

**Exploring an expanded model of recovery experiences:  
The impact on work performance outcomes and work-life conflict**

**By  
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Exploring an expanded model of recovery experiences:  
The impact on work performance outcomes and work-life conflict

By: Amanda J. MacDonald

**Abstract**

This study investigated the ability of a stress management and work-life balance intervention (i.e., Achieving Balance in Life & Employment; ABLE) to increase recovery experiences as assessed with a 10 factor expanded model of recovery experiences (Stevens, 2011). I also examined the impact of recovery on work performance outcomes (i.e., job performance, organizational citizenship behaviours, and personal initiative) and work-life conflict. Participants were 139 employees (intervention treatment group,  $N = 72$ ; control group,  $N = 67$ ) from various organizations. Overall, recovery partially mediated the relationship between participating in the intervention and the three work performance outcomes; such that participation in the intervention increased recovery, which in turn had significant, indirect effects on work performance outcomes. Compared to the control group, participants in the intervention experienced significant increases in five of the 10 recovery experiences. The implications of these findings and ideas for future research are discussed.

*Keywords:* recovery experiences, work-life conflict, job performance, organizational citizenship behaviour, personal initiative

June 27, 2012

Exploring an expanded model of recovery experiences: The impact on work performance outcomes and work-life conflict

Approximately 40% of Canadians report that work responsibilities interfere with their responsibilities at home (Duxbury & Higgins, 2003). Some estimates suggest as many as 60% of Canadians are not able to balance their work and family roles (Duxbury & Higgins, 2003). Approximately 58% of Canadians have too much to do at work (Duxbury & Higgins, 2003). This lack of balance and high degree of work overload may create challenges for employees attempting to properly recover from their workday, thus increasing stress and strain (Geurts & Sonnentag, 2009). However, engaging in leisure and other recovery activities may improve well-being and decrease stress (Siltaloppi, Kinnunen, & Feldt, 2009; Sonnentag & Fritz, 2007; Stevens, 2011). Unfortunately, according to the Canadian Index of Wellbeing (2010), the average amount of time Canadians spend on social and leisure activities has been decreasing over the past 20 years. Research needs to examine the effectiveness of workplace interventions to help employees manage their stress and conflict in the workplace (e.g., Kelloway, Hurrell, & Day, 2008). Therefore, the present study assessed the impact of a work intervention program on recovery experiences, and evaluated the effect of these experiences on variables related to work performance (i.e., job performance, organizational citizenship behaviours, and personal initiative) and work-life conflict.

### **Recovery**

Recovery is the process of restoring and accumulating resources, such as energy and positive mood (Sonnentag & Bayer, 2005; Sonnentag & Fritz, 2007). By restoring positive mood, physical and mental health problems are diminished (Sonnentag & Bayer,

2005; Sonnentag & Fritz, 2007). According to Sonnentag and Fritz (2007), there are four different types of recovery experiences: psychological detachment, relaxation, mastery experiences, and control during leisure time. Detachment occurs when an individual has a sense of being away from the work situation, and psychological detachment means to disengage oneself mentally from work. Relaxation is generally associated with leisure activities and is characterized by low activation and increased positive affect. Mastery experiences are considered off-job activities that can distract one from their job by engaging in challenging experiences and learning opportunities in domains outside of work. Control during leisure time allows an individual to choose their specific leisure activity that will be especially beneficial for their recovery process (Sonnentag & Fritz, 2007).

### **Expanded Model of Recovery**

Sonnentag and Fritz (2007) developed the Recovery Experience Questionnaire (REQ) to measure the original recovery experiences, and found support for a four-factor structure, differentiating between psychological detachment, relaxation, mastery, and control. The REQ showed good internal consistencies and related in expected ways with constructs such as job stressors, psychological well-being, and coping measures (Sonnentag & Fritz, 2007). However, Sonnentag and Fritz (2007) did suggest that there might be additional recovery experiences not encompassed by the four factors that were identified.

Other types of recovery experiences may also be important for restoring resources lost from work demands and stress (Sonnentag & Fritz, 2007; Stevens, 2011). Through qualitative and quantitative scale development and cross-sectional data collection,

Stevens (2011) identified six additional types of recovery experiences: physical activity, social affiliation, experience of fun/humour, hope/optimism, planning, and self-reward. *Physical activity* is the extent to which people engage in physically stimulating activity during non-work time; *Social affiliation* is engagement in social activities during non-work time; *Fun/Humour* occurs when people do things that are fun and lighthearted during non-work time; *Hope/Optimism* includes positive thoughts about future events or experiences during non-work time; *Planning* occurs when people plan activities to help organize themselves during non-work time; and *Self-Reward* includes activities that people use to reward or treat themselves to something special during non-work time. Together, research illustrates that these recovery experiences can diminish the effects of workplace stress on strain and other negative health outcomes (Stevens, 2011). These additional recovery experiences accounted for a significant amount of variance in employee well-being outcomes above and beyond the variance explained by the original four recovery experiences (Stevens, 2011).

### **Recovery & Work-Life Conflict**

Work-life conflict is defined as “a form of inter-role conflict in which the role pressures from the work and family domains are mutually incompatible in some respect” (Greenhaus & Beutell, 1985, p. 77). High levels of work-life conflict negatively impact areas such as well-being (Thompson & Prottas, 2006), life satisfaction (Kossek & Ozeki, 1998), and marital satisfaction (Allen, Herst, Bruck, & Sutton, 2000). Work-life conflict has also been linked to individual strain outcomes, such as increased stress, depression, and anxiety (Kelloway, Gottlieb, & Barham, 1999; Kinnunen, Feldt, Guest, & Pluckiness, 2006; Lapierre & Allen, 2006; Noor, 2003), increased alcohol use and

decreased physical health (Frone, 2003), as well as work-based outcomes, such as decreased job satisfaction (Kossek & Ozeki, 1998) and decreased organizational commitment (Cannon, 1998).

Work-life conflict is associated with many work factors, such as work overload (Byron, 2005), lack of control (Day & Chamberlain, 2006), unsupportive supervisors (Thomas & Ganster, 1995), and unclear expectations at work (Eby, Casper, Lockwood, Bordeaux, & Brinkley, 2005). Not surprisingly, having more conflict, pressure, and stress at work, along with having unpredictability in one's work routine (i.e., working shift work or working weekends) have all been related to higher work-family conflict (Fox & Dwyer, 1999; Greenhaus, Bedeian, & Mossholder, 1987). Fortunately, recovery experiences at home may offset the negative effects of high work demands (Amstad & Semmer, 2009).

Recovery helps to increase positive energy and mood by restoring and accumulating resources (Sonnentag & Bayer, 2005; Sonnentag & Fritz, 2007). Moreno-Jiménez, Mayo, Sanz-Vergel, Geurts, Rodríguez-Muñoz, and Garrosa (2009) found that psychological detachment from work moderated the relationship between work-family conflict and psychological strain. Recovering during the workday by taking breaks also predicted a decrease in work-family conflict (Sanz-Vergel, Demerouti, Moreno-Jiménez, & Mayo, 2010). There is evidence supporting the positive impact of recovery experiences on work-life conflict and psychological well-being (Sanz-Vergel et al., 2010; Sonnentag & Fritz, 2007); the current study will expand on these findings and examine the relationships between the expanded model of recovery experiences and work-life conflict.

**Recovery & Work Performance**

In addition to developing a better understanding of the benefits of recovery experiences on employee health and well-being (e.g., Siltaloppi et al., 2009; Sonnentag & Fritz, 2007; Stevens, 2011), researchers also have begun to examine the impact that recovery experiences have on work performance outcomes. Job performance can be divided into task performance (i.e., behaviours that are directly related to the requirements of the job) and contextual performance (i.e., behaviors that help to form and support the social and organizational environment; Borman & Motowidlo, 1993). Behaviours such as helping and cooperating with others, volunteering, following rules and procedures, and supporting organizational objectives would be considered contextual performance behaviours (Borman & Motowidlo, 1993). Contextual performance is thought to facilitate task performance, thus indirectly contributing to the organization's functioning (Binnewies et al., 2009a). The two types of contextual performance behaviours that will be investigated in the current study are personal initiative and organizational citizenship behaviours.

Personal initiative is defined as behaviours that take a proactive and self-starting approach to work goals and tasks (Fay & Frese, 2001; Frese, Fay, Hilburger, Leng, & Tag, 1997; Frese, Garst, & Fay, 2007). Specifically, personal initiative is the pursuit of goals that are self-identified, as opposed to goals that are assigned (e.g., a worker who attempts to fix a broken machine even though it is not a required part of their job; Frese et al., 2007). Organizational citizenship behaviours are those employee behaviours that are not mandatory for the job or task, but can increase organizational functioning (Borman & Motowidlo, 1993; Organ, 1997). Examples of OCBs include helping coworkers or

attending organizational events that are not mandatory. It has been suggested that different types of OCBs should be distinguished, specifically, those behaviours directed to other individuals (OCBI) and those directed to the organization (OCBO; Organ, 1997). The current study will focus solely on OCBI because the intervention is designed to have a greater effect on employees' behaviours toward their colleagues, rather than their behaviours toward the organization as a whole.

Binnewies, Sonnentag, and Mojza (2009a) found that for individuals with high job control, feeling recovered in the morning was positively related to daily job performance, including task performance, personal initiative, and organizational citizenship behaviours (Binnewies et al., 2009a). Feeling recovered during leisure time was positively related to an increase in task performance, mediated by occupational self-efficacy over a 6-month period (Binnewies, Sonnentag, & Mojza, 2009b). Fritz, Yankelevich, Zarubin, and Barger (2010) found a curvilinear relationship between psychological detachment and job performance, suggesting that average levels of detachment are better for job performance.

Experiencing psychological detachment, relaxation, and mastery during the weekend was positively related to feeling recovered at the beginning of the work week, which was positively related to task performance, personal initiative, and organizational citizenship behaviours throughout the week, over a period of four weeks (Binnewies, Sonnentag, & Mojza, 2010). To further understand these relationships, Binnewies et al. (2010) suggested examining the effect of weekday recovery experiences on job performance. It also may be helpful to examine recovery experiences over a longer period of time, because some recovery experiences may be more important and

instrumental in the long term rather than short term (Binnewies et al., 2010; Stevens, 2011).

### **Recovery Training**

Recovery experiences may be developed and increased through training and interventions, which could lead to substantial improvements in how employees are affected by stress and conflict. A two-day recovery training program resulted in an increase in recovery experiences (i.e., psychological detachment, relaxation, mastery experiences, and control), with some increases lasting up to three weeks after training (Hahn, Binnewies, Sonnentag, & Mojza, 2011). Similarly, several types of recovery experiences, including some of the additional recovery experiences identified by Stevens (2011) were successfully increased through one-on-one coaching, as part of a 12-week work-life conflict/stress management intervention. These increased recovery experiences led to reduced strain and burnout and an increase in positive mood (Stevens, 2011). It is important to examine these relationships further and to examine other potential benefits of recovery training in terms of employee and work performance outcomes.

### **Summary & Hypotheses**

The evidence supporting the positive impact of recovery and recovery training is promising. It is important to extend this research by examining the impact of recovery training on work performance outcomes such as job and contextual performance and on work-life conflict, which the current study will investigate. Because recovery can be achieved by several pursuits selected by the individual, such as physical activity, relaxation, and mastery, it is important not only to examine the individual components, but also to consider the sum total of recovery experiences when investigating any impacts

on work performance outcomes and work-life conflict. I will also explore whether a 10-week stress management and work-life balance intervention (Achieving Balance in Life and Employment; ABLE) can increase different recovery experiences, utilizing the expanded model of recovery experiences (Stevens, 2011; based on Sonnentag & Fritz, 2007).

Previous research has found that feeling recovered increases individual work performance outcomes, such as task performance, organizational citizenship behaviours, and personal initiative (Binnewies et al., 2009a; 2009b; Demerouti, Taris, & Bakker, 2007). Similarly, Demerouti et al. (2007) suggested that a lack of recovery leads to increased work-life conflict. I hypothesize that the impact of the intervention program on work performance outcomes (i.e., job performance, organizational citizenship behaviours, and personal initiative) and work-life conflict will in part be due to the program's ability to increase overall recovery. The intervention promotes engaging in recovery activities, which have been linked to increased performance outcomes (Binnewies et al., 2009a; 2009b) and decreased work-life conflict (Demerouti et al., 2007; Sanz-Vergel et al., 2010). Therefore, I would expect that some of the program's impact on the work performance outcomes and work-life conflict would be due to the increase in recovery. However, the intervention also targets other behaviour change, such as increasing communication at work, reducing workplace demands, and scheduling and prioritizing work and home responsibilities, all of which may have an additional impact on the work performance outcomes and work-life conflict. Consequently, I expect that recovery would only partially mediate the relationship between the intervention and job

performance, personal initiative, organizational citizenship behaviours, and work-life conflict and I hypothesize that:

***Hypothesis 1a:*** Overall recovery will partially mediate the relationships between intervention status (i.e., participating in the intervention vs. participating in the control group) and (a) job performance; (b) personal initiative; & (c) organizational citizenship behaviours directed at individuals.

***Hypothesis 1b:*** Overall recovery will partially mediate the relationship between intervention status (i.e., participating in the intervention vs. participating in the control group) and work-life conflict.

In addition to testing a partially-mediated model (see Figure 1), I will also test a non-mediated model (i.e., direct paths from intervention status to overall recovery and each of the four outcomes; see Figure 2) and a fully-mediated model (i.e., direct paths from intervention status to overall recovery, and from overall recovery to each of the four outcomes; see Figure 3). I will use a chi-square difference test to assess the best fitting model.

The current intervention, Achieving Balance in Life and Employment (ABLE), teaches employees how to cope with stress and work demands, and topics include time management, prioritization, communicating effectively, and work-life balance. The program emphasizes the importance of incorporating recovery activities into participants' daily routine, and helps them to set realistic goals to help attain balance and engage in recovery experiences. Stevens (2011) found that some of the specific recovery experiences increased during an earlier implementation of the ABLE intervention. Because the ABLE program addresses all of the 10 recovery experiences, I will examine

the extent to which ABLE increases the specific recovery subscales (as opposed to overall recovery). Therefore, I hypothesize that:

***Hypothesis 2.*** Compared to individuals in the control group, individuals who participate in the intervention will report increased recovery experiences (across all 10 subscales).

## **Method**

### **Intervention – ABLE**

Achieving Balance in Life and Employment (ABLE) is a 10-week, phone-based coaching program. Participants received a manual, which included educational material and activities on topics such as time management, coping strategies, prioritizing, work-life balance, communication, and more. Participation also included weekly one-on-one individualized phone coaching sessions that focused on the promotion of physical and mental health, stress reduction, and balancing work and life demands. Participants identified stressors and demands that they faced at work and at home, and set goals to work towards throughout the program.

### **Participants**

Participants were 139 employees from 10 different organizations across Nova Scotia who participated in the ABLE intervention program and completed the survey at both time points. Of those 139 employees, 72 participated in the intervention treatment group, and 67 acted as a control group<sup>1</sup>. The majority of participants were female (87.1%), with an average age of 43 years, ranging from 23 to 62 years, 65.3% reported

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<sup>1</sup> The control group became the intervention group after Time 2 data collection as part of a larger study.

being married or common law and 61.9% reported having at least one child. All participants were employed at the time of the surveys and worked an average of 39.71 hours per week. The majority of participants had completed some form of higher education (i.e., college, university, or graduate degree; 81.01%).

### **Procedure**

Prior to completing the first survey, all participants completed a screening survey in December 2012. Those participants who scored in the extremely severe range on the depression subscale of the Depression Anxiety Stress Scale (DASS; Lovibond & Lovibond, 1995) were screened out of the study, and were contacted by a clinical psychologist for further assessment.

Participants also completed a survey in January 2012 and in April 2012. The intervention group began the 10-week coaching program after completing the first survey in January. Participants were not randomly assigned to the intervention and control groups for several reasons, including insufficient time. That is, most participants who registered first were placed in the intervention group unless they specified that they were not able to begin their coaching session right away. Also, once the intervention group was full, those participants who registered later were placed in the control group. Manuals were sent to those participants in the intervention group prior to the coaching sessions. Survey data was collected electronically via LimeSurvey Version 1.85+ (LimeSurvey, 2009).

**Measures**

Participants were asked to complete the following scales and items (please see Appendix A for the complete measures).

**Demographics & Work Characteristics.** Participants were asked to indicate their age, gender, education, workplace, occupation, marital status, and number of children.

**Recovery Experiences.** The 41-item Recovery Experience Questionnaire – Expanded (REQ – Expanded; Stevens, 2011) was used to assess recovery experiences. The REQ – Expanded includes the original 16 items from the REQ (Sonnetag & Fritz, 2007) and 25 additional items created by Stevens (2011). Using a 5-point Likert-type scale (1 = *I do not agree at all*; 5 = *I fully agree*), respondents were asked to rate the extent to which they had engaged in recovery experiences over the past month (e.g., “I engaged in activities that I find exciting.”).

The ten recovery subscales demonstrated high internal reliability at Time 1 and Time 2: (1) Psychological Detachment (Time 1:  $\alpha = .83$ , item-total correlations ranging from .56 to .73; Time 2:  $\alpha = .91$ , item-total correlations ranging from .67 to .87); (2) Relaxation (Time 1:  $\alpha = .94$ , item-total correlations ranging from .79 to .91; Time 2:  $\alpha = .94$ , item-total correlations ranging from .78 to .91); (3) Mastery (Time 1:  $\alpha = .91$ , item-total correlations ranging from .74 to .83; Time 2:  $\alpha = .91$ , item-total correlations ranging from .77 to .84); (4) Control (Time 1:  $\alpha = .84$ , item-total correlations ranging from .42 to .79; Time 2:  $\alpha = .88$ , item-total correlations ranging from .63 to .84); (5) Planning (Time 1:  $r = .85$ ; Time 2:  $r = .73$ ); (6) Social Affiliation (Time 1:  $\alpha = .84$ , item-total correlations ranging from .55 to .80; Time 2:  $\alpha = .88$ , item-total correlations ranging from .71 to .82);

(7) Physical Activity (Time 1:  $\alpha = .94$ , item-total correlations ranging from .75 to .92; Time 2:  $\alpha = .93$ , item-total correlations ranging from .69 to .90); (8) Hope/Optimism (Time 1:  $\alpha = .75$ , item-total correlations ranging from .34 to .64; Time 2:  $\alpha = .81$ , item-total correlations ranging from .45 to .72); (9) Fun/Humour (Time 1:  $\alpha = .85$ , item-total correlations ranging from .53 to .74; Time 2:  $\alpha = .91$ , item-total correlations ranging from .70 to .85); (10) Self-Reward (Time 1:  $\alpha = .84$ , item-total correlations ranging from .53 to .78; Time 2:  $\alpha = .89$ , item-total correlations ranging from .58 to .86). The overall recovery score (mean of all 41 items used for the mediation analysis), Cronbach's alpha was .94, item-total correlations ranged from .10 to .69 at Time 1 and item-total correlations ranged from .28 to .73 at Time 2.

**Job performance.** Three items that were adapted from Wayne and Ferris (1990) by Schat and Frone (2011) were used to assess task performance. Using a 5-point Likert-type scale (1 = *poor*; 5 = *excellent*), respondents were asked to provide the rating from the perspective of their supervisor (e.g., "How would your supervisor or boss rate the overall AMOUNT OF WORK you accomplished during the PAST 3 MONTHS?"). Cronbach's alpha for Time 1 was .92, with item-total correlations ranging from .81 to .87; Cronbach's alpha for Time 2 was .92, with item-total correlations ranging from .81 to .85.

**Organizational Citizenship Behaviours – Individual.** Nine items adapted from Lee and Allen (2002) were used to assess organizational citizenship behaviours that were directed at the individual<sup>2</sup>. Using 7-point Likert-type scale (1 = *never*, 7 = *always*), participants were asked how often they engaged in work-related behaviours over the past

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<sup>2</sup> The original OCBI scale (Lee & Allen, 2002) consisted of eight items; for the current study, one of the items was split into two items to help improve clarity.

month (e.g., “I willingly give my time to help others who have work-related problems.”). Cronbach’s alpha for Time 1 was .87, with item-total correlations ranging from .45 to .73; Cronbach’s alpha for Time 2 was .87, with item-total correlations ranging from .44 to .77.

**Personal Initiative.** Seven-items adapted from Frese, Fay, Hilburger, Leng, and Tag (1997) were used to measure personal initiative over the past month. Using a 5-point Likert-type scale (1 = *strongly disagree*, 5 = *strongly agree*), participants were asked the extent to which they agree with the items (e.g., “Whenever something goes wrong, I search for a solution immediately.”). Cronbach’s alpha for Time 1 was .85, with item-total correlations ranging from .52 to .79; Cronbach’s alpha for Time 2 was .83, with item-total correlations ranging from .50 to .73.

**Work-Life Conflict.** Three items from the Work-Family Role Conflict Scale adapted from Day and Chamberlain (2006) were modified to measure work-life conflict over the past month. Using a 5-point Likert-type scale (1 = *strongly disagree*, 5 = *strongly agree*), participants were asked to indicate the extent to which they agree with the statements (e.g., “It is hard to balance my role as an employee with my life outside of work.”). Cronbach’s alpha for Time 1 was .90, with item-total correlations ranging from .77 to .82; Cronbach’s alpha for Time 2 was .89, with item-total correlations ranging from .73 to .86.

## Results

Data were screened for outliers, data entry errors, and violations of assumptions, including heterogeneity of variance and non-normality. All variables demonstrated acceptable properties. Statistical analyses were performed using SPSS version 19.0 and

AMOS 9.0. Means, standard deviations, and correlations among study variables are presented in Table 1.

Because participants came from 10 different organizations, I conducted a MANOVA with organization as the independent variable to assess the impact of organization on all outcomes and recovery subscales at Time 1. There was no significant multivariate effect (Wilks'  $\lambda = .37$ ,  $F(14, 126) = 1.04$ ,  $p = .374$ ,  $\eta^2 = .10$ ), indicating that there were no differences among the 10 organizations on the outcomes and the recovery subscales. Therefore, all analyses were conducted at the individual level.

### **Recovery as a Mediator**

To test whether recovery mediates the relationship between the intervention and the work performance outcomes and work-life conflict (Hypotheses 1a & 1b), I used an overall measure of recovery (the mean of all items). Because recovery can be achieved by several pursuits selected by the individual (e.g., physical activity, mastery, control, social affiliation), it is important to consider whether the sum total of recovery influences the outcomes in the mediation analyses. The overall measure was also used to reduce the number of analyses that would be required with multiple subscales and to ensure parsimony. I tested three models using SEM: a non-mediated model, a partially mediated model, and a fully mediated model (Kelloway, 1998). I controlled for the effects of each Time 1 outcome and the overall Time 1 recovery score in each model.

Although differences in fit between the non-mediated model and the fully mediated model cannot be directly compared, both are nested within the partially mediated model. I compared the nested models using the chi-square difference test to contrast the models (see Table 2 for statistics). The partially mediated model was a

significantly better fit to the data than the non-mediated or the fully mediated model (see Figure 4 for final model).

The non-mediated model (see Figure 2) did not provide a good fit to the data,  $\chi^2(30, N = 130) = 59.57, p < .01$ ; normed fit index (NFI) = .89; comparative fit index (CFI) = .94; root mean square error of approximation (RMSEA) = .09, ns. The fully mediated model (see Figure 3) provided only a slightly better fit and still did not achieve a good fit to the data  $\chi^2(30, N = 130) = 57.54, p = .002$ ; normed fit index (NFI) = .89; comparative fit index (CFI) = .94; root mean square error of approximation (RMSEA) = .08, ns.

The partially mediated model provided a good fit to the data  $\chi^2(26, N = 130) = 40.13, p = .038$ ; normed fit index (NFI) = .92; comparative fit index (CFI) = .97; root mean square error of approximation (RMSEA) = .07, ns. Participation in the intervention significantly positively predicted overall recovery at Time 2 ( $B = .29, p = .001$ ).

Participation in the intervention significantly and negatively predicted work-life conflict at Time 2 ( $B = -.39, p = .011$ ), and positively predicted job performance at Time 2 ( $B = .30, p = .002$ ), but not OCBI at Time 2 ( $B = -.14, p = .230$ ) or personal initiative at Time 2 ( $B = .06, p = .398$ ). Overall recovery at Time 2 did not significantly predict work-life conflict at Time 2 ( $B = -.17, p = .147$ ), or job performance at Time 2 ( $B = .14, p = .053$ ). Overall recovery at Time 2 significantly predicted OCBI at Time 2 ( $B = .27, p = .003$ ), and personal initiative at Time 2 ( $B = .13, p = .019$ ). Not surprisingly, each Time 1 outcome predicted its Time 2 counterpart: work-life conflict ( $B = .65, p < .001$ ); job performance ( $B = .55, p < .001$ ); OCBI ( $B = .77, p < .001$ ); and personal initiative ( $B = .62, p < .001$ ). Similarly, Time 1 overall recovery predicted Time 2 overall recovery ( $B = .65, p < .001$ ).

The mediation was tested using the bootstrapping method for testing indirect effects (see Preacher & Hayes, 2004; Shrout & Bolger, 2002). Results showed a significant indirect effect of intervention status on: (a) job performance through overall recovery,  $B = 0.30$ ,  $SE = 0.07$ , 95% CI [0.004, 0.10]; (b) organizational citizenship behaviour through overall recovery,  $B = 0.26$ ,  $SE = 0.08$ , 95% CI [0.02, 0.16]; and (c) personal initiative through overall recovery,  $B = 0.13$ ,  $SE = 0.06$ , 95% CI [0.01, 0.09].

To examine whether individual recovery subscales may be uniquely predicting the mediation results on the work performance outcomes, three multiple regressions were performed using all 10 Time 2 recovery subscales. In the first regression predicting Time 2 job performance, I entered Time 1 job performance, Group, and the 10 recovery subscales in the same step. These variables accounted for a significant amount of variance in Time 2 job performance ( $R^2 = .53$ ,  $p < .001$ ). Physical activity was the only subscale that uniquely predicted job performance ( $B = .15$ ,  $p = .004$ ).

In the second multiple regression predicting Time 2 OCBI, I entered Time 1 OCBI, Group, and the 10 Time 2 recovery subscales ( $R^2 = .54$ ,  $p < .001$ ); there were no specific subscales that uniquely predicted OCBI.

For the third multiple regression predicting personal initiative at Time 2, I included personal initiative at Time 1, Group, and the 10 Time 2 recovery subscales in the same step ( $R^2 = .77$ ,  $p < .001$ ). The hope/optimism recovery subscale was uniquely associated with personal initiative at Time 2 ( $B = .14$ ,  $p = .036$ ).

### **Impact of the Intervention on Recovery Experiences**

To test Hypothesis 2, the impact of the intervention on the recovery experiences, a 2 x 2 repeated measures MANOVA was performed to assess the interaction between

group (treatment vs. control) and time (Time 1 vs. Time 2) for all 10 recovery subscales. To minimize spurious results, tests for all 10 recovery subscales were conducted in one omnibus MANOVA. There was a significant multivariate effect for the Group x Time interaction (Wilks'  $\lambda = .82$ ,  $F(10, 123) = 2.66$ ,  $p = .006$ ,  $\eta^2 = .18$ ).

Individual tests indicated significant Group x Time interactions for five of the 10 recovery subscales: mastery ( $F(1, 132) = 5.13$ ,  $p = .025$ ,  $\eta^2 = .04$ ); physical activity ( $F(1, 132) = 15.80$ ,  $p < .001$ ,  $\eta^2 = .11$ ); hope/optimism ( $F(1, 132) = 5.18$ ,  $p = .024$ ,  $\eta^2 = .04$ ); fun/humour ( $F(1, 132) = 4.42$ ,  $p = .037$ ,  $\eta^2 = .03$ ); and self-reward ( $F(1, 132) = 5.44$ ,  $p = .021$ ,  $\eta^2 = .04$ ).

The simple effects for the significant interactions were analyzed (see Figures 5 to 9): The pattern of results was similar for physical activity, hope/optimism, fun/humour, and self-reward. From Time 1 to Time 2, the intervention group significantly increased on those recovery experiences (physical activity:  $F(1,69) = 15.57$ ,  $p < .001$ ,  $\eta^2 = .18$ ; hope/optimism:  $F(1,70) = 5.83$ ,  $p = .018$ ,  $\eta^2 = .08$ ; fun/humour  $F(1,70) = 4.08$ ,  $p = .047$ ,  $\eta^2 = .06$ ; self-reward  $F(1,69) = 5.48$ ,  $p = .022$ ,  $\eta^2 = .07$ ), while the control group did not significantly change (physical activity:  $F(1,66) = 3.45$ ,  $p = .068$ ; hope/optimism:  $F(1,66) = .344$ ,  $p = .560$ ; fun/humour  $F(1,64) = 1.00$ ,  $p = .319$ ; self-reward  $F(1,64) = 1.04$ ,  $p = .312$ ). Although the interaction for mastery was significant, there were no significant simple effects. That is, mastery increased (but not significantly) for the intervention group, and it decreased (but not significantly) for the control group, thus resulting in an overall significant interaction.

### **Discussion**

The goals of this study were to examine the impact of a stress management and work-life balance intervention on three work performance outcomes and on work-life conflict, as well as to explore whether the individual recovery experiences could be increased from the intervention, using an expanded model of recovery. Specifically, I set out to test whether recovery would mediate the relationship between the intervention and reported work-life conflict and three different work performance outcomes (job performance, organizational citizenship behaviours, and personal initiative), and to examine whether participating in the 10-week stress management and work-life balance intervention would increase recovery experiences. Recovery partially mediated the relationship between participating in the intervention and the work performance outcomes and five of the 10 recovery experiences were increased through participation in the intervention.

#### **Recovery as a Mediator**

Hypothesis 1, that recovery would mediate the relationship between participating in the intervention and the work performance outcomes and work-life conflict, was partially supported. Overall recovery at Time 2 partially mediated the relationship between the intervention and the three work performance outcomes (organizational citizenship behaviours, personal initiative, and job performance), but not work-life conflict. There was also a direct effect of participating in the intervention on job performance, partially mediated by overall recovery. Although there were no direct effects between participating in the intervention and organizational citizenship behaviours and personal initiative, there was an indirect effect through increased recovery

experiences for both of those outcomes. Binnewies, Sonnentag, and Mojza (2009a) found similar results showing that feeling recovered in the morning was positively related to daily measures of job performance, organizational citizenship behaviours, and personal initiative. Participating in the intervention itself had a direct impact on decreasing work-life conflict, but recovery did not mediate this relationship.

The combination of recovery experiences significantly predicted organizational citizenship behaviours and personal initiative at Time 2. Because the recovery subscales are all correlated, and therefore share much of the variance, there was only one subscale that seemed to account for and uniquely predict the relationship with personal initiative. Specifically, hope/optimism (i.e., engaging in positive thoughts about future events or experiences during non-work time) was positively related to personal initiative, which may be explained by increased mood through thinking positive thoughts, thus leading to more proactive and self-starting behaviours. Proactivity in terms of personal initiative is defined as having a long-term focus, while not waiting to respond to a demand (Frese et al., 2007). Thinking positively about the future (i.e., hope/optimism recovery) could help to think more long-term with regard to tasks at work, thus increasing personal initiative.

In terms of OCBs, there were no specific subscales that were uniquely related to OCBs. Because there were no direct effects of the intervention on OCBs, but there were indirect effects through overall recovery, future research should investigate what it is about feeling recovered after work that may influence the relationship with OCBs. It is possible that when employees are feeling more recovered and less stressed, they may be more collegial and more likely to engage in OCBs. On the other hand, the current intervention helped employees find ways to reduce demands at work, which may in turn

encourage them to limit the amount of discretionary tasks (i.e., OCBs) that they engage in.

There were no significant direct effects of overall recovery on job performance, but there were significant indirect effects between the intervention and job performance, through overall recovery. Physical activity was the only subscale significantly related to job performance. Engaging regularly in physical activity may lead to increased ability to concentrate as well as improved mood, which may explain the relationship with job performance. Also, high levels of recovery experiences lead to improved health and motivation among employees (Siltaloppi et al., 2009; Sonnentag & Fritz, 2007), which may explain the positive predictive relationship with job performance.

In terms of work-life conflict, overall recovery did not explain any of the relationship between participating in the intervention and the decrease in work-life conflict in the present study. These results do not support the idea that work-life conflict may be offset by increasing recovery experiences (as suggested by Amstad & Semmer, 2009).

These findings could be due in part to having a short-term challenge in terms of work-life balance when first starting to incorporate increased recovery experiences into one's life. There could be a dual effect of simultaneously increasing feelings of well-being (which should be associated with less conflict) but also increasing time conflict by engaging in additional recovery activities, possibly associated with more conflict. The additional time spent engaging in recovery activities may increase perceived 'life' demands initially, but once engaged in as habitual activities, these perceptions may

balance out. Perhaps the three-month time period in the current study was not long enough to tap into this life adjustment.

Furthermore, the ABLE intervention focuses on a number of different topics such as time management, scheduling and prioritizing efficiently, effective communication, utilizing different coping strategies, and more. Although it could be a combination of the topics covered, there may be other possible mediators to explain the relationship between the intervention and the decrease in work-life conflict. Future research should investigate what it is about the intervention that influences the decrease in work-life conflict and whether recovery will have more of an influence long-term.

### **Increasing Recovery Experiences**

To date, there are only two other studies that have found that recovery experiences can be increased through training (Hahn et al., 2011; Stevens, 2011). Hypothesis 2 (i.e., the intervention would increase recovery experiences) was partially supported. Recovery experiences included those originally defined by Sonnentag and Fritz (2007; i.e., psychological detachment, relaxation, mastery, control), as well as the six additional experiences identified by Stevens (2011; i.e., planning, social affiliation, physical activity, hope/optimism, fun/humour, and self-reward). Five of the 10 recovery experiences were increased through participation in the intervention. There was a similar pattern of results for physical activity, hope/optimism, fun/humour, and the self-reward subscales: That is, the recovery experiences were increased in the intervention group, while those same recovery experiences did not change significantly in the control group. Although there were no significant simple effects, mastery increased (but not significantly) for the

intervention group, and it decreased (but not significantly) for the control group, thus resulting in an overall significant interaction.

These results were not entirely consistent with those found by Stevens (2011), who found that psychological detachment, relaxation, and hope were all increased in the ABLE intervention group, and did not significantly change in the control group. Stevens also found that the control and physical activity subscales did not change in the intervention group, but significantly decreased in the control group. Social affiliation, which did not change for either group in the current study, increased significantly in the intervention group and decreased significantly in the control group in Stevens' (2011) study. These differences could have been due to a number of different factors, as the intervention did not focus solely on recovery experiences, and as such, different coaches may have encouraged engaging in certain recovery activities more than others. Also, the topic of recovery experiences is only directly mentioned once, halfway through the intervention, though there are themes of recovery throughout. Another potential reason for the differences could be the type of personal goals that participants' developed and worked towards throughout the course of the intervention – some may have included engaging in more recovery activities than others.

### **Limitations and Future Research**

There are several limitations that should be addressed. First, this study was conducted with a convenience sample, and it was not possible to assign participants randomly to the intervention and control groups. Most of the employees who signed up first were placed in the intervention group due to time constraints (unless they specifically stated that they could not begin the coaching sessions until later). The employees who

registered later in the process were placed in the control group as the intervention group filled up. There were no significant differences between the two groups on the recovery experiences, except for relaxation, where the control group experienced slightly less relaxation at Time 1 than the intervention group. Nor were there any significant differences between the groups on any of the work performance outcomes or work-life conflict at Time 1. Self-selection into the program may have also had an impact on the results, as those people who chose to participate were perhaps more eager to make changes, such as increasing their recovery experiences. Consequently, there is no reason to suggest that those individuals eager to make changes would change on some things, but not others. That is, the results showed that there were some areas that the intervention group did not change on, which suggests that the changes (i.e., increases in recovery experiences) that were seen, were not purely a methodological artifact.

Other limitations include the use of self-report data; therefore common method variance (CMV) may be a concern (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). Although it would be difficult to get around self-reporting for the recovery experiences, it would be beneficial to have a supervisor report on job performance and other behaviours at work such as personal initiative and OCB if possible. However, these concerns are mitigated by the fact that there were significant interactions found and CMV effects should not manifest in change over time (Pace, 2010; Spector, 2006). In fact, CMV tends to suppress interactions (Siemsen, Roth, & Oliveira, 2010).

Future research should investigate what part of the intervention or other potential mediators help to explain the relationship between the intervention and work-life conflict. It's possible that a decrease in strain, an increase in overall well-being, or more effective

use of coping strategies may be partially explaining the relationship. Also, as previously mentioned, the intervention did not focus specifically on increasing recovery experiences, but it was a common theme throughout. Targeting each of the different experiences (subscales) separately may cause more of the experiences to be increased and their effects on outcomes such as job performance may be heightened.

One of the strengths of this study is that it involved two waves of data collection. However, there is an increasing view that true longitudinal studies should include more than two waves of data collection (Kelloway & Francis, in press; Ployhart & Vandenberg, 2010; Singer & Willett, 2003). It would be interesting to observe these variables over a longer time frame to examine if the relationships found can be maintained, specifically the decrease in work-life conflict, as well as the indirect relationship between the intervention and the work performance outcomes through overall recovery. With more time points, it would also be interesting to look at whether the same recovery activities are predicting the relationship with the work performance outcomes, or whether these change over time (i.e., modeling the shape of the change curve).

The intervention was semi-structured in the sense that participants were provided with the same manuals and coaches were all trained in the same way, but depending on the participant and their interests/demands, the intervention was tailored to make it most beneficial for each individual. Future research should investigate what part of the intervention impacted the increased recovery experiences, whether it was the manual/information provided to all participants, or the one-on-one phone coaching that occurred weekly, or a combination.

Many of the organizations where the participants worked were going through substantial organizational changes, which could have impacted the results. When employees are experiencing more stress and strain, their recovery processes are impaired, as they do not have resources left to engage in recovery activities at the end of the day (Sonnentag & Jelden, 2009). This increase in employee stress due to the organizational changes may have limited the number of recovery experiences that were increased throughout the current intervention.

### **Practical Implications**

This study provides further evidence supporting the proposition that recovery experiences can be promoted and increased through training (Hahn et al., 2011; Stevens, 2011). This is beneficial not only for employees, but also for employers as the increased recovery experiences had a significant direct effect on organizational citizenship behaviours and personal initiative, and a significant indirect effect on job performance. Although this was a structured intervention, it would be possible to implement some of the topics and information in different workplaces that may help reduce work-life conflict and increase recovery experiences. It would also be beneficial for employers to promote engaging in recovery experiences during non-work time; not only for the direct and indirect effects on work performance outcomes, but also because increased recovery leads to increased employee health and motivation (Siltaloppi et al., 2009; Sonnentag & Fritz, 2007). Because a large component of the ABLE intervention is focused on individual efforts, it would be interesting for future research to examine ways in which organizations could become more involved. For instance, would the promotion of “on-the-job” recovery show similar benefits to the organization and its employees?

The decrease in work-life conflict from the intervention is also noteworthy as high levels of work-life conflict negatively impact a variety of outcomes such as well-being (Thompson & Prottas, 2006), life satisfaction (Kossek & Ozeki, 1998), and work-based outcomes, such as job satisfaction (Kossek & Ozeki, 1998) and organizational commitment (Cannon, 1998). This lends further support for employers to encourage and promote interventions such as this one.

### **Conclusions**

The results of this study extend the current literature by providing evidence that recovery experiences can be increased through coaching, as part of a stress management and work-life balance intervention. Also, that recovery has significant, direct effects on multiple (self-reported) work performance outcomes warrants further attention and research. The decrease in work-life conflict directly from the intervention provides promising evidence for future interventions such as this one. These findings strengthen the argument that by restoring and accumulating recourses (through increased recovery experiences during off-work time) employees are more likely to take an active, self-starting approach to different work goals and tasks (i.e., demonstrate personal initiative and engage in OCBs).

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Table 1

*Correlations among Study Variables at Time 1 & Time 2. Scale reliabilities are presented in bold and italics along the diagonal.*

Variable	M (SD)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1. Gender		-	.02	.05	.13	.01	.09	.09	.02	-.04	.12	.17 <sup>a</sup>	.11	.17 <sup>a</sup>	.07	-.13	-.07	-.12	.02
2. Age	43.68 (9.32)		-	-.08	-.02	-.04	.01	.09	-.01	-.03	-.04	.07	-.09	-.10	-.04	.05	.16 <sup>a</sup>	.16 <sup>a</sup>	.09
3. Group	.53 (.50)			-	.04	.07	.18 <sup>a</sup>	.08	.04	.03	-.01	-.06	-.12	-.01	.01	.16	-.03	.01	-.14
<b>Time 1</b>																			
4. Overall Rec	3.32 (.54)				<b>.94</b>	.32 <sup>c</sup>	.72 <sup>c</sup>	.70 <sup>c</sup>	.67 <sup>c</sup>	.49 <sup>c</sup>	.71 <sup>c</sup>	.62 <sup>c</sup>	.66 <sup>c</sup>	.71 <sup>c</sup>	.63 <sup>c</sup>	.06	.11	-.02	-.10
5. Detachment	2.96 (.87)					<b>.83</b>	.24 <sup>b</sup>	.12	.10	.02	.08	.19 <sup>a</sup>	.07	.05	.02	-.15	-.13	-.12	-.13
6. Relaxation	3.37 (.96)						<b>.94</b>	.30 <sup>c</sup>	.60 <sup>c</sup>	.21 <sup>b</sup>	.52 <sup>c</sup>	.25 <sup>b</sup>	.34 <sup>c</sup>	.48 <sup>c</sup>	.55 <sup>c</sup>	-.00	-.04	-.16 <sup>a</sup>	-.26 <sup>b</sup>
7. Mastery	2.92 (1.01)							<b>.91</b>	.40 <sup>c</sup>	.31 <sup>c</sup>	.42 <sup>c</sup>	.45 <sup>c</sup>	.52 <sup>c</sup>	.43 <sup>c</sup>	.29 <sup>c</sup>	.09	.14	.06	.07
8. Control	3.36 (.84)								<b>.84</b>	.30 <sup>c</sup>	.43 <sup>c</sup>	.21 <sup>b</sup>	.30 <sup>c</sup>	.41 <sup>c</sup>	.43 <sup>c</sup>	.04	.09	.07	-.18 <sup>a</sup>
9. Planning	3.63 (.82)									<b>.85</b>	.24 <sup>b</sup>	.37 <sup>c</sup>	.25 <sup>b</sup>	.26 <sup>b</sup>	.04	.10	.17 <sup>a</sup>	.01	.03
10. Social	3.81 (.72)										<b>.84</b>	.31	.51	.62	.44	.08	.08	.05	-.04
11. Physical	3.21 (1.13)											<b>.94</b>	.32 <sup>c</sup>	.28 <sup>c</sup>	.21 <sup>b</sup>	-.01	.13	-.01	-.03
12. Hope	3.51 (.73)												<b>.75</b>	.53 <sup>c</sup>	.40 <sup>c</sup>	.08	.18 <sup>a</sup>	.11	.07
13. Fun	3.59 (.69)													<b>.85</b>	.54 <sup>c</sup>	.22 <sup>b</sup>	.16 <sup>a</sup>	.01	-.04
14. Self-Reward	2.87 (.94)														<b>.84</b>	.04	-.05	-.01	-.08
15. Job Perf.	3.74 (.77)															<b>.92</b>	.38 <sup>c</sup>	.16 <sup>a</sup>	.03
16. P. Initiative	3.65 (.64)																<b>.85</b>	.40 <sup>c</sup>	.10
17. OCB	5.14 (.83)																	<b>.87</b>	-.08
18. WLC	3.36 (1.16)																		<b>.90</b>

Note. <sup>a</sup> $p < .05$ , <sup>b</sup> $p < .01$ , <sup>c</sup> $p < .001$ . N = 134 – 139

Note. A correlation coefficient is presented for “planning” as it only includes two items.

Note. Gender: 1 = female, 2 = male

Note. Group: 1 = intervention, 0 = control

Table 1 Continued

Variable	M(SD)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
<b>Time 2</b>																				
19. Overall Rec	3.35 (.62)	.16	.01	.24 <sup>b</sup>	.55 <sup>c</sup>	.19 <sup>a</sup>	.46 <sup>c</sup>	.36 <sup>c</sup>	.39 <sup>c</sup>	.18 <sup>a</sup>	.43 <sup>c</sup>	.33 <sup>c</sup>	.31 <sup>c</sup>	.36 <sup>c</sup>	.37 <sup>c</sup>	.09	.05	.05	-.18 <sup>a</sup>	
20. Detachment	3.00 (1.02)	-.04	-.08	.18 <sup>a</sup>	.21 <sup>a</sup>	.59 <sup>c</sup>	.29 <sup>b</sup>	.02	.17 <sup>a</sup>	-.08	.08	.02	.05	.08	.12	-.04	-.16	.01	-.20 <sup>a</sup>	
21. Relaxation	3.44 (.95)	.04	.08	.25 <sup>b</sup>	.44 <sup>c</sup>	.17 <sup>a</sup>	.56 <sup>c</sup>	.20 <sup>a</sup>	.37 <sup>c</sup>	.15	.33 <sup>c</sup>	.14	.15	.31 <sup>c</sup>	.35 <sup>c</sup>	.06	-.05	.05	-.15	
22. Mastery	2.94 (1.05)	.19 <sup>a</sup>	.07	.27 <sup>b</sup>	.38 <sup>c</sup>	-.00	.16	.49 <sup>c</sup>	.19 <sup>a</sup>	.12	.29 <sup>b</sup>	.29 <sup>c</sup>	.32 <sup>c</sup>	.18 <sup>a</sup>	.28 <sup>b</sup>	.06	.09	.13	-.08	
23. Control	3.31 (.90)	.01	-.04	.08	.39 <sup>c</sup>	.13	.42 <sup>c</sup>	.14	.47 <sup>c</sup>	-.01	.31 <sup>c</sup>	.08	.22 <sup>b</sup>	.23 <sup>b</sup>	.38 <sup>c</sup>	-.05	-.02	-.08	-.21 <sup>a</sup>	
24. Planning	3.44 (.96)	.09	.12	-.02	.16	-.02	.14	.05	.10	.12 <sup>a</sup>	.13	.25 <sup>b</sup>	.16	.04	-.01	.05	.17 <sup>a</sup>	.17 <sup>a</sup>	-.12	-.14
25. Social	3.80 (.84)	.01	-.01	.09	.38 <sup>c</sup>	.00	.34 <sup>c</sup>	.25 <sup>b</sup>	.27 <sup>b</sup>	.16	.54 <sup>c</sup>	.16	.16	.32 <sup>c</sup>	.18 <sup>a</sup>	.12	.00	.03	-.14	
26. Physical	3.31 (1.09)	.29 <sup>b</sup>	.03	.19 <sup>a</sup>	.40 <sup>c</sup>	.12	.19 <sup>a</sup>	.29 <sup>b</sup>	.14	.21 <sup>a</sup>	.21 <sup>a</sup>	.63 <sup>c</sup>	.13	.20 <sup>a</sup>	.16	.00	.11	.02	-.06	
27. Hope	3.63 (.77)	.13	.01	.11	.35 <sup>c</sup>	.10	.20 <sup>a</sup>	.30 <sup>c</sup>	.18 <sup>a</sup>	.19 <sup>a</sup>	.27 <sup>b</sup>	.22 <sup>a</sup>	.38 <sup>c</sup>	.28 <sup>b</sup>	.11	.17 <sup>a</sup>	.18 <sup>a</sup>	.12	-.01	
28. Fun	3.65 (.84)	.16	-.09	.16	.43 <sup>c</sup>	-.00	.32 <sup>c</sup>	.27 <sup>b</sup>	.31 <sup>c</sup>	.16	.41 <sup>c</sup>	.20 <sup>a</sup>	.25 <sup>b</sup>	.51 <sup>c</sup>	.29 <sup>b</sup>	.20 <sup>a</sup>	.04	.10	-.10	
29. Self-Reward	3.03 (1.02)	.14	-.03	.23 <sup>b</sup>	.49 <sup>c</sup>	.09	.41 <sup>c</sup>	.37 <sup>c</sup>	.37 <sup>c</sup>	.11	.35 <sup>c</sup>	.14	.36 <sup>c</sup>	.34 <sup>c</sup>	.51 <sup>c</sup>	-.05	-.03	.05	-.12	
30. Job Perf.	3.72 (.72)	-.13	-.13	.35 <sup>c</sup>	.16	-.04	.19 <sup>a</sup>	.08	.09	.10	.10	.09	.06	.30 <sup>c</sup>	.08	.64 <sup>c</sup>	.37 <sup>c</sup>	.11	-.05	
31. P. Initiative	3.68 (.57)	-.02	.16	.12	.03	-.08	-.12	.12	-.08	.06	.00	.13	.16	.09	-.07	.31 <sup>c</sup>	.71 <sup>c</sup>	.42 <sup>c</sup>	.04	
32. OCB	5.11 (.93)	-.09	.02	-.01	.19 <sup>a</sup>	-.02	.06	.27 <sup>b</sup>	.09	.01	.13	.11	.27 <sup>b</sup>	.22 <sup>b</sup>	.04	.17 <sup>a</sup>	.43 <sup>c</sup>	.69 <sup>c</sup>	-.10	
33. WLC	3.01 (1.16)	-.05	.09	-.25 <sup>b</sup>	-.14	-.02	-.25 <sup>b</sup>	.02	-.29 <sup>b</sup>	.04	-.11	.02	-.06	-.16	-.11	.01	.02	-.09	.67 <sup>c</sup>	

Note <sup>a</sup> $p < .05$ , <sup>b</sup> $p < .01$ , <sup>c</sup> $p < .001$ .

Table 1 Continued

Variable	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33
<b>Time 2</b>															
19. Overall Rec	<b>.95</b>	.43 <sup>c</sup>	.72 <sup>c</sup>	.70 <sup>c</sup>	.66 <sup>c</sup>	.53 <sup>c</sup>	.74 <sup>c</sup>	.64 <sup>c</sup>	.74 <sup>c</sup>	.77 <sup>c</sup>	.69 <sup>c</sup>	.22 <sup>a</sup>	.21 <sup>a</sup>	.21 <sup>a</sup>	-.26 <sup>b</sup>
20. Detachment		<b>.91</b>	.47 <sup>c</sup>	.12	.31 <sup>c</sup>	-.00	.21 <sup>a</sup>	.14	.19 <sup>a</sup>	.17 <sup>a</sup>	.17 <sup>a</sup>	.12	-.11	.03	-.19 <sup>a</sup>
21. Relaxation			<b>.94</b>	.34 <sup>c</sup>	.49 <sup>c</sup>	.21 <sup>a</sup>	.51 <sup>c</sup>	.30 <sup>c</sup>	.39 <sup>c</sup>	.50 <sup>c</sup>	.53 <sup>c</sup>	.17	.11	.13	-.25 <sup>b</sup>
22. Mastery				<b>.91</b>	.33 <sup>c</sup>	.30 <sup>c</sup>	.42 <sup>c</sup>	.48 <sup>c</sup>	.53 <sup>c</sup>	.50 <sup>c</sup>	.52 <sup>c</sup>	.08	.24 <sup>b</sup>	.25 <sup>b</sup>	-.11
23. Control					<b>.88</b>	.40 <sup>c</sup>	.40 <sup>c</sup>	.27 <sup>b</sup>	.32 <sup>c</sup>	.32 <sup>c</sup>	.53 <sup>c</sup>	.13	.05	.01	-.32 <sup>c</sup>
24. Planning						<b>.85</b>	.35 <sup>c</sup>	.34 <sup>c</sup>	.40 <sup>c</sup>	.31 <sup>c</sup>	.20 <sup>a</sup>	.20 <sup>a</sup>	.23 <sup>b</sup>	-.02	-.13
25. Social							<b>.88</b>	.42 <sup>c</sup>	.58 <sup>c</sup>	.73 <sup>c</sup>	.40 <sup>c</sup>	.12	.08	.12	-.17
26. Physical								<b>.93</b>	.47 <sup>c</sup>	.47 <sup>c</sup>	.24 <sup>b</sup>	.23 <sup>b</sup>	.23 <sup>b</sup>	.16	-.05
27. Hope									<b>.81</b>	.68 <sup>c</sup>	.47 <sup>c</sup>	.18 <sup>a</sup>	.32 <sup>c</sup>	.24 <sup>b</sup>	-.05
28. Fun										<b>.91</b>	.50 <sup>c</sup>	.20 <sup>a</sup>	.17 <sup>a</sup>	.25 <sup>b</sup>	-.16
29. Self-Reward											<b>.89</b>	-.00	.09	.19 <sup>a</sup>	-.28 <sup>a</sup>
30. Job Perf.												<b>.92</b>	.37 <sup>c</sup>	.20 <sup>a</sup>	-.17 <sup>a</sup>
31. P. Initiative													<b>.83</b>	.42 <sup>c</sup>	-.00
32. OCB														<b>.87</b>	-.11
33. WLC															<b>.89</b>

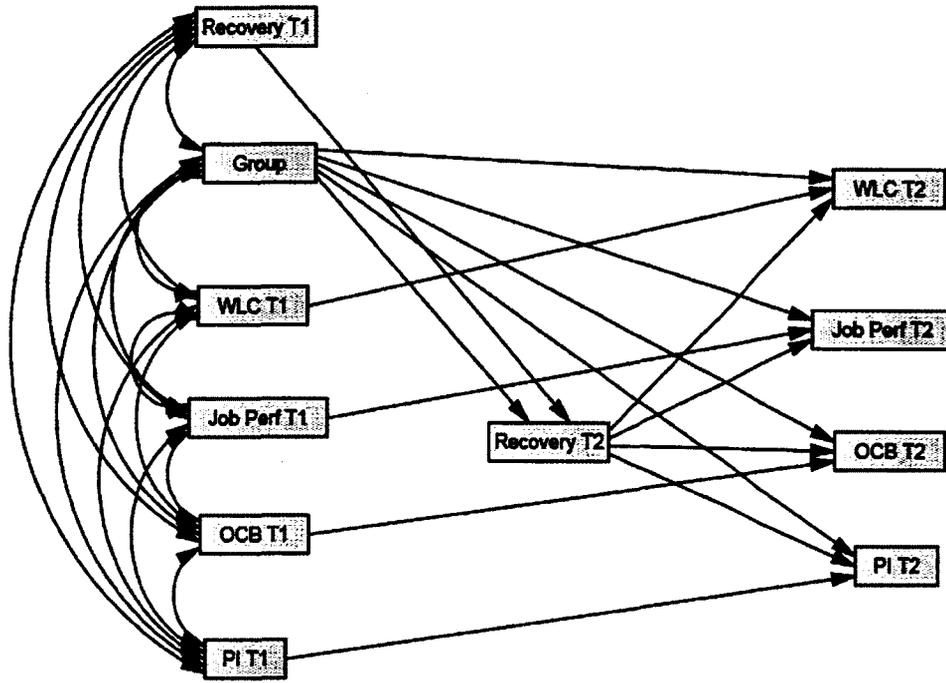
Note. <sup>a</sup> $p < .05$ , <sup>b</sup> $p < .01$ , <sup>c</sup> $p < .001$ .

Table 2

*Chi-square difference test comparing the three mediation models (non-mediated and fully-mediated both nested within the partially-mediated model).*

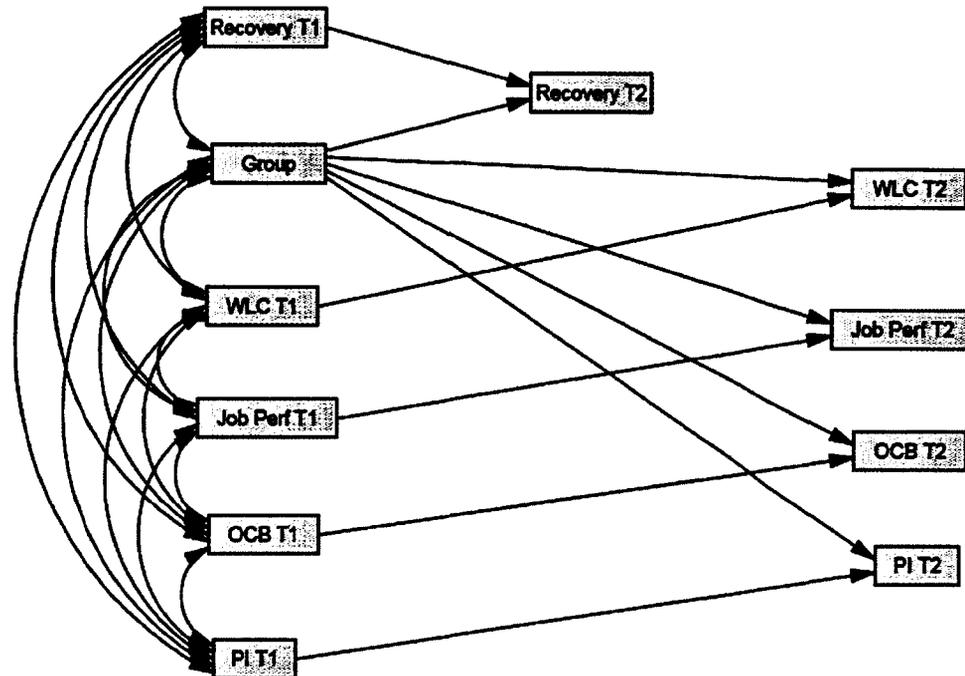
Model	<i>df</i>	$\chi^2$	$\chi^2$ difference
Partially-mediated	26	40.13	
Non-mediated	30	59.57	19.44*
Fully-mediated	30	57.54	17.41*

*Note.* Both  $\chi^2$  difference tests are evaluated with four degrees of freedom \* $p < .01$ .



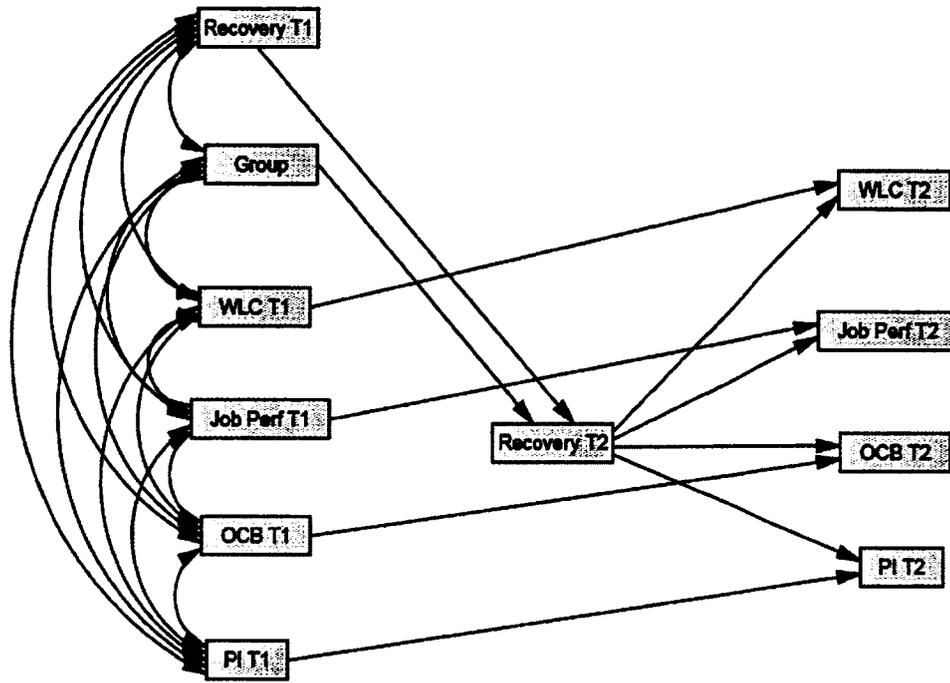
*Figure 1.* The partially-mediated model testing the indirect effect of the intervention on four outcomes (WLC, job performance, organizational citizenship behaviours, and personal initiative) through overall recovery at Time 2, while controlling for Time 1 outcomes.

*Note.* T1 = Time 1; T2 = Time 2; Group = Intervention vs. Control; WLC = Work-Life Conflict; Job Perf = Job Performance; OCB = Organizational Citizenship Behaviours; PI = Personal Initiative



*Figure 2.* The non-mediated model testing the direct effects of the intervention on overall recovery and the four outcomes (WLC, job performance, organizational citizenship behaviours, and personal initiative) while controlling for Time 1 outcomes.

*Note.* T1 = Time 1; T2 = Time 2; Group = Intervention vs. Control; WLC = Work-Life Conflict; Job Perf = Job Performance; OCB = Organizational Citizenship Behaviours; PI = Personal Initiative



*Figure 3.* The fully-mediated model testing the effects of the intervention on the four outcomes (WLC, job performance, organizational citizenship behaviours, and personal initiative) through overall recovery at Time 2, while controlling for Time 1 outcomes.

*Note.* T1 = Time 1; T2 = Time 2; Group = Intervention vs. Control; WLC = Work-Life Conflict; Job Perf = Job Performance; OCB = Organizational Citizenship Behaviours; PI = Personal Initiative

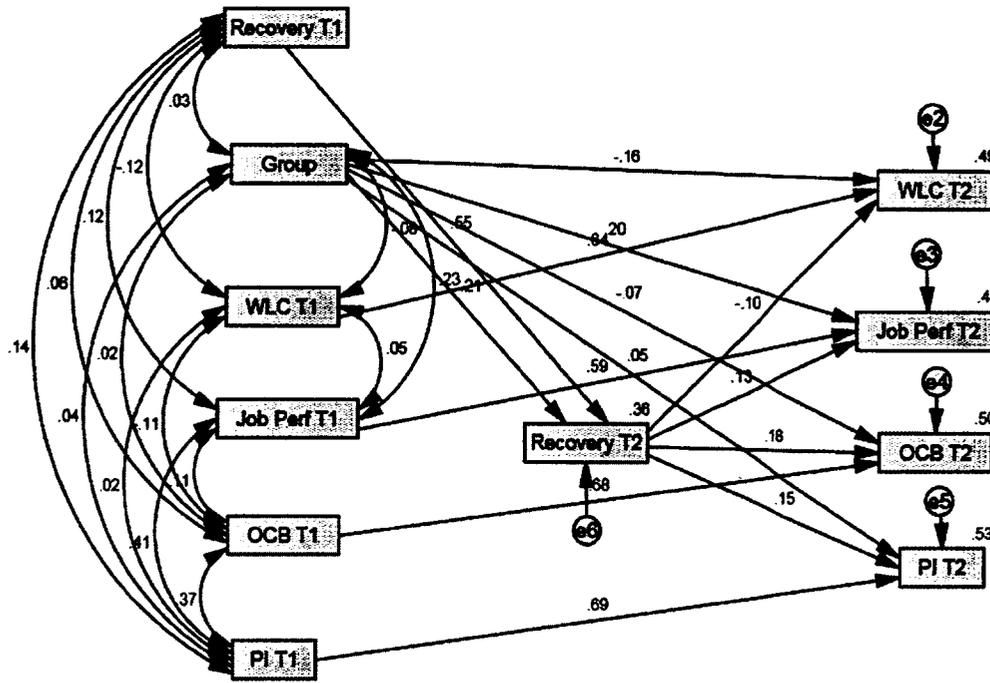
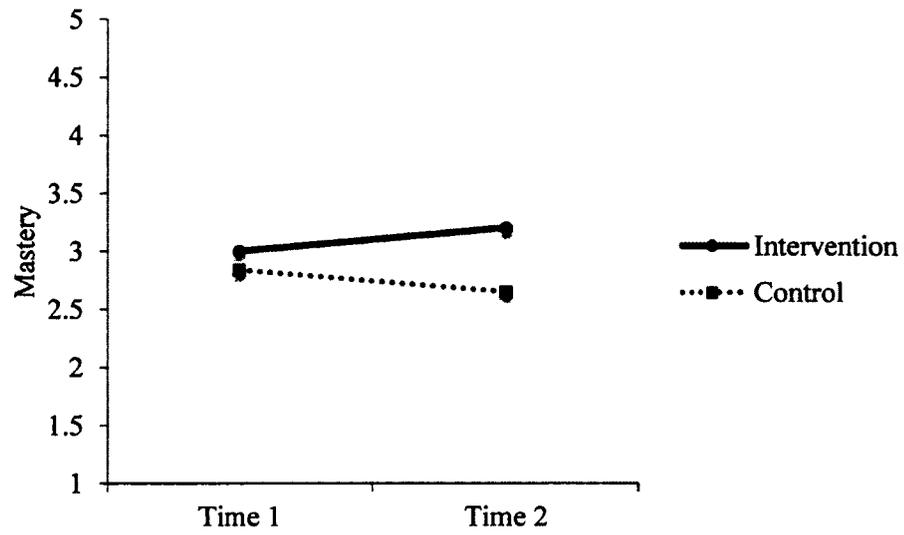
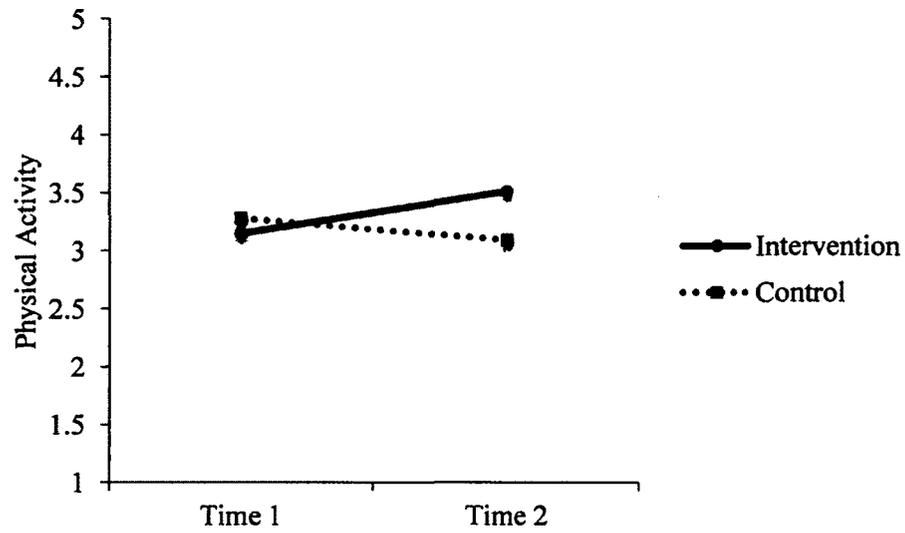


Figure 4. The final structural equation model testing the indirect effect of the intervention on four outcomes (WLC, job performance, organizational citizenship behaviours, and personal initiative) through overall recovery at Time 2, while controlling for Time 1 outcomes. Standardized loadings are presented.

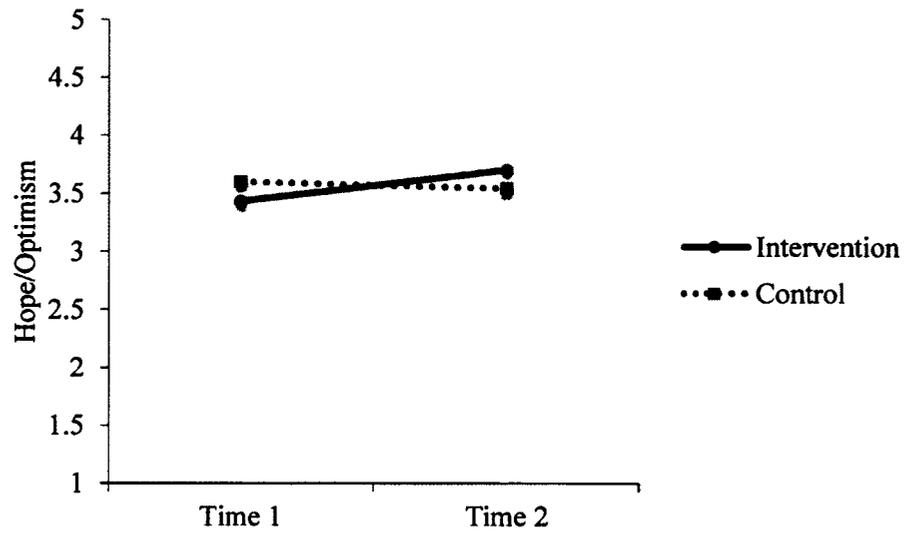
Note. T1 = Time 1; T2 = Time 2; Group = Intervention vs. Control; WLC = Work-Life Conflict; Job Perf = Job Performance; OCB = Organizational Citizenship Behaviours; PI = Personal Initiative



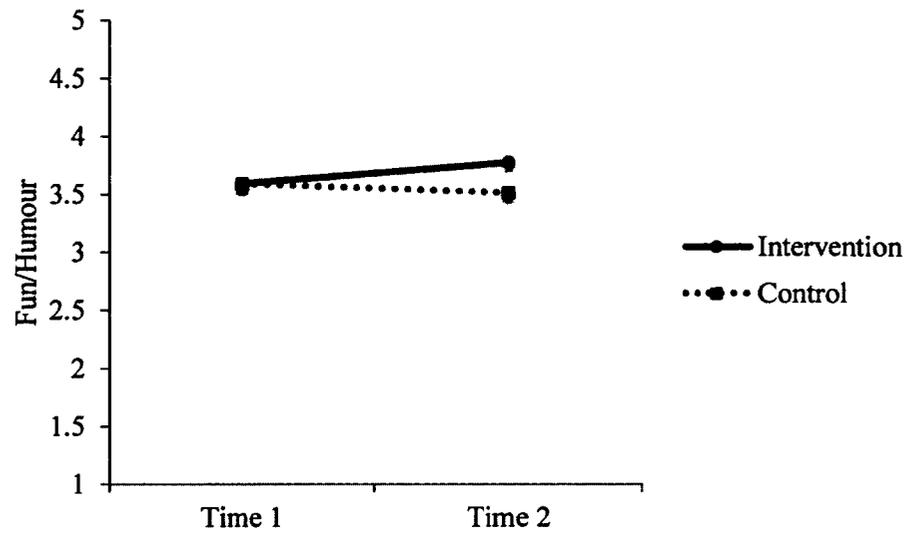
*Figure 5.* Perceived mastery before and after the intervention for the intervention group and the control group.



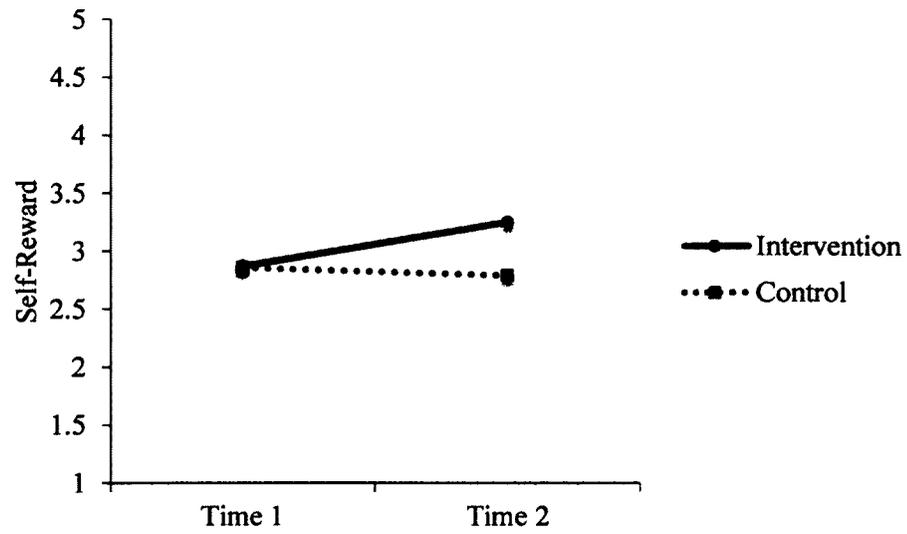
*Figure 6.* Perceived physical activity before and after the intervention for the intervention group and the control group.



*Figure 7.* Perceived hope/optimism before and after the intervention for the intervention group and the control group.



*Figure 8.* Perceived fun/humour before and after the intervention for the intervention group and the control group.



*Figure 9.* Perceived self-reward before and after the intervention for the intervention group and the control group.

## Appendix A – Measures

**Recovery**  
**(REQ – Expanded Sonnentag & Fritz, 2007; Stevens 2011)**

*Using the scale below please indicate the extent to which you agree with the following statements about your experiences after work over the past month.*

<b><i>Strongly Disagree</i></b>	<b><i>Disagree</i></b>	<b><i>Neither Agree nor Disagree</i></b>	<b><i>Agree</i></b>	<b><i>Strongly Agree</i></b>
1	2	3	4	5

During my time after work...

Psychological Detachment	1. I forgot about work. 2. I didn't think about work at all. 3. I distanced myself from my work. 4. I got a break from the demands of work.
Relaxation	5. I kicked back and relaxed. 6. I did relaxing things. 7. I used the time to relax. 8. I took time for leisure.
Mastery	9. I learned new things. 10. I sought out intellectual challenges. 11. I did things that challenged me. 12. I did something to broaden my horizons.
Control	13. I felt like I could decide for myself what to do 14. I decided my own schedule. 15. I determined for myself how I spent my time. 16. I took care of things the way that I want them done.
Planning	17. I got myself organized (e.g., made lists, cleaned up) 18. I got things checked off my "to-do" list.
Social Affiliation	19. I spent quality time with my friends and/or family. 20. I socialized with others. 21. I kept in touch with friends and/or family (e.g., phone, Facebook, email). 22. I spent time with people I care about.
Physical Activity	23. I did things that were physically demanding (e.g., housework, gardening, exercise). 24. I engaged in activities that increased my heart rate. 25. I engaged in physical activity. 26. I participated in sports or active recreational activities. 27. I did things that required physical exertion.

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Hope/Optimism	28. I daydreamed about my future. 29. I planned activities, trips, or events. 30. I thought about what I would like to do or attain in the future (e.g., vacation, new house, dream job). 31. I thought about the positive things that are going to happen. 32. I looked forward to upcoming events.
Fun/Humour	33. I did things that made me laugh. 34. I did things that were fun. 35. I engaged in activities that I find exciting. 36. I tried to see the humour in situations. 37. I joked around.
Self-Reward	38. I spent some quality “me-time”. 39. I rewarded myself with something special. 40. I pampered myself. 41. To treat myself, I bought something that I really wanted.

---

**Job Performance**  
(Adapted from Wayne and Ferris, 1990)

*Using the rating scale below please indicate how your supervisor or boss would rate you in the following job performance dimensions.*

<b>Poor</b>	<b>Fair</b>	<b>Good</b>	<b>Very Good</b>	<b>Excellent</b>
1	2	3	4	5

1. Considering all of your job duties and responsibilities, how would your supervisor or boss rate your overall PERFORMANCE at work during the PAST 3 MONTHS?
2. How would your supervisor or boss rate the overall AMOUNT OF WORK you accomplished during the PAST 3 MONTHS?
3. How would your supervisor or boss rate the overall QUALITY OF YOUR WORK during the PAST 3 MONTHS, that is, how well do you do your work?

**Organizational Citizenship Behaviours – Individual  
(Modified; Lee & Allen, 2002)**

*Using the scale below, please indicate how often you engage in these work behaviors.*

<i>Never</i>	<i>Almost Never</i>	<i>Rarely</i>	<i>Sometimes</i>	<i>Often</i>	<i>Very Often</i>	<i>Always</i>
1	2	3	4	5	6	7

1. I help others who have been absent.
2. I willingly give my time to help others who have work-related problems.
3. I adjust my work schedule to accommodate other employees' requests  for time off.
4. I go out of my way to make newer employees feel welcome in the work group.
5. I show genuine concern and courtesy toward coworkers, even under the most trying business or personal situations.
6. I give up time to help others who have **work** problems.
7. I give up time to help others who have **nonwork** problems.
8. I assist others with their duties.
9. I share personal property with others to help their work.

*Note.* Items 6 & 7 were a single item in the original OCBI scale (Lee & Allen, 2002)

**Personal Initiative/Proactive Behaviour  
(Frese, Kring, Soose, & Zempel, 1996)**

*Using the scale below please indicate the extent to which you agree with the following items.*

<b><i>Strongly Disagree</i></b>	<b><i>Disagree</i></b>	<b><i>Neither Agree nor Disagree</i></b>	<b><i>Agree</i></b>	<b><i>Strongly Agree</i></b>
1	2	3	4	5

1. I actively attack problems.
2. Whenever something goes wrong, I search for a solution immediately.
3. I take whatever chance there is to become actively involved.
4. I take initiative immediately.
5. I use opportunity quickly in order to attain my goals.
6. Usually I do more than I am asked to do.

**Work-Life Conflict**  
**General Work-Life Conflict Scale (modified; Day & Chamberlain, 2006)**

*Please think about your responsibilities as an employee and your life outside of work (e.g., interests and hobbies). Using the following scale, circle the number that best represents the extent to which you agree or disagree with the following.*

<b><i>Strongly Disagree</i></b>	<b><i>Disagree</i></b>	<b><i>Neither Agree nor Disagree</i></b>	<b><i>Agree</i></b>	<b><i>Strongly Agree</i></b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>

1. My work and interests/hobbies often conflict.
2. It is hard to balance my role as an employee with my life outside of work.
3. I find it difficult to successfully complete all my work activities and interests/hobbies.



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