related to state positive affect.
Figure 1 Conceptual Model
Participants

Two hundred and thirty-eight students attending The University of Tennessee at Chattanooga constituted the sample of participants for this study. These individuals were recruited through the UTC Psychology Department’s Research Participation System. No incentive was provided by the researcher for participating in this study, but some course professors granted a small amount of course-related credit for participating in this research.

Of these participants, 49 (20.7%) were male and the mean age ranged from 17 to 51 ($M = 19.76$, $SD = 3.11$). There were 7 Asian (3%), 28 Black/African American (11.8%), 7 Hispanic/Latino (3%), 200 White (84.4%), and 1 (.4%) American Indian/Alaskan Native. The relationship status of participants was as follows: 148 (62.4%) “Single”; 5 (2.1%) “Married/Living as married”; 83 (35%) “In a committed (serious) relationship, but not married”; and 1 (.4%) “Divorced/Widowed”. The median number of dependents reported by participants was 0, but there was wide variability. Specifically, 214 participants (90.3%) reported not having any dependents, 7 (3%) reported having one dependent, 5 (2.1%) reported having two dependents, 2 (.8%) reported having three dependents, and 4 (1.6%) reported having four or more dependents.
Measures

In addition to the demographic information above, participants were asked to report the number of hours they typically spend working during any given seven-day period. For this measure, “work” was defined broadly to include time in class, time spent studying or doing homework, and time working for pay. Participants were also asked to report the number of hours they typically spend socializing, or spending time with friends, family, or others in a typical week. In addition, the participants were asked to respond to the following measures of the core study variables. Internal consistency reliability information, where appropriate, is included along the diagonal of Table 2. All measures for this study are included in the Appendix.

Assessments of Time Usage. Measures of time usage, previously used to assess the daily activities of medical residents, were adapted to assess the participants’ social activities (Cranley et al., 2015). For a general assessment of time usage, participants were asked to indicate in percentage terms their time spent socializing with others over two time periods: during the previous day and on average over the previous seven days. Specifically, participants were asked to report, for each time period, the percentage of time during working hours that they spent socializing with others, as well as the percentage of time during non-working hours that was spent socializing with others. For example, a participant who is not given much opportunity to interact with others during work, but spends most of his/her off-work time around others may respond by reporting that 5% of time at work was spent socializing with others and 70% of time outside of work was spent socializing with others during the previous day. Prior to the time usage assessments, the participants were told to think about their socializing experiences during the time period of interest. To aid measurement, “socializing” was defined broadly as any
activity during which the participants’ interacted in a social manner, face-to-face, with other people.

Participants were also asked to rate the extent to which they felt they contributed to their social activities, relative to everyone else. Ratings were made on a seven-point Likert Scale (“1” = significantly less to “7” = significantly more). This measure for social contribution was believed to be more appropriate for the present study than the scale used by Smillie and colleagues (2015), which asked participants to indicate their contribution to a group discussion task relative to the other two group members. For the present study, a rating will better capture the social contribution of each participant across different social situations that could involve different sized social groups.

The overall positive/negative tone of the interactions was also measured using another scale created for this study. Participants responded to the following prompt: “When socializing with friends, what percentage of the time do you typically spend on light-hearted, happy, or fun topics and what percentage of time do you typically spend on sad, depressing, or negative topics?” Responses were numerical values between 0 and 100 that together must sum to 100%.

The above measures were pilot-tested prior to the present study. The sample consisted of psychology graduate students at The University of Tennessee at Chattanooga. They were asked to complete the survey to the best of their ability and offer comments and suggestions. The results of the pilot test did not indicate a need for major alteration to the assessments.

**Positive Affect.** Participants completed the Positive and Negative Affectivity Scale – Expanded Form (PANAS-X; Watson & Clark, 1999) to assess trait and state positive affect, as well as trait and state negative affect. The measure consisted of several affect descriptors (e.g. active, enthusiastic, inspired) which the participants used to indicate how they felt in general (i.e.
trait affect) and how they felt during the previous day and on average over the previous seven days (state affect). The participants indicated how they felt using a seven-point Likert Scale (“1” = very slightly or not at all to “7” = extremely). Both measures of state affect were completed after the assessments of time usage. The items for the trait affect scales were placed after the other measures of personality traits used in the survey.

Although state PA is most relevant to the hypotheses of this study, measures of trait PA and trait/state NA were also included to control for general positivity and negativity. Thus far, extraversion has only been clearly linked with the form of PA conceptualized by the General Positive Affect Scale of the PANAS-X, which includes both activation and positive valence (Smillie, DeYoung, et al., 2015). Therefore, only the General Positive Affect and General Negative Affect Scales were used from the PANAS-X.

**Extraversion.** Trait extraversion was measured using both the Big Five Inventory (BFI; John et al., 2008; John & Srivastava, 1999) and the IPIP representation of Costa and McCrae's (1992) NEO facets for Extraversion (Goldberg et al., 2006). The 44-item BFI is a widely used questionnaire that assesses each of the Big Five personality factors (i.e. agreeableness, extraversion, conscientiousness, neuroticism, and openness to experience). Although extraversion is the trait of interest in this study, the rest of the Big Five were also measured as covariates.

The 60-item IPIP scale used included six constructs similar to the six facets of Extraversion identified in Costa and McCrae's (1992) NEO PI-R. The facets measured by the IPIP scale are friendliness, gregariousness, assertiveness, activity level, adventure seeking, and cheerfulness. Although sociability (i.e. gregariousness) is the facet of extraversion believed to be most relevant to the present study, the other facets were also measured as covariates.
**Quality of Recovery.** The participants’ current recovery needs were assessed with the Need for Resource Recovery Scale (NFRRS; Cunningham, 2008). This 12-item scale measured the participants’ perceived recovery needs using two dimensions: (1) lack of attention/cognitive resources (e.g., “I have been working so hard today that I am losing my ability to concentrate on what I am doing”), and (2) need for detachment (e.g., “When I stop my work for today I will need more than an hour to begin feeling recovered”). For each statement, the participants indicated how accurately the statement described how they felt at the current moment.

To better understand how different individuals achieve recovery outcomes through socializing, the Recovery Experiences Questionnaire was used. The 16-item questionnaire was created by Sonnentag and Fritz (2007) to measure participants’ recovery experiences during their free time. For this study, the measure was edited to ask participants to indicate their recovery experiences during social activities. Items in this scale measure the participants’ recovery experiences in terms of the four classes previously discussed using 4 four-item subscales: psychological detachment (e.g., “During social activities, I forget about work.”), relaxation (e.g., “During social activities, I kick back and relax.”), mastery experiences (e.g., “During social activities, I learn new things.”), and control (e.g., “During social activities, I feel like I can decide for myself what to do.”). For each statement, the participants indicated their level of agreement on a seven-point Likert Scale (“1” = I do not agree at all to “7” = I fully agree).

**Procedure**

The Institutional Review Board at The University of Tennessee at Chattanooga approved the procedures for this study prior to beginning data collection (IRB Approval #15-113). This approval letter is included in the Appendix. Data collection began on November 9th, 2015 and
closed on December 4th, 2015. Participants who volunteered for the study were instructed to complete the assessment through the UTC Psychology Department’s Research Participant Management System. Participants were asked to read and sign an informed consent form, detailing the purpose of the study and that individual responses will be kept completely confidential. Participant first indicated the average number of hours that they work during a typical week. The participants then completed the “Socializing Experience” assessments—including the time usage measures, contribution measures, measures of positive/negative tone, and measures of state affect—for both time periods. The participants then completed the measures for the Big Five personality and extraversion facets and the trait version (i.e. in general) of the PANAS-X, followed by a survey containing the recovery-related scales. Lastly, the participants responded to the demographic items.
CHAPTER III

RESULTS

Overall descriptive statistics for each of the measures are presented in Table 1 and Table 2. Specifically, number of cases, means, medians, standard deviations, minimums and maximums for all variables are presented in Table 1; bivariate correlations between scores on all measures as well as the Cronbach alpha scores of each scale measure, are presented in Table 2.
Table 1 Descriptive Statistics for all Study Variables

<table>
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<tr>
<th></th>
<th>N</th>
<th>M</th>
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</table>

Note. * p < .05; alpha reliabilities, where appropriate, are listed in italics along the diagonal
Hypothesis 1

A correlation analysis was used to test Hypotheses 1. Hypothesis 1 stated that state positive affect is related to quality of recovery. As Table 2 shows, significant correlations were found between state positive affect during both the previous day and last week and all measures for quality of recovery (lack of attention/cognitive resources, need for detachment). Specifically, state positive affect during the previous day was significantly negatively correlated with lack of attention/cognitive resources, $r(235) = -.21$, $p < .05$, and need for detachment, $r(235) = -.21$, $p < .05$. State positive affect during the previous week was also significantly correlated with lack of attention/cognitive resources, $r(235) = -.16$, $p < .05$, and need for detachment, $r(235) = -.20$, $p < .05$. Most of the variables representing quality of recovery were found to be significantly related to trait positive affect as well; however, state positive affect during the previous day generally showed the strongest correlations to the quality of recovery variables. These results provide support for Hypothesis 1.

Hypothesis 2

A mediation analysis using the PROCESS tool for conditional analyses (Hayes, 2013) was conducted to test Hypothesis 2. Hypothesis 2 stated that state positive affect would mediate the relationship between trait extraversion and quality of recovery. For analyses purposes, “quality of recovery” was represented by a combining the mean scale scores of the Need for Resource Recovery Scale measures (need for resource recovery and need for detachment), due to its utility as a measure of current recovery needs. Also, “trait extraversion” was calculated by combining the mean score from the BFI scale for extraversion with the mean scores measured by each of the IPIP NEO facets for extraversion (friendliness, gregariousness, assertiveness, activity
level, adventure seeking, and cheerfulness). State positive affect during the previous day was used to represent state positive affect due to its more powerful relation to current recovery needs.

A significant total effect was found between trait extraversion and quality of recovery without the mediator present. The direct effect of trait extraversion on quality of recovery, with the mediator included in the analysis, was weaker than the total effect, but was still significant. These effects are presented in Figure 2. In terms of mediation, there was no evidence of significant indirect effects linking trait extraversion and quality of recovery through state positive affect. There was no significant direct effect of state positive affect during the previous day on current recovery needs. The indirect effects results are fully summarized in Table 3. Based on these findings, Hypothesis 2 was not supported.

Figure 2 State Positive Affect as Possible Mediator of the Relationship Between Trait Extraversion and Quality of Recovery.
Table 3 Indirect Effects on Need for Resource Recovery

<table>
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<th>ULCI</th>
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<td>* 0.13</td>
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<td>-0.60</td>
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Full model Adj $R^2 = .2524$  $F(10, 214) = 7.2236$, $p < .05$

Note. These estimates were generated using a procedure from Hayes (2013); CI = confidence interval; BC = bias corrected; based on 10,000 bootstrap resamples. * $p < .05$.

Additional analyses were also conducted in which trait extraversion in the above model was replaced by the NEO-IPIP facets of extraversion. The results of this analyses are detailed in Table 4. Interestingly, only the cheerfulness facet of extraversion was found to be significantly related to state positive affect; however, all of the facets except activity level and cheerfulness were significantly negatively related to need for resource recovery.
Table 4 Indirect Effect of Extraversion Facets

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<th>Need for Resource Recovery</th>
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<td>Coeff</td>
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<td>Friendliness</td>
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<td>Gregariousness</td>
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<td>Cheerfulness</td>
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<td>0.09</td>
</tr>
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</table>

Note. These estimates were generated using a procedure from Hayes (2013); CI = confidence interval; BC = bias corrected; based on 10,000 bootstrap resamples. * p < .05.

Hypothesis 3

A mediation analysis was also conducted to test Hypothesis 3, which was that socializing experience mediates the relationship between trait extraversion and state positive affect while controlling for trait extraversion. For analyses purposes, “socializing experience” was represented in terms of three indicators. Amount of socializing was represented by the percentage of time outside of work that participants indicated they spent socializing.

Contribution was represented by a combination of the scores of how participants rated their contribution during social activities during the previous day and during last week. Positive tone was calculated by combining the scores that represent the percentage of conversation during the previous day and last week that focused on positive topics and subtracting the combined scores that represent conversation focused on negative topics; thus, a high, positive value for the aggregated score would indicate that the participant’s conversation has been generally very positively toned, and a high, negative value for the aggregated score would indicate that the participant’s conversation has been generally very negatively toned.

There was not a significant total effect found between trait extraversion and state positive affect without the mediators present. There also was not a significant effect of trait extraversion on state positive affect with the mediators present, as shown in Figure 3. In terms of mediation,
there was partial evidence of significant indirect effects linking trait extraversion and state positive affect through contribution. There was a significant direct effect between trait extraversion and contribution. There was also a significant effect between contribution and state positive affect. There was no significant relationships between trait extraversion and the other mediators, and the mediators did not show direct effects on state positive affect, although the indirect effect of positive tone on state positive affect approached significance. The indirect effects results are fully summarized in Table 5. These findings provide partial support for Hypothesis 3; specifically, Hypothesis 3b. which stated that contribution during social activities is positively related to state positive affect was supported.

Figure 3 Socializing Experience as Possible Mediator of Relationship Between Trait Extraversion and State Positive Affect.
Table 5 Indirect Effects on State Positive Affect

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</table>

Full model Adj $R^2 = .4986, F (10, 205) = 20.3847, p < .05$

Note. These estimates were generated using a procedure from Hayes (2013); CI = confidence interval; BC = bias corrected; based on 10,000 bootstrap resamples. * $p < .05$.

Additional analyses were also conducted in which trait extraversion in the above model was replaced by the NEO-IPIP facets of extraversion. The results of this analyses are detailed in Table 6. All of the facets were found to be significantly related to social contribution, but not to the other socializing experience mediators.
Table 6: Indirect Effects of Extraversion Facets on Socializing Experience

<table>
<thead>
<tr>
<th>Trait Extraversion</th>
<th>Point estimate</th>
<th>SE</th>
<th>Lower</th>
<th>Upper</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time Spent Socializing outside Work</td>
<td>0.0068</td>
<td>0.0115</td>
<td>-0.0071</td>
<td>0.0439</td>
</tr>
<tr>
<td>Contribution</td>
<td>0.0332*</td>
<td>0.0212</td>
<td>0.0033</td>
<td>0.0902</td>
</tr>
<tr>
<td>Positive Tone</td>
<td>-0.0073</td>
<td>0.0121</td>
<td>0.0402</td>
<td>-0.0402</td>
</tr>
<tr>
<td>TOTAL</td>
<td>0.0327</td>
<td>0.0289</td>
<td>-0.0158</td>
<td>0.098</td>
</tr>
</tbody>
</table>

Full model Adj $R^2 = .4986$ $F (10, 205) = 20.3847, p < .05$

<table>
<thead>
<tr>
<th>Friendliness</th>
<th>Point estimate</th>
<th>SE</th>
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<th>Upper</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time Spent Socializing outside Work</td>
<td>0.0017</td>
<td>0.0021</td>
<td>-0.0023</td>
<td>0.0058</td>
</tr>
<tr>
<td>Contribution</td>
<td>0.1187*</td>
<td>0.0512</td>
<td>0.0178</td>
<td>0.2197</td>
</tr>
<tr>
<td>Positive Tone</td>
<td>0.0025</td>
<td>0.0014</td>
<td>-0.0002</td>
<td>0.0052</td>
</tr>
<tr>
<td>TOTAL</td>
<td>0.0017</td>
<td>0.0792</td>
<td>-0.1544</td>
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Full model Adj $R^2 = .4986$ $F (10, 205) = 20.3839, p < .05$

<table>
<thead>
<tr>
<th>Gregariousness</th>
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</thead>
<tbody>
<tr>
<td>Time Spent Socializing outside Work</td>
<td>0.0002</td>
<td>0.0020</td>
<td>-0.0002</td>
<td>0.0060</td>
</tr>
<tr>
<td>Contribution</td>
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<td>0.0506</td>
<td>0.0263</td>
<td>0.2260</td>
</tr>
<tr>
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<td>0.0023</td>
<td>0.0014</td>
<td>-0.0004</td>
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</tr>
<tr>
<td>TOTAL</td>
<td>-0.0763</td>
<td>0.0626</td>
<td>-0.1996</td>
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Full model Adj $R^2 = .5022$ $F (10, 205) = 20.6805, p < .05$

<table>
<thead>
<tr>
<th>Assertiveness</th>
<th>Point estimate</th>
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<th>Lower</th>
<th>Upper</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time Spent Socializing outside Work</td>
<td>0.0016</td>
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<tr>
<td>Contribution</td>
<td>0.1187*</td>
<td>0.0505</td>
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<td>0.0014</td>
<td>-0.0003</td>
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<td>TOTAL</td>
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Full model Adj $R^2 = .4999$ $F (10, 205) = 20.4915, p < .05$

<table>
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<th>Activity Level</th>
<th>Point estimate</th>
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<th>Upper</th>
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</thead>
<tbody>
<tr>
<td>Time Spent Socializing outside Work</td>
<td>0.0017</td>
<td>0.0020</td>
<td>-0.0023</td>
<td>0.0057</td>
</tr>
<tr>
<td>Contribution</td>
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<td>0.0504</td>
<td>0.0124</td>
<td>0.2110</td>
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<tr>
<td>TOTAL</td>
<td>0.1203</td>
<td>0.1025</td>
<td>-0.0819</td>
<td>0.3224</td>
</tr>
</tbody>
</table>

Full model Adj $R^2 = .5019$ $F (10, 205) = 20.6580, p < .05$

<table>
<thead>
<tr>
<th>Adventure Seeking</th>
<th>Point estimate</th>
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<th>Lower</th>
<th>Upper</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time Spent Socializing outside Work</td>
<td>0.0015</td>
<td>0.0020</td>
<td>-0.0025</td>
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</tr>
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<tr>
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<td>0.0632</td>
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</tbody>
</table>

Full model Adj $R^2 = .5012$ $F (10, 205) = 20.5957, p < .05$

<table>
<thead>
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<th>Cheerfulness</th>
<th>Point estimate</th>
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<th>Lower</th>
<th>Upper</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time Spent Socializing outside Work</td>
<td>0.0013</td>
<td>0.0020</td>
<td>-0.0027</td>
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</tr>
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<td>0.0503</td>
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</tr>
<tr>
<td>Positive Tone</td>
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<td>0.0014</td>
<td>-0.0005</td>
<td>0.0050</td>
</tr>
<tr>
<td>TOTAL</td>
<td>0.1643</td>
<td>0.0902</td>
<td>-0.0136</td>
<td>0.3422</td>
</tr>
</tbody>
</table>

Full model Adj $R^2 = .5066$ $F (10, 205) = 21.0447, p < .05$

Note. These estimates were generated using a procedure from Preacher and Hayes (2008); CI = confidence interval; BC = bias corrected; based on 10,000 bootstrap resamples. N = 216. * $p < .05$. 
CHAPTER IV
DISCUSSION

The purpose of the present study was to explore the utility of socializing as an active form of recovery from work stress. Socializing with friends and family has been indicated to be a form of recovery, but the benefits of socializing have been inconsistent. Furthermore, no previous study has examined the mediators used in this study as influencers on recovery. The results provided partial support for the stated hypotheses. In this section, each hypothesis will be examined, as well as limitations and implications.

Hypothesis 1 posited that state positive affect is positively related to quality of recovery. The correlational analysis supported the expectation that state positive affect during the previous day is positively related to current recovery needs. This hypothesis was based on findings that recovery experiences predict state positive affect during the following workdays; therefore, state positive affect may function as an indicator of adequate recovery. However, another study also reported that affective states during after-work activities moderated the recovery effects of the activities. The precise nature of the relationship between state affect and recovery is still ambiguous, but the current study provides evidence that the two constructs are related.

Hypothesis 2 proposed that state positive affect would mediate the relationship between trait extraversion and quality of recovery. Trait extraversion was found to have a significant indirect effect on need for resource recovery; however, there was not support for a mediating effect linking the two through positive affect. It is important to note that the covariates used in
the analysis included trait positive affect, which would possibly take much of the variance in a relationship controlled by state positive affect. Supporting this assumption, when the same analysis was performed without the covariates, significant effects were found between trait extraversion and state positive affect, as well as between state positive affect and quality of recovery.

Hypothesis 3 proposed that the relationship between trait extraversion and state positive affect would be mediated by three aspects of the participant’s social experiences: the amount that they socialized, the degree that they contributed during social activities, and the degree that the tone of conversation was positive. Of the proposed mediators, only contribution was found to be significant. Although positive tone approached significance and showed a significant effect on state positive affect when the covariates weren’t included in the analysis.

**Implications**

It is difficult to formulate strong implication statements based on the present results of this exploratory analysis. State positive affect was found to be positively related to quality of recovery, but whether state positive affect predicts positive recovery outcomes is still unclear. An intriguing finding was the effect of contribution on state positive affect. The purpose of the present study was to explore how socializing could be used as a strategy to recovery from work stress. The findings indicate that while the amount of time spent socializing outside of work or the positivity of the conversation do not predict state positive affect, the perception that you are contributing during social activities will predict state positive affect, above and beyond one’s personality and sociability. From a COR perspective, using resources to actively contribute during social activities could produce a greater return of resources to enhance mood and recovery.
Limitations and Future Research

The sample used for this study consisted entirely of college students at the same institution. Although the variability in time spent socializing and time spent working was adequately large in the sample, the definition for “work” used in the measure was intentionally broad. A sample consisting of fully-employed participants would be more appropriate for the emphasis on work stress in the present study. The present study also relied on self-report survey measures with only one data collection for each participant. Multiple data collections should be used in future studies for more reliable analyses.

There are many suggestions for future research related to the present study. Greater focus on the nature of the relationship between state positive affect and quality of recovery is needed to make better inferences from these findings. The analyses in the present study also indicated some possible future directions for the relationship between personality and recovery. Conscientiousness and agreeableness were both found to be generally related to many recovery and affect-related variables in the study. Both may prove to be important individual differences in future recovery research.

Conclusion

Thus far, the effects of socializing on recovery from work stress have been ambiguous. The present study provides partial support that extraversion and positive affect may explain some of the variance in these effects. This study contributes to the line of research that has examined the relationship between affect and recovery. It was also found that, when socializing activities are used to actively recover from stress, rather than passively relax, recovery benefits may be achieved regardless of trait extraversion or sociability.
REFERENCES


APPENDIX A

IRB APPROVAL LETTER
MEMORANDUM

TO: Mr. Robert Harste
    Dr. Chris Cunningham

FROM: Lindsay Pardue, Director of Research Integrity
      Dr. Bart Weathington, IRB Committee Chair

DATE: 10/21/15

SUBJECT: IRB #15-113: Socializing to Recover from Work Stress: The Benefits of Acting Extraverted

The IRB Committee Chair has reviewed and approved your application and assigned you the IRB number listed above. You must include the following approval statement on research materials seen by participants and used in research reports:

The Institutional Review Board of the University of Tennessee at Chattanooga (FWA00004149) has approved this research project #15-113.

Please remember that you must complete a Certification for Changes, Annual Review, or Project Termination/Completion Form when the project is completed or provide an annual report if the project takes over one year to complete. The IRB Committee will make every effort to remind you prior to your anniversary date; however, it is your responsibility to ensure that this additional step is satisfied.

Please remember to contact the IRB Committee immediately and submit a new project proposal for review if significant changes occur in your research design or in any instruments used in conducting the study. You should also contact the IRB Committee immediately if you encounter any adverse effects during your project that pose a risk to your subjects.

For any additional information, please consult our web page http://www.utc.edu/irb or email instrb@utc.edu

Best wishes for a successful research project.
APPENDIX B
SURVEY MEASURES GIVEN TO PARTICIPANTS
Informed Consent Form

Purpose of the Study:
This study is being conducted by Robert Harste, a graduate student at The University of Tennessee at Chattanooga, under the supervision of Dr. Chris Cunningham. The purpose is to examine effects of engaging in social activities.

What will be done:
If you agree to participate you will be asked to respond to questions in a brief internet-based survey (likely to take no longer than 30 minutes to complete). This survey includes questions about your typical experiences socializing with others, as well as some questions about your general personality and stress-related experiences. Some demographic questions are also included so that we can accurately describe the characteristics of the final group of participants.

Benefits of this Study:
You will be contributing to a growing base of knowledge regarding the effects of social interactions with others.

What are the risks to me?
The risks of this study are anticipated to be limited to the potential inconvenience associated with completing the survey. If you feel uncomfortable with a question in the survey, you can skip that question or withdraw from the study altogether. Some questions in this survey ask you about emotions and feelings. If responding to such questions causes you to reach strongly in emotional ways, consider accessing available counseling resources in your community or on your local university campus.

Confidentiality:
Your responses to the survey will be kept completely confidential. You will be assigned a participant identification code, and this is the only identification that will be associated with your survey responses (we will not be asking for your name). Only the researchers will see your individual survey responses and these responses will be stored in a locked storage room.

Decision to quit at any time:
Your participation in this research is voluntary; you are free to withdraw from this study at any time. You also may choose to skip any questions that you do not wish to answer. If you decide to quit at any time before you have finished the questionnaire, however, your answers will NOT be recorded. We can only make use of fully complete surveys, so we greatly appreciate your full cooperation and participation.
How the findings will be used:
The results of this study will be used for research purposes only. Aggregated (not person level) results from the study will be presented in educational settings and at professional conferences, and the results may be published in a professional journal in the field of psychology.

Contact information:
If you have concerns or questions about this study, please contact the chair of UTC’s Institutional Review Board, Dr. Bart Weathington at bart-weathington@utc.edu or 423-425-4289, or Dr. Chris Cunningham at Chris-Cunningham@utc.edu or 423-425-4264. By completing and returning this survey, you acknowledge that you have read this information and agree to participate in this research, with the knowledge that you are free to withdraw your participation at any time without penalty.

Thank you in advance for your assistance and participation.

Sincerely,

Robert Harste
Chris Cunningham, Ph.D.
The University of Tennessee Chattanooga

_The Institutional Review Board at The University of Tennessee at Chattanooga (FWA00004149) has approved this research project #15-113._

I have reviewed the information above and agree to participate in this research.

Yes

No
In a typical week, approximately how many hours do you spend involved in "work"? Include any time spent in class, studying or doing school work, and working for pay. Please round your response to the nearest hour and report only the number (e.g., 5).


In a typical week, approximately how many hours do you spend socializing with others? Include any time spent engaged in social activities with friends, family members, or others. Please round your response to the nearest hour and report only the number (e.g., 5).
The following questions ask you to think about your socializing experiences yesterday.

The term “socializing” refers broadly to any activity in which you interacted in a social manner, face-to-face, with other people.

**Directions:** Please indicate below, in percentage terms, how much time you spent socializing with others while at work and outside of work.

As an example, if you did not socialize with others while working yesterday, but you spent about half of your time outside of work with others, you might report 0% time socializing at work and 50% time socializing outside of work.

As you consider when you were "at work", include any time spent in class, studying or doing school work, or working for pay.

As you consider "outside of work", include time spent in any non-work activity.

<table>
<thead>
<tr>
<th>0</th>
<th>10</th>
<th>20</th>
<th>30</th>
<th>40</th>
<th>50</th>
<th>60</th>
<th>70</th>
<th>80</th>
<th>90</th>
<th>100</th>
</tr>
</thead>
<tbody>
<tr>
<td>During work, how much of the time did you typically spend socializing?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Outside of work, how much of the time did you typically spend socializing?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Directions:** Please select the response that best represents the degree to which you feel you “contributed” to your social activities with others yesterday, compared to others who were in the same group(s) with you.

Think of contribution as any participation you had or input you provided that was valued in some way by others in the group(s) you were with.

Significantly | About the | Significantly
Directions: Please use percentage terms to answer the questions below, so that the sum of your responses would equal 100%.

When interacting with others socially yesterday...

What percentage of time did you typically spend on light-hearted, happy, or fun topics?

What percentage of time did you typically spend on sad, depressing, or negative topics?

The following items describe different feelings and emotions. Please read each item and then indicate the extent to which you felt this way yesterday.

<table>
<thead>
<tr>
<th></th>
<th>Very slightly or not at all</th>
<th>A little</th>
<th>Moderately</th>
<th>Quite a bit</th>
<th>Extremely</th>
</tr>
</thead>
<tbody>
<tr>
<td>Afraid</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scared</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nervous</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jittery</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Irritable</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hostile</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Guilty</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ashamed</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Upset</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Distressed</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The following questions ask you to think about your socializing experiences more broadly, **over the past 7 days**.

The term “socializing” refers broadly to any activity in which you interacted in a social manner, face-to-face, with other people.

**Directions:** Please indicate below, in percentage terms, how much time you spent socializing with others while at work and outside of work.

As an example, if you did not socialize with others while working during the past 7 days, but you spent about half of your time outside of work with others, you might report 0% time socializing at work and 50% time socializing outside of work.

As you consider when you were "at work", include any time spent in class, studying or doing school work, or working for pay.

As you consider "outside of work", include time spent in any non-work activity.
Outside of work, how much of the time did you typically spend socializing?

---

**Directions:** Please select the response that best represents the degree to which you feel you “contributed” to your social activities with others during the past 7 days, compared to others who were in the same group(s) with you.

Think of contribution as any participation you had or input you provided that was valued in some way by others in the group(s) you were with.

<table>
<thead>
<tr>
<th>Significantly less</th>
<th>Much less</th>
<th>Slightly less</th>
<th>About the same</th>
<th>Slightly more</th>
<th>Much more</th>
<th>Significantly more</th>
</tr>
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<tbody>
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<td><img src="null" alt="Circle" /></td>
<td><img src="null" alt="Circle" /></td>
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<td><img src="null" alt="Circle" /></td>
<td><img src="null" alt="Circle" /></td>
</tr>
</tbody>
</table>

**Directions:** Please use percentage terms to answer the questions below, so that the sum of your responses would equal 100%.

When interacting with others socially during the past 7 days...

<table>
<thead>
<tr>
<th>0</th>
<th>10</th>
<th>20</th>
<th>30</th>
<th>40</th>
<th>50</th>
<th>60</th>
<th>70</th>
<th>80</th>
<th>90</th>
<th>100</th>
</tr>
</thead>
</table>

| What percentage of time did you typically spend on light-hearted, happy, or fun topics? | | | | | | | | | | |
| What percentage of time did you typically spend on sad, depressing, or negative topics? | | | | | | | | | | |

Total: 0
The following items describe different feelings and emotions. Please read each item and then indicate the extent to which you felt this way over the past 7 days.

<table>
<thead>
<tr>
<th></th>
<th>Very slightly or not at all</th>
<th>A little</th>
<th>Moderately</th>
<th>Quite a bit</th>
<th>Extremely</th>
</tr>
</thead>
<tbody>
<tr>
<td>Afraid</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scared</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nervous</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jittery</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Irritable</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hostile</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Guilty</td>
<td></td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>Ashamed</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Upset</td>
<td></td>
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<tr>
<td>Distressed</td>
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<td>Attentive</td>
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<td>Determined</td>
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<td>Inspired</td>
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<td>Interested</td>
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<tr>
<td>Proud</td>
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<tr>
<td>Strong</td>
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</tbody>
</table>

Below are a number of descriptive statements that may or may not apply to you. For example, do you agree that you are someone who likes to spend time with others?

**Directions:** Please choose the appropriate response option next to each statement to indicate the extent to which you agree or disagree with that statement.

**I am someone who...**

<table>
<thead>
<tr>
<th></th>
<th>Disagree strongly</th>
<th>Disagree a little</th>
<th>Neither agree nor disagree</th>
<th>Agree a little</th>
<th>Agree strongly</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is talkative</td>
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<tr>
<td>Characteristic</td>
<td>Disagree strongly</td>
<td>Disagree a little</td>
<td>Neither agree nor disagree</td>
<td>Agree a little</td>
<td>Agree strongly</td>
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<tr>
<td>Tends to find fault with others</td>
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<td>Does a thorough job</td>
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<tr>
<td>Is depressed, blue</td>
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<tr>
<td>Is original, comes up with new ideas</td>
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<tr>
<td>Is reserved</td>
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<tr>
<td>Is helpful and unselfish with others</td>
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<tr>
<td>Can be somewhat careless</td>
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<tr>
<td>Is relaxed, handles stress well</td>
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<tr>
<td>Is curious about many different things</td>
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<tr>
<td>Is full of energy</td>
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<tr>
<td>Starts quarrels with others</td>
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<tr>
<td>Is a reliable worker</td>
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<tr>
<td>Can be tense</td>
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<tr>
<td>Is ingenious, a deep thinker</td>
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<tr>
<td>Generates a lot of enthusiasm</td>
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<tr>
<td>Has a forgiving nature</td>
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<tr>
<td>Tends to be disorganized</td>
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<tr>
<td>Worries a lot</td>
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<tr>
<td>Has an active imagination</td>
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<tr>
<td>Tends to be quiet</td>
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<tr>
<td>Is generally trusting</td>
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<tr>
<td>Tends to be lazy</td>
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<tr>
<td>Is emotionally stable, not easily upset</td>
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<tr>
<td>Is impatient</td>
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<tr>
<td>Daydreamer</td>
<td></td>
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</tbody>
</table>
Below are a number of descriptive statements that may or may not apply to you. For example, do you agree that you are someone who likes to spend time with others?

**Directions:** Please choose the appropriate response option next to each statement to indicate the extent to which you agree or disagree with that statement.

<table>
<thead>
<tr>
<th>I am someone who...</th>
<th>Disagree strongly</th>
<th>Disagree a little</th>
<th>Neither agree nor disagree</th>
<th>Agree a little</th>
<th>Agree strongly</th>
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</thead>
<tbody>
<tr>
<td>Has an assertive personality</td>
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<tr>
<td>Can be cold and aloof</td>
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<tr>
<td>Perseveres until the task is finished</td>
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<tr>
<td>Can be moody</td>
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<tr>
<td>Values artistic, aesthetic experiences</td>
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<tr>
<td>Is sometimes shy, inhibited</td>
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<tr>
<td>Is considerate and kind to almost everyone</td>
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<tr>
<td>Does things efficiently</td>
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<tr>
<td>Remains calm in tense situations</td>
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<tr>
<td>Prefers work that is routine</td>
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<tr>
<td>Is outgoing, sociable</td>
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<td>Is sometimes rude to others</td>
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<tr>
<td>Makes plans and follows through with them</td>
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<tr>
<td>Gets nervous easily</td>
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<tr>
<td>Likes to reflect, play with ideas</td>
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</tbody>
</table>
### Directions:
Please use the rating scale below to describe how accurately each statement describes you. Describe yourself as you generally are now, not as you wish to be in the future. Describe yourself as you honestly see yourself, in relation to other people you know of the same sex as you are, and roughly your same age.

<table>
<thead>
<tr>
<th></th>
<th>Disagree strongly</th>
<th>Disagree a little</th>
<th>Neither agree nor disagree</th>
<th>Agree a little</th>
<th>Agree strongly</th>
</tr>
</thead>
<tbody>
<tr>
<td>Has few artistic interests</td>
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<td>Likes to cooperate with others</td>
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<td>Is easily distracted</td>
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<tr>
<td>Is sophisticated in art, music, or literature</td>
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<td>Make friends easily</td>
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<tr>
<td>Warm up quickly to others</td>
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<tr>
<td>Feel comfortable around people</td>
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<tr>
<td>Act comfortably with others</td>
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<tr>
<td>Cheer people up</td>
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<tr>
<td>Am hard to get to know</td>
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<tr>
<td>Often feel uncomfortable around others</td>
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<tr>
<td>Avoid contacts with others</td>
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<tr>
<td>Am not really interested in others</td>
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<tr>
<td>Keep others at a distance</td>
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<tr>
<td>Love large parties</td>
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<tr>
<td>Talk to a lot of different people at parties</td>
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<tr>
<td>Enjoy being part of a</td>
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<tr>
<td>Group</td>
<td>Very inaccurate</td>
<td>Moderately inaccurate</td>
<td>Neither inaccurate nor accurate</td>
<td>Moderately accurate</td>
<td>Very accurate</td>
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<tr>
<td>Involve others in what I am doing</td>
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<td>Love surprise parties</td>
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<td>Prefer to be alone</td>
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<tr>
<td>Want to be left alone</td>
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<tr>
<td>Don’t like crowded events</td>
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<tr>
<td>Avoid crowds</td>
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<tr>
<td>Seek quiet</td>
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<tr>
<td>Take charge</td>
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<tr>
<td>Try to lead others</td>
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<tr>
<td>Can talk others into doing things</td>
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<tr>
<td>Seek to influence others</td>
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<tr>
<td>Take control of things</td>
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<tr>
<td>Wait for others to lead the way</td>
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<tr>
<td>Keep in the background</td>
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<tr>
<td>Have little to say</td>
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<tr>
<td>Don't like to draw attention to myself</td>
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<tr>
<td>Hold back my opinions</td>
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</tbody>
</table>

**Directions:** Please use the rating scale below to describe how accurately each statement describes you. Describe yourself as you generally are now, not as you wish to be in the future. Describe yourself as you honestly see yourself, in relation to other people you know of the same sex as you are, and roughly your same age.
<table>
<thead>
<tr>
<th>Statement</th>
<th>Very Inaccurate</th>
<th>Moderately Inaccurate</th>
<th>Neither Inaccurate nor Accurate</th>
<th>Moderately Accurate</th>
<th>Very Accurate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Am always busy</td>
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<tr>
<td>Am always on the go</td>
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<tr>
<td>Do a lot in my spare time</td>
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<tr>
<td>Can manage many things at the same time</td>
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<tr>
<td>React quickly</td>
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<tr>
<td>Like to take it easy</td>
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<tr>
<td>Like to take my time</td>
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<tr>
<td>Like a leisurely lifestyle</td>
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<tr>
<td>Let things proceed at their own pace</td>
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<tr>
<td>React slowly</td>
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<tr>
<td>Seek adventure</td>
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<tr>
<td>Love action</td>
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<tr>
<td>Enjoy being part of a loud crowd</td>
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<tr>
<td>Enjoy being reckless</td>
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<tr>
<td>Act wild and crazy</td>
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<tr>
<td>Willing to try anything once</td>
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<tr>
<td>Seek danger</td>
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<tr>
<td>Would never go hang gliding or bungee jumping</td>
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<tr>
<td>Dislike loud music</td>
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<tr>
<td>Radiate joy</td>
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<tr>
<td>Have a lot of fun</td>
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<td>Express childlike joy</td>
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<tr>
<td>Laugh my way through life</td>
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<tr>
<td>Love life</td>
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</tbody>
</table>
This scale consists of a number of words and phrases that describe different feelings and emotions. *Please read each item and then indicate to what extent you feel this way in general.*

<table>
<thead>
<tr>
<th>Feeling</th>
<th>Very slightly or not at all</th>
<th>A little</th>
<th>Moderately</th>
<th>Quite a bit</th>
<th>Extremely</th>
</tr>
</thead>
<tbody>
<tr>
<td>Afraid</td>
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<tr>
<td>Scared</td>
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<td>Nervous</td>
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<td>Jittery</td>
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<td>Irritable</td>
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<td>Hostile</td>
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<td>Guilty</td>
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<tr>
<td>Ashamed</td>
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<td>Upset</td>
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<td>Distressed</td>
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<tr>
<td>Active</td>
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<td>Alert</td>
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<td>Attentive</td>
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<td>Inspired</td>
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<tr>
<td>Interested</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Proud</td>
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</tr>
<tr>
<td>Strong</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Very inaccurately</th>
<th>Moderately inaccurate</th>
<th>Neither inaccurate nor accurate</th>
<th>Moderately accurate</th>
<th>Very accurately</th>
</tr>
</thead>
<tbody>
<tr>
<td>Look at the bright side of life</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Laugh aloud</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Amuse my friends</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Am not easily amused</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Seldom joke around</td>
<td></td>
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</tr>
</tbody>
</table>
**Directions:** Think about your typical experience during social activities. Please rate your agreement with each of the following statements.

**During social activities...**

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Neither agree nor disagree</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>I forget about work.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>I don't think about work at all</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>I distance myself from my work.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>I get a break from the demands of work.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>I kick back and relax.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>I do relaxing things.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>I use the time to relax.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>I take time for leisure.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>I learn new things.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>I seek out intellectual challenges.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>I do things that challenge me.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>I do something to broaden my horizons.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>I feel like I can decide for myself what to do.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>I decide my own schedule.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>I determine for myself how I will spend my time.</td>
<td>○</td>
<td>○</td>
<td>○</td>
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<td>○</td>
</tr>
<tr>
<td>I take care of things the way that I want them done</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>

How accurate are each of the following statements at describing how you feel right now, at this moment?
<table>
<thead>
<tr>
<th>Not at all accurate</th>
<th>Moderately inaccurate</th>
<th>Slightly inaccurate</th>
<th>Neither accurate nor inaccurate</th>
<th>Slightly accurate</th>
<th>Moderately accurate</th>
<th>Completely accurate</th>
</tr>
</thead>
<tbody>
<tr>
<td>I have been working so hard today that I am losing my ability to concentrate on what I am doing.</td>
<td><img src="image" alt="Rating" /> <img src="image" alt="Rating" /> <img src="image" alt="Rating" /> <img src="image" alt="Rating" /> <img src="image" alt="Rating" /> <img src="image" alt="Rating" /> <img src="image" alt="Rating" /> <img src="image" alt="Rating" /> <img src="image" alt="Rating" /></td>
<td></td>
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</tr>
<tr>
<td>I have been so busy working today that I am beginning to feel I am losing control over all the work I have to do.</td>
<td><img src="image" alt="Rating" /> <img src="image" alt="Rating" /> <img src="image" alt="Rating" /> <img src="image" alt="Rating" /> <img src="image" alt="Rating" /> <img src="image" alt="Rating" /> <img src="image" alt="Rating" /> <img src="image" alt="Rating" /> <img src="image" alt="Rating" /></td>
<td></td>
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</tr>
<tr>
<td>If my work were finished for today, I would still have trouble concentrating on other things.</td>
<td><img src="image" alt="Rating" /> <img src="image" alt="Rating" /> <img src="image" alt="Rating" /> <img src="image" alt="Rating" /> <img src="image" alt="Rating" /> <img src="image" alt="Rating" /> <img src="image" alt="Rating" /> <img src="image" alt="Rating" /> <img src="image" alt="Rating" /></td>
<td></td>
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</tr>
<tr>
<td>I have worked so long and hard today that I do not have much attention left to give to my job tasks.</td>
<td><img src="image" alt="Rating" /> <img src="image" alt="Rating" /> <img src="image" alt="Rating" /> <img src="image" alt="Rating" /> <img src="image" alt="Rating" /> <img src="image" alt="Rating" /> <img src="image" alt="Rating" /> <img src="image" alt="Rating" /> <img src="image" alt="Rating" /></td>
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</tr>
<tr>
<td>My work has taken so much effort today that I am having difficulty keeping my thoughts straight.</td>
<td><img src="image" alt="Rating" /> <img src="image" alt="Rating" /> <img src="image" alt="Rating" /> <img src="image" alt="Rating" /> <img src="image" alt="Rating" /> <img src="image" alt="Rating" /> <img src="image" alt="Rating" /> <img src="image" alt="Rating" /> <img src="image" alt="Rating" /></td>
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<tr>
<td>Despite my work efforts so far today, I am thinking as clearly as I was when I started working today.</td>
<td><img src="image" alt="Rating" /> <img src="image" alt="Rating" /> <img src="image" alt="Rating" /> <img src="image" alt="Rating" /> <img src="image" alt="Rating" /> <img src="image" alt="Rating" /> <img src="image" alt="Rating" /> <img src="image" alt="Rating" /> <img src="image" alt="Rating" /></td>
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<tr>
<td>It will be difficult for me to show interest in other</td>
<td><img src="image" alt="Rating" /> <img src="image" alt="Rating" /> <img src="image" alt="Rating" /> <img src="image" alt="Rating" /> <img src="image" alt="Rating" /> <img src="image" alt="Rating" /> <img src="image" alt="Rating" /> <img src="image" alt="Rating" /> <img src="image" alt="Rating" /></td>
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</tbody>
</table>
people when I finish working today.
When I stop my work for today I will need more than an hour to begin feeling recovered.

<table>
<thead>
<tr>
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</tbody>
</table>

When I stop my work for today, I hope other people will leave me alone for a little while.
After working today I will be too tired to start on other activities.
I need to step away from my work very soon because a break would help me function better.
When work is finished today I will need some time by myself to start recovering and restoring myself before starting something else.

Finally, please respond to each of the following questions. This information will help us describe the overall sample of participants who assisted with this research.

Gender:
Male

Female

Age (please round to nearest year):

Relationship status:

- Single
- Married/Living as married
- In a committed (serious) relationship, but not married
- Divorced/Widowed

I am:

- Hispanic/Latino
- Non-Hispanic/latino

I identify most strongly as:

- White
- Black/African American
- Asian
- American Indian/Alaskan Native
- Native Hawaiian/Pacific Islander
- Middle Eastern/Arab

Number of dependents (please report the number of children and adults who depend on you for their care):


VITA

Robert Harste was born in Gainesville, Georgia, to parents Margaret Harste and Richard Harste. He attended LaGrange College, where he earned a Bachelor of Arts in Psychology in May 2010. Robert went on The University of Tennessee at Chattanooga to pursue a Master’s of Science in Psychology, with a concentration in Industrial and Organizational Psychology. At UTC, he worked as a graduate assistant and instructor for the psychology department. Robert developed a research interest in Occupational Health Psychology and wishes to pursue a Ph.D. to continue researching in this field. Robert graduated from UTC in May 2016.