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## Differential Links Between Leisure Activities and Depressive Symptoms in Unemployed Individuals

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### Abstract

**Objective**—Unemployment has consistently been linked to an elevated risk for depression. Exercise, specifically leisure-based physical activities, has received increasing attention as alternative treatment options. However, because leisure activities are pursued during discretionary time, it is unclear if the mental health benefits of physical and leisure activities apply during times of unemployment as well.

**Method**—Depressive symptoms and participation in recreational activities were assessed in 142 employed and 158 unemployed participants (age =  $34 \pm 11$  years; male = 150).

**Results**—Independent of employment status, all recreational activities were inversely associated with depressive symptoms. However, social (employed:  $\eta_p^2 = .21$ ; unemployed:  $\eta_p^2 = .11$ ) and self-focused (employed:  $\eta_p^2 = .19$ ; unemployed:  $\eta_p^2 = .10$ ) recreational activities were more strongly related to depressive symptoms than exercise (employed:  $\eta_p^2 = .12$ ; unemployed:  $\eta_p^2 > .05$ ).

**Conclusion**—These findings highlight the strong mental health associations of recreational activities and suggest that, particularly for unemployed individuals, promoting recreational activities, rather than exercise, may leverage the stronger negative relationship with risk of depression.

### Keywords

depressive symptoms; exercise; leisure activities; recreational activities; unemployment

Unemployment is a significant psychological life stressor and is associated with a variety of negative physical and psychological health outcomes (Gabrys, Michallik, Thiel, Vogt, & Banzer, 2013; Holmes & Rahe, 1967). One of the more serious mental health consequences is depression (Howe, Hornberger, Weihs, Moreno, & Neiderhiser, 2012), with unemployed individuals having twice the incidence of major depression than employed individuals (Marcotte, Wilcox-Gök, & Redmon, 1999). Moreover, depression can decrease job performance, thus increasing the likelihood for unemployment (Adler et al., 2006). Depression has traditionally been treated through a combination of psychotherapy and pharmacological medication; however, physical activity-based interventions are receiving

increasing attention (Augestad, Slettemoen, & Flanders, 2008). Development of alternative approaches like exercise may be particularly important in life circumstances associated with limited access to traditional therapy options, such as unemployment.

Exercise has been associated with numerous psychological benefits including improved overall mood (Anderson & Brice, 2011; Hogan, Mata, & Carstensen, 2013), decreased depression and anxiety in both clinical (Blumenthal et al., 2007; Craft & Perna, 2004; Martinsen, 2008) and nonclinical groups (Augestad et al., 2008), and decreased depression in longitudinal studies (Dunn, Trivedi, Kampert, Clark, & Chambliss, 2005; Patten, Williams, Lavorato, & Bulloch, 2013). The effects of exercise have also been observed across experimental studies (Craft & Perna, 2004), observational studies (Augestad et al., 2008), and in reviews and meta-analyses on the effects of exercise (Martinsen, 2008).

Consequently, exercise is currently widely encouraged in combination with antidepressants for the treatment of depression (Strawbridge, Deleger, Roberts, & Kaplan, 2002) and successfully reduces risk of depression after a stressful life event (O'Dougherty, Hearst, Syed, Kurzer, & Schmitz, 2012) for the general nonclinical population. Interestingly, recent evidence suggests that leisure-based (i.e., nonintervention) physical activity may be more beneficial than nonleisure activity in moderating depression for both the general population (Lin, Halgin, Well, & Ockene, 2008) and depressed groups (Pickett, Yardley, & Kendrick, 2012), but physical activities motivated by other domains (work, housework) did not provide similar protection (Chen, Stevinson, Ku, Chang, & Chu, 2012; Harvey, Hotopf, Øverland, & Mykletun, 2010). This raises the question whether exercise's beneficial effects may be subsumed under the umbrella of recreational leisure activities, or if the effects of physical and recreational activities are discrete.

Recreational leisure activities can be categorized into two broad domains (in addition to exercise): social and self-focused activities. Social activities can be generally defined as activities primarily focused around interpersonal interactions (e.g., going out to dinner with friends). Social leisure activities are based on pleasurable social interactions with friends, acquaintances, or family and as such can provide distraction from depressive events and increase perceptions of social support (Coleman & Iso-Ahola, 1993; Kleiber, Hutchinson, & Williams, 2002). Self-focused activities can be conducted both individually and within a group setting, with the distinguishing difference, compared with social activities, being that interpersonal interactions are not the primary focus (e.g., watching TV). Self-focused activities (e.g., meditating, TV watching) can serve both as a distracting element that buffers against negative events and a means for personal transformation (Kleiber et al., 2002; Martin & Lefcourt, 1983).

Generally, unemployed individuals have been found to be less physically active (Song, Lee, Baek, & Miller, 2012) and participate in social recreational activities less often than their employed counterparts (Waters & Moore, 2002). However, it is unclear from previous research across the various recreational domains identified above if unemployment reduces participation equally or if some domains are more affected than others. Similarly, it is not clear which recreational activities may be most beneficial in terms of depressive symptom reduction.

Based on the above-mentioned findings, the current study first aimed at assessing depressive symptoms in both employed and unemployed individuals (aim 1) and the extent the patterns of participation in the three domains of recreation differ between the employed and unemployed (aim 2). Next, we explored whether these differences in participation are associated with respective differences in depressive symptom severity (aim 3). Last, we aimed at exploring which domains of recreational activities were most favorably associated with depressive symptoms in employed compared with unemployed individuals (aim 4).

## Methods

### Participants

Responses were collected from 567 individuals. Only individuals indicating to be United States residents, 18 years or older, and having earned a Amazon's Mechanical Turk (mTurk) Human Intelligence Tasks rate of 98% or better were eligible. Participants who spent less than 15 minutes on the survey or gave the same multiple-choice response to all items of a questionnaire (straight-line responses) in two or more instances were excluded (n = 68).

In line with the goals of the current study, only those participants who self-reported to be employed full-time or unemployed (but needed to generate income) were included, and those participants who self-reported to be retired (n = 16), part-time employed (n = 47), or a homemaker (n = 119) were excluded. Further, participants with missing data were also excluded (n = 17). This resulted in a final study population of 300 (age:  $34.1 \pm 10.7$  years; male = 150; 142 employed and 158 unemployed). This study was approved by the local institutional review board and participants were compensated at a rate of \$2 for acceptable completion of the survey.

### Procedures

Participants were recruited through online postings at Amazon's mTurk, a marketplace where registered users complete online tasks for payment. Interested users were provided with a description of the study and asked to give informed consent via electronic acceptance of study materials. Once they decided to participate, they were redirected to Qualtrics ([www.qualtrics.com](http://www.qualtrics.com)) to administer the survey. As part of a larger cross-sectional study assessing participants' physical and mental health, health behaviors, and social life circumstances, the current study focused on the relationships between health behaviors and mental health. Upon completion, responses were assessed and, if satisfactory, participants were paid through mTurk.

### Measures

**Center for Epidemiologic Studies Depression (CESD) Scale**—We used the CESD to measure frequency of depressive symptoms experienced over the last month (Radloff, 1977). The CESD comprises 20 items (e.g., “I felt depressed”) with responses ranging from 0 (*rarely*) to 3 (*most or all of the time*). The final score was aggregated across four subscales, each representing a conceptual aspect of depression (depressive mood, absence of well-being or pleasure, increased somatic manifestations, and lack of interpersonal interactions).

Scores of 16 or higher are thereby indicative of potentially clinically relevant depressive symptom severity.

**Pittsburgh Enjoyable Activities Test (PEAT)**—The PEAT is a self-report 10-item questionnaire examining participation in leisure activities ( $\alpha = .72$ ) (Pressman et al., 2009). Responses are given on a 5-point Likert scale ranging from 0 (*never*) to 4 (*everyday*). For the current study, items 1 (spending quiet time alone), 2 (spending time unwinding), 7 (vacationing), 8 (communing with nature), and 10 (hobbies) were summed to create a self-focused recreational activities score ( $\alpha = .53$ ). Items 3 (visiting others), 4 (eating with others), 5 (doing fun things with others), and 6 (club, fellowship, and religious group participation) were summed to reflect social recreational activities ( $\alpha = .69$ ). Item 9 assessed sports and exercise.

### Statistical Analysis

Descriptive statistics were obtained for participant's age, gender, relationship status, and target variables (i.e., exercise frequency, self-focused and social recreation, CESD). We used analysis of covariance (ANCOVA), *t* tests, and chi-squared statistics to compare group differences and similarities between employed and unemployed participants for the variables of interest. To test for the main effects of recreational activities and depression, we used analysis of covariance with depression scores as the outcome variable. Interpretation guidelines for  $\eta_p^2$ , developed by Cohen (1988; .02 = small, .13 = medium, .26 = large), were followed. Confidence intervals for the effect size  $\eta_p^2$  used the noncentral *f* distribution and were calculated following the guidelines set forth by Smithson (2001). All analyses further controlled for age and gender.

## Results

### Preliminary Analyses

Average age for all participants was  $34.07 \pm 10.7$  years, with no significant differences,  $t(298) = 1.42, p = .16$  (see Table 1), between employed (mean [*M*] =  $34.99 \pm 9.7$  years) and unemployed participants ( $M = 33.25 \pm 11.5$  years), or between genders,  $t(298) = 0.83, p = .41$  (male =  $33.56 \pm 9.5$ ; female =  $34.59 \pm 11.8$ ). Some differences were observed in self-reported relationship statuses between genders,  $\chi^2(5) = 13.88, p = .016$  (males: more likely to be single; females: more likely to live with a partner), and between employment groups,  $\chi^2(5) = 22.07, p = .001$ , such that employed participants were more likely to be married,  $\chi^2(1) = 7.20, p = .007$ , or single,  $\chi^2(1) = 8.98, p = .003$ , and unemployed participants were more likely to be living with a partner but not married,  $\chi^2(1) = 4.25, p = .039$ . The U.S. Bureau of Labor Statistics guidelines classifies the length of employment in 40% of the participants as short term (<27 weeks), 22% as long term (between 27 weeks and 1 year), and as 37% very long term (>1 year Eurostat Defined).

### Hypotheses Testing

As predicted (aim 1), unemployed individuals showed significantly higher depressive symptom scores than employed individuals ( $M = 22.3$ , standard deviation [*SD*] = 12.94 vs.

15.87,  $SD = 12.17$ ),  $F(1,296) = 19.75$ ,  $p < .001$ ,  $\eta_p^2 = .06$ ), independent of gender (main effect:  $p = .14$ ; interaction:  $p = .66$ ; see Table 1).

Next, we examined whether differences in recreational participation exist depending on the participant's employment status (aim 2). Regarding self-focused and exercise activities, there were no differences in rates of participation for either employment group. In terms of socially focused activities, unemployed individuals reported spending less time engaged in these activities; however, the difference was marginally significant,  $F(1,296) = 3.64$ ,  $p = .057$ ,  $\eta_p^2 = .01$ .

To determine the relationships of recreational activity domains to depressive symptom severity (aim 3), a series of ANCOVAs split by employment status with recreational domain as a between-subject factors and depressive symptom scores as the outcome variable were computed. Across domains, these analyses revealed significant associations between more frequent participation in recreational activity and lower depressive symptoms, independent of employment status (all  $p < .007$ ; see Table 2).

Last, comparing the magnitudes of the effect sizes (Table 2; aim 4) for the various domains of recreational activities consistently revealed that social recreation had the strongest associations with depressive symptoms regardless of employment status (employed:  $\eta_p^2 = .21$ ; unemployed:  $\eta_p^2 = .11$ ). Self-focused recreational activities showed associations of comparable strength (employed:  $\eta_p^2 = .19$ ; unemployed:  $\eta_p^2 = .10$ ), while exercise was observed to have the weakest relationship with depressive symptoms for both employment groups (employed:  $\eta_p^2 = .12$ ; unemployed:  $\eta_p^2 > .05$ ). This ordering of social, self-focused, and exercise was additionally seen when all recreational activities were included in one model (see Table 2).

Of note, rerunning all analyses controlling for either duration of unemployment or relationship status had no effect on the pattern of associations between recreational activity and depressive symptoms reported above. Similarly, exploring potential additive effects of recreational activities on depressive symptoms by including the respective interaction terms revealed no significant effects (employed: all  $p > .16$ ; unemployed: all  $p > .35$ ).

## Discussion

The current study examined patterns of participation in recreational domains among employed and unemployed individuals, whether those domains are associated with depressive symptoms, and which domains are the most beneficial for each employment status group. We did not find significant participation differences for most types of recreational activities between employment groups; however, unemployed individuals reported higher levels of depressive symptoms. Although, in general, participation in recreational activities was associated with significantly lower depressive symptoms in both employment groups, differential effects of recreational activity domains were observed along with generally stronger associations in employed compared with unemployed individuals.

## Participation in Recreational Activities

When assessing participation in individual domains of recreational activity, the two employment groups showed overall comparable behavior. More specifically, inconsistent with previous literature, unemployed and employed individuals reported similar participation rates in self-focused recreational activities (Waters & Moore, 2002). With regard to social recreational domain activities, the current study found only a marginal difference between the employment groups. This is in contrast to previous studies that have suggested that unemployed individuals participate in social activities less frequently (Waters & Moore, 2002) and that unemployment is associated with an exhaustion of social resources (Kinicki, Prussia, & McKee-Ryan, 2000). It can be speculated that given the increasingly central role of computerized social networking (Junghyun & Jong-Eun Roselyn, 2011), social depletion may occur at a slower rate, thus buffering the negative effects of unemployment on participation in social activities.

Last, participation in exercise and sports was also comparable between employment groups. Previous studies reported both increased (Scanlan, Bundy, & Matthews, 2011) and decreased participation in exercise (Freyer-Adam, Gaertner, Tobschall, & John, 2011). Perhaps, the current findings are resulting from the average of opposite trends in exercise behavior changes observed in the transition from employment to unemployment, such that some participants decrease participation in exercise when becoming unemployed (Gabrys et al., 2013), while others increase exercise during unemployment (Colman & Dave, 2013).

## Differential Leisure Domain Associations with Depressive Symptoms

Across all recreational domains, the current study found significant associations between lower depressive symptoms and higher reported participation in any of the activities. Importantly, overall these negative relationships were not dependent on whether the participant was employed or unemployed. Furthermore, some important differences in the magnitude of the relationship between recreational activity and reduction of depressive symptoms existed across participants.

First, self-focused leisure activities were beneficially associated with depressive symptoms independent of employment status. However, although unemployed participants reported engaging in self-focused leisure activities at roughly similar frequency as employed individuals, they also reported elevated depressive symptoms. In addition, the magnitude of the association between self-focused leisure activities and depressive symptoms was weaker in the unemployed. It can be speculated that unemployment may alter the meaningfulness of leisure activities, thus changing the perception of what constitutes effective recreation.

Furthermore, during periods of unemployment, familiar routines associated with employment are lost (McKee-Ryan, Song, Wanberg, & Kinicki, 2005). Without having this employment-related time structure as a backdrop, it may become difficult to clearly define self-focused leisure activity. Interestingly, loss of time structure has been associated with negative effects on psychological well-being, including higher incidences of depression (McKee-Ryan et al., 2005). Furthermore, while the meaning associated with self-focused recreation may change because of differences in time structure as described above,



depressive symptoms may influence how meaning is derived from recreational activities because depression can reduce the pleasurable properties associated with self-focused recreation, thus leading to a lack of enthusiasm and desire to participate (Hopko, Lejuez, Ruggiero, & Eifert, 2003).

In summary, our results show that while self-focused recreational activities generally are beneficially linked with depressive symptoms, this effect is weaker in the unemployed, possibly because of the lack of clearly defined discretionary free time and obligated time, resulting in reduced meaningfulness of self-focused leisure activities. Further studies are needed to examine motivations for participating in self-focused leisure activities in a longitudinal design, i.e., to what extent the person enjoys and finds meaning in the activity versus it being a consequence of lack of social recreation.

Second, with regard to social recreational activities, higher levels of participation were associated with fewer depressive symptoms for both groups. The modified social interaction hypothesis (Crone, Smith, & Gough, 2009) suggests that recreational activities that are coupled with a social interaction involving friends or family should have a positive net benefit on mental health and depressive symptoms. In line with these findings, the current study revealed that social recreational leisure activities had the largest associations with depressive symptoms for both employment groups. Although these associations existed independent of employment status, it is important to note that the effects were again stronger for employed, rather than unemployed, individuals, despite the lack of significant differences in social recreation participation between the two groups. Nevertheless, our findings highlight the importance of maintaining engagement in social recreational activities for unemployed individuals.

Last, exercise activity was negatively associated with depressive symptoms in both groups. Although no differences in exercise and sports participation were observed between the two employment groups, this link was stronger in employed than in unemployed individuals. It has been suggested by Teychenne et al. (2008) that exercise can act as a distraction from everyday worries. Given the multitude of negative consequences of unemployment, it could be speculated that worries and frustrations for these participants are elevated beyond everyday concerns; thus, exercising alone may not be as effective. It should also be noted that for unemployed individuals, exercising every day, compared with not exercising, was associated with a 7-point reduction in depressive symptoms scores. This difference, though not statistically significant, still can represent a clinically meaningful effect.

Our findings further indicate that when directly comparing the various domains, leisure activities other than exercise may be more favorably associated with depressive symptoms. As such, they are consistent with previous studies emphasizing the mental health benefits of leisure-based activities (Patten et al., 2013). However, when further differentiating recreational domains, social recreational activities showed the strongest links to mental health in both employment groups. In contrast, self-focused activities showed effects comparable to social leisure activities in the employed and effects comparable to exercise in the unemployed, thus supporting the central role of social leisure activities in this latter group. However, social recreation and exercise are not mutually exclusive activities; thus, it

would be interesting for future studies to examine the role of social companionship (Coleman & Iso-Ahola, 1993) in exercise regimen within a depression context.

### Limitations

Importantly, the current findings are correlational in nature and hence directionality cannot be inferred. For example, when assessing self-focused leisure activities, suffering from depressive symptoms may decrease opportunities for socially focused recreation (Waters & Moore, 2002), thereby increasing participation in self-focused activities. Furthermore, lower physical activity rates and nonadherence to exercise programs may, in turn, be partly explained by depression's association with lower energy and motivational behavioral states (Patten et al., 2013). These processes may additionally create a vicious cycle in which, for example, depression leads to social erosion and increased social rejection (Kinicki et al., 2000), and decreased social support, in turn, contributes to increasing depressive symptoms (Cobb, 1976). Longitudinal studies are needed after participation in various leisure activities during the transition from employment to unemployment.

Second, while the current study obtained information on unemployed duration, future studies will have to assess reasons for unemployment, including whether depression or comorbid disorders may have contributed to unemployment. Similarly, while we assessed participation rate in recreational activities, it would be interesting to examine reasons for participants' choices and meanings derived from participating in specific activities.

Of note, data collection through mTurk has been shown to result in study populations that are demographically more diverse compared with traditional sampling methods (Buhrmester, Kwang, & Gosling, 2011) and is more representative of the United States population overall (Ross, Zaldivar, Irani, & Tomlinson, 2009). However, the current mTurk sample reported high levels of depressive symptoms. Specifically, employed participants reported depressive symptoms close to and unemployed participants significantly above the CESD cutoff of 16, suggesting clinically relevant symptom severity. Although a potential concern, in the context of the current study, these scores emphasize the relevance of our findings, as recreation activities were shown to affect individuals who actually report clinically significant symptoms.

### Conclusion

Current depression literature has examined the effects of recreational activities and behaviors on depressive symptoms (Cheng, Chow, Yu, & Chan, 2012; Garrett-Peters, 2009; Patten et al., 2013; Sale, Guppy, & El-Sayed, 2000). However, most studies have examined only recreational activities as a generalized whole, with relatively few studies examining the effects of specific domains of recreational leisure activities on depressive symptoms (Herrera et al., 2011). Concurrently, unemployment literature typically examines general types of behaviors and activities, such as exercise (Colman & Dave, 2013) or recreation (Scanlan et al., 2011; Waters & Moore, 2002).

To our knowledge, the current cross-sectional study is one of the first to examine the effects of recreational domains on depressive symptoms in the unemployed population with the goal



of identifying the most beneficial type of activity. While all leisure activities were beneficially associated with depressive symptoms, specifically for unemployed individuals, our findings emphasize the importance of social recreational activities over self-focused leisure activities and exercise. In addition, independent of employment status, the results of this study continue to reinforce the notion that it may not be the physical aspects of exercise per se, but the leisure component that may facilitate its ameliorating effects on depressive symptoms, with social activities showing the strongest mental health benefits.

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**Table 1**

## Demographics (Means and Standard Deviations)

	<b>Employed</b>	<b>Unemployed</b>	<b>Statistic</b>	<b><i>p</i> value</b>	<b>Effect size</b>
Sex (female)	63 (79)	87 (71)	$X^2(1) = 3.40$	.064	$\phi = -.11$
Age	34.99 (9.7)	33.25 (11.5)	$F(1,297) = 1.74$	.19	$\eta_p^2 = .01$
Depressive symptoms	15.87 (12.2)	22.30 (12.9)	$F(1,295) = 19.75$	<.001	$\eta_p^2 = .06$
Social recreation	2.27 (0.88)	2.08 (0.90)	$F(1,296) = 3.64$	.057	$\eta_p^2 = .01$
Self-focused recreation	1.66 (0.53)	1.65 (0.59)	$F(1,296) = 0.17$	.68	$\eta_p^2 = .00$
Exercise	2.42 (1.52)	2.13 (1.56)	$X^2(4) = 3.50$	.48	$\phi = .11$
Length of unemployment in months		19.21 (24.87)			

*Note.* Analyses controlled for age and/or gender, where appropriate.

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**Table 2**

Summaries of ANCOVA Models (Covariates: Age and Gender) Predicting Depressive Symptom Scores for Individual Recreational Domains (A) and Combined Recreational Domains (B)

A	<u>Employed: Each model: <math>df = (1,138)</math></u>				<u>Unemployed: Each model: <math>df = (1,154)</math></u>			
	<i>F</i>	<i>p</i>	$\eta_p^2$	95% CI	<i>F</i>	<i>p</i>	$\eta_p^2$	95% CI
Social <sup>a</sup>	35.78	<.001	.21	[.01, .32]	18.52	<.001	.11	[.03, .20]
Self-focused	31.61	<.001	.19	[.08, .30]	17.00	<.001	.10	[.03, .19]
Exercise	19.03	<.001	.12	[.04, .23]	7.42	.007	.05	[.00, .12]

  

B	<u>Employed: (<math>df = 1,136</math>)</u>				<u>Unemployed: (<math>df = 1,152</math>)</u>			
	<i>F</i>	<i>p</i>	$\eta_p^2$	95% CI	<i>F</i>	<i>p</i>	$\eta_p^2$	95% CI
Age	4.26	.041	.03	[.00, .11]	2.10	.15	.01	[.00, .07]
Gender	3.49	.064	.02	[.00, .10]	0.21	.65	.00	[.00, .04]
Social	11.72	.001	.08	[.01, .18]	6.55	.011	.04	[.00, .12]
Self-focused	9.31	.003	.06	[.01, .16]	2.69	.10	.02	[.00, .08]
Exercise	2.17	.14	.02	[.00, .08]	1.43	.23	.01	[.00, .06]

Note. ANCOVA = analysis of covariance;  $df$  = degree of freedom; CI = confidence interval. Covariate effects for all three models (A): age  $p > .08$  and gender  $p > .10$ .

<sup>a</sup>Except gender:  $p = .039$ ,  $\eta_p^2 = .03$ .