

The Effect of Physical Activity on Work Engagement and Resilience among Corporate Employees

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Science in Applied Psychology

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Abstract

A lack of work engagement among employees is costing US businesses a reported \$300 billion a year in lost productivity, while absenteeism, turnover, workplace stress, and health care costs are also accounting for the same degree of financial loss. To investigate the effect of physical activity (PA) on work engagement (WE) and resilience among corporate employees, 200 employees from a range of corporate New Zealand businesses took part in a 16-week workplace-based health initiative known as the Global Corporate Challenge (GCC), which was aimed at increasing levels of PA among employees. Participants recorded their amount of PA through the use of a pedometer that uploaded daily levels into an online personal database provided by the GCC. Self-reported measures of WE and resilience were assessed both prior to, and following the challenge. The study provided support for the hypotheses that both WE and resilience would increase after participation in the GCC, however, contrary to further hypotheses, increasing levels of PA did not improve WE and resilience among participants. The results of this study may assist organisations in achieving not only a workforce better equipped to handling the challenges and stressors of today's workplace, but organisational success, and financial performance.

The Effect of Physical Activity on Work Engagement and Resilience among Corporate Employees

1.1 Background

1.1.1 Work engagement . Work engagement (WE) has become of great interest in recent years. Most notably due to the fact it has been shown to predict not only favourable employee outcomes, but organisational success, and financial performance (Saks, 2006). Worryingly however, reports have shown that global levels of WE are decreasing, meaning deepening disengagement among today's employees (Bates, 2004). For example, it has been reported that approximately half of all employees in the American workforce are not fully engaged or are disengaged, resulting in what is now known as an "engagement gap", costing US businesses \$300 billion a year in lost productivity (Saks, 2006). Because of the significant relationship between WE and companies' financial performance, it is essential that organisations have a workplace environment, and procedures in place, which optimise employees' engagement.

According to Parks and Steelman (2008), over the past 25 years, one approach organisations have used to develop high functioning employees has been the implementation of wellness programs oriented around PA. Wellness programs often provide on or off-site membership to health clubs in which employees enjoy aerobic and nonaerobic activities, as well as weight training. Aside from the fitness component, some wellness programs include an educational component such as nutrition or stress reduction classes. A growing number of organisations have committed to providing organisational wellness programs to help improve the health of employees, control health care and absenteeism costs, and to provide an additional benefit to employees (Bly, Jones, & Richardson, 1986). Although research has shown that participation in an organisational wellness program is associated with decreased absenteeism and increased job satisfaction (Parks & Steelman, 2008) no specific research appears to have investigated the direct effect of physical activity (PA) on employees' level of

WE. Given the ease in which PA can be carried out, this may be a potentially inexpensive, easy to implement, and to date, unrecognised source of increasing WE.

1.1.2 Resilience. The need for resilient organisations, leaders, and employees – those able to adapt, bounce back, and flourish despite adversity – has never been greater. Not only are today's employees experiencing more jobs throughout their working life, but it appears they may also be experiencing significantly more stress. According to the American Institute of Stress, organisations lose roughly \$300 billion dollars a year due to absenteeism, turnover, workplace stress, and health care costs (Stambor, 2006). The global financial crisis, and more locally, the Christchurch Earthquakes, has meant that financial hardship within businesses has often lead to downsizing, with the resulting lay-offs putting more strain and pressure on remaining employees (often referred to as “survivor syndrome”) (Luthans, Vogelgesang, & Lester, 2006). Luthans et al. (2006) also highlight the increasing use of technology such as cell phones, laptops and other such devices, all of which can add stress by decreasing the amount of downtime an employee has when they are physically away from work. For example, whilst one might expect employees to be negotiating for more vacation time, current statistics show a large number of employees are now taking less time off (Luthans et al., 2006). To demonstrate this, a recent survey reported that the average American lost 1.8 vacation days and used 12 fewer days annually than the next lowest country, Japan (Luthans et al., 2006). These increasing levels of stress and decreasing amounts of recovery time point to the importance of developing resilience among employees in today's workforce.

In terms of developing resilience, there is a general belief that PA has positive effects on reducing depression and anxiety disorders, and a large number of studies have demonstrated a relationship between PA and general well-being, mood and anxiety (Strohle, 2009). To that end, it appears that PA may provide a form of protective mechanism against

mental disorders, stress, and other psychological vulnerabilities. Interestingly however, there again appears to have been no specific research conducted into the direct effect of PA on resilience, particularly among corporate employees.

1.1.3 Global Corporate Challenge. The Global Corporate Challenge (GCC) is a wellness programme aimed at increasing PA within organisations and its employees. The underlying premise of the GCC is the recommendation by the World Health Organisation (WHO) that for people to improve and maintain their health and well-being, they should aim to walk an average of 10,000 steps per day (WHO, 2012). It is widely recognised by WHO that the average white collar worker who spends a significant amount of time stationary at a desk or inactive during work, is at an increased risk of chronic disease (Batman & Cartwright, 2011). The GCC aims to increase the activity levels of employees, “as well as challenge their behaviours and personal habits by making people more aware of the importance of their own personal health while at work” (Gibbs & Cartwright, 2010, p. 5).

According to Gibbs and Cartwright (2010) the GCC invites organisations and businesses from across the world (41 different countries) to partake in what is essentially a global ‘stepathon’. Participants are challenged to walk, run, or bike as far around the world as they can over a 111 day period (16 weeks). Organisations encourage their employees to enter as small teams of seven people. Upon registration, each participant is issued a pedometer which they must wear each day in order to record their step count. Each day, participants are required to enter their daily step count into the GCC website, for which they have a personal login. This step count is converted in kilometres/miles, and the individual is provided with a graphical plot of their progress depicted on a world map. As well as individual analysis, each team within an organisation is provided with a summary and visual depiction of their progress around the world. To assist individuals and teams with the challenge, particularly

those who may be new to regular exercise, the GCC team provide useful nutritional and health information, both in the starter packs and on the website.

1.2 Research Aims

This aim of this study was to assess whether participation in a wellness program and increasing employee's levels of PA improved self-reported WE and resilience.

1.3 Work Engagement

1.3.1 What is work engagement? Numerous definitions of engagement exist within academic and practitioner fields, with considerable debate remaining over what engagement is and its best definition. One of the original theorists of work-related engagement was Kahn (1990), who defined engagement as “the harnessing of organization members’ selves to their work roles; in engagement, people employ and express themselves physically, cognitively, and emotionally during role performances.” (p. 694). It has been defined more recently as “an individual’s sense of purpose and focused energy, evident to others in the display of personal initiative, adaptability, effort, and persistence directed toward organisational goals” (Macey, Schneider, Barbera, & Young, 2009, p. 7). However, the most commonly cited definition, and which was used in the current study, is that of Schaufeli, Salanova, Gonzalez-Roma and Bakker (2002), which defined engagement as “a positive, fulfilling, work-related state of mind that is characterized by vigor, dedication, and absorption” (p. 74). Here vigor is characterised by high levels of energy and mental resilience while working. Dedication refers to being strongly involved in one’s work and experiencing a sense of significance, enthusiasm, and challenge. While absorption is characterized by being fully concentrated and happily engrossed in one’s work, whereby time passes quickly and one has difficulties with

detaching oneself from work. In short, engaged employees have high levels of energy and are enthusiastic about their work.

1.3.2 Work engagement theory. Within the literature, Kahn (1990) and Maslach, Schaufelli and Leiter (2001) provide the two primary models of WE, along with a popular theory known as the Social Exchange Theory (SET) (Saks, 2006).

Kahn (1990) proposed that there were three psychological conditions associated with WE or disengagement at work: (1) meaningfulness; a feeling that one is receiving a return on investments of one's self in a currency of physical, cognitive, or emotional energy (2) safety; an ability to show and employ one's self without fear of negative consequences to self-image, status, or career, and (3) availability; the sense of having the physical, emotional, or psychological resources to personally engage in a particular moment. In other words, workers were more engaged at work in situations that offered them more psychological meaningfulness and psychological safety, and when they were more psychologically available. Kahn's model was tested by May, Gilson and Harter (2004), which found that all three conditions were significantly related to WE.

The other model of engagement comes from the burnout literature which describes WE as the positive antithesis of burnout noting that burnout involves the erosion of engagement with one's job (Maslach et al., 2001). According to Maslach, six areas of work-life lead to burnout and engagement: workload, control, rewards and recognition, community and social support, perceived fairness, and values. It is argued that WE is associated with a sustainable workload, feelings of choice and control, appropriate recognition and reward, a supportive work community, fairness and justice, and meaningful and valued work. Like burnout, WE is expected to mediate the link between these six work-life factors and various work outcomes.

Perhaps a stronger theoretical rationale for explaining WE can be found in SET. According to Saks (2006) this theory argues that obligations are generated through a series of interactions between parties who are in a state of reciprocal interdependence. A basic tenet of SET is that relationships evolve over time into trusting, loyal, and mutual commitments as long as the parties abide by certain “rules” of exchange (Saks, 2006). Rules of exchange usually involve reciprocity or repayment rules such that the actions of one party lead to a response or actions by the other party. For example, when individuals receive economic and socioemotional resources from their organisation, they feel obliged to respond in kind and repay the organisation, one way for individuals to repay their organisation is through their level of engagement. That is, employees will choose to engage themselves to varying degrees and in response to the resources they receive from their organisation. Bringing oneself more fully into one’s work roles and devoting greater amounts of cognitive, emotional, and physical resources is a very profound way for individuals to respond to an organisation’s actions.

Unfortunately, to date there is no empirical evidence surrounding these theories to suggest that PA may act as a direct antecedent to WE. That said, the benefits of PA (covered in section 1.5.3) may provide an alternative, more holistic method of improving engagement, through increasing an employee’s personal resources (e.g., self-efficacy, resilience, optimism) in the workplace (Bakker & Demerouti, 2008).

1.3.3 Measuring work engagement. The Utrecht Work Engagement Scale (UWES) is the most widely used and sought after measure for assessing the three aspects of WE (vigor, dedication and absorption) (Schaufeli et al., 2002). There are three versions (full – 24 item, shortened – 9 item, and student) of the UWES, it is available in 20 languages, and can be used freely for non commercial purposes. According to Bakker, Schaufeli, Leiter and Taris (2008), the most widely used version is the 9-item version which was developed by Schaufeli

and Bakker (2003). According to Albrecht (2010) the UWES has a number of advantages over other measures: it is grounded in theory; it assesses the key underlying properties of the definition (that is, vigor, dedication, and absorption); and it is validated in numerous different countries through high-level data analysis methods.

1.3.4 Key drivers of work engagement. Work engagement can be categorised into two key sets of variables:

Job resources. Previous studies (e.g., Bakker and Demerouti, 2007; Schaufeli and Salanova, 2007) have consistently shown that job resources such as social support from colleagues and supervisors, performance feedback, skill variety, autonomy, and learning opportunities are positively associated with WE. Job resources refer to those physical, social, or organisational aspects of the job that may: reduce job demands and the associated physiological and psychological costs; be functional in achieving work goals; and stimulate personal growth, learning, and development (Bakker and Demerouti, 2007; Schaufeli and Bakker, 2004).

Personal resources. Personal resources such as optimism, self-efficacy and resilience are positive self-evaluations that refer to an individuals' sense of their ability to control and impact upon their environment successfully (Hobfoll et al., 2003). It has been convincingly shown that such positive self-evaluations predict goal-setting, motivation, performance, job and life satisfaction, career ambition and other desirable outcomes (Judge Van Vianen & De Pater, 2004). The reason for this is that the higher an individual's personal resources, the more positive the person's self-regard and the more goal self-concordance is expected to be experienced (Judge et al., 2004). According to Judge, individuals with goal self-concordance are intrinsically motivated to pursue their goals and as a result they trigger higher performance and satisfaction.

1.3.5 Work engagement and performance outcomes. There is increasing research within the literature demonstrating the effect of engagement on performance outcomes. For example, Bakker, Demerouti and Verbeke (2004) showed that engaged employees received higher ratings from their colleagues on in-role and extra-role performance, indicating that engaged employees perform well and are willing to go the extra mile. In a survey among Dutch employees from a wide range of occupations, Schaufeli et al. (2006) found that WE is positively related to in-role performance, whereas workaholism is not. Bakker et al. (2006) conducted a study on engagement and performance among 105 school principals and 232 teachers, revealing a significant and positive association between school principals' WE scores and teacher-ratings of school principals' performance and leadership. In particular, results showed that engaged principals scored higher on in-role and extra-role performance and engagement was strongly related to creativity; the higher school principals' levels of WE, the better they were able to come up with a variety of ways to deal with work-related problems. Finally, engaged school principals were seen as transformational leaders – being able to inspire, stimulate and coach their co-workers.

1.4 Resilience

1.4.1 What is resilience? Most of the population are relatively ordinary people. From time to time every person will stumble and fall in some way or another, but each person, to varying extents, has the ability to get back up and carry on. Put simply, this ability to get up and keep going is what is known as resilience (Wagnild, 2009). From a more scientific standpoint, one of the earliest definitions of resilience was, “the dynamic capacity of an individual to modify his/her modal level of ego-control, in either direction, as a function of the demand characteristics of the environmental context” (Block & Block, 1980, p. 48). A more recent definition by Feder, Nestler and Charne (2009) defined resilience as “a resilient

individual has thus been tested by adversity and continues to demonstrate adaptive and psychological and physiological stress responses or ‘psychobiological allostasis’” (p. 446). However, the definition used in the current study and which corresponds to the Resilience Scale (also used in the current study) defines resilience as, “a personality characteristic that moderates the negative effects of stress and promotes adaption” (Wagnild & Young, 1993).

According to Wagnild (2009) once a person understands how to respond to the many challenges of life with resilience, difficult times are not so overwhelming, defeating, or potentially destructive. People with resilience are able to respond to these difficulties with courage and emotional stamina, even in the presence of fear (Wagnild, 2009). In fact, Wagnild suggested these difficult times often become challenges which an individual can actively seek to face head-on and overcome. Although it is a fact that many of life’s events are out of our control – earthquakes, accidents, deaths, etc – the one thing a person can control is how they respond to these events, and they have the choice to do so with resilience (Wagnild, 2009).

1.4.2 Resilience theory. Early research conducted by Wagnild and Young (1990) identified five underlying characteristics of resilience. More recently, Wagnild (2009) used these five characteristics as the foundation for what is known as the Resilience Core Model. Wagnild suggested that a strong Resilience Core will enable a person to bounce back, learn, and grow from life’s difficulties; to exhibit a healthy resilience response. The five characteristics constituting the Resilience Core are: a purposeful life; perseverance; equanimity; self-reliance, and; existential aloneness (or “coming home to yourself”). The model suggests that people can support and replenish their core through “Resilience Supports”, which include: seeking social support; taking care of one’s health; engaging in life, and; balancing recreation, rest, and responsibilities. Depending on the strength of one’s Resilience Core (as measured by the Resilience Scale), the model proposes they will exhibit

four possible responses when faced with adversity. People high in resilience will learn and grow from their experiences and have an even greater ability to deal with future adversity. If their Resilience Core is weaker, they will, at best, maintain the *status quo* (stay the same); however, over time and with additional adversity, a person with a weak core may find they are barely able to hang on and will finally give up in exhaustion and despair. In essence, the model proposed by Wagnild suggests that a strong Resilience Core appears to lead to a healthier lifestyle and likewise, a healthier lifestyle may reinforce and help strengthen a weaker Resilience Core.

1.4.3 Measuring resilience. The Resilience Scale, published in 1993, was the first instrument designed to measure resilience directly (Wagnild & Young, 1993). The original Resilience Scale was based on a 1987 qualitative study of 24 older women who had experienced a recent loss (e.g., loss of a spouse, health, or unemployment) and who had successfully coped with it (Wagnild & Young, 1990). From this later study, Wagnild and Young identified five essential characteristics of resilience (as mentioned above), which were further defined and described through a thorough review of the literature on coping and adaption. These five characteristics served as the conceptual foundation for the Resilience Scale and the shorter RS-14. The original Resilience Scale included 50 items, which was then reduced to the 25-item Resilience Scale and the more recent 14-item Resilience Scale (RS-14); as used in the current study. Since 2006, more than 4,500 researchers, organisations, and clinicians have requested permission to use the Resilience Scale with a variety of populations ranging from adolescents to the elderly (Wagnild, 2009). Wagnild highlighted the fact that published studies in which the Resilience Scale was used indicate that it is simple to use, useful for a wide range of ages and socioeconomic groups, and reliable. Importantly, Wagnild also points out that support for the validity of the Resilience Scale continues to grow.

1.4.4 Key drivers of resilience. There has long been debate over whether a resilience response to adversity can be attributed to an individual's 'state' or 'trait' (Wagnild, 2009). If resilience is a trait, then a person's response to life's challenges is dependent on and limited by their inherited resilience and/or ability to respond resiliently. For example, Walsh (1996) states, "Resilience is commonly thought of as inborn, as if resilient persons grew themselves up: either they had the 'right stuff' all along – a biological hardiness – or they acquired it by their own initiative and good fortune."(pp. 262-263). To some extent this may be true, however, there is also vast empirical evidence supporting the 'state' argument, suggesting that resilience can in fact be developed. Rutter (2007), for example, states that resilience is not and cannot be a personality trait and that individuals become resilient only in the presence of adversity. Interdisciplinary studies that involve biosciences as well as behavioural sciences now strongly support the contribution of genetics to resilience as well as interactions in the environment (Wagnild, 2009). Plomin (2004) argued that human behaviours are not influenced by trait OR state but rather by trait AND state.

Based on the above reasoning Wagnild's (2009) Resilience Core Model was developed on the expectation that a person's resilience could be strengthened. Wagnild proposed four key drivers, known as 'Resilience Supports', which can be used to support and replenish one's level of resilience: seeking social support; taking care of your health; engaging fully in life, and; balancing recreation, rest, and responsibilities.

1.4.5 Resilience and performance outcomes. Highly resilient individuals possess the type of attributes that employers look for in their employees; the type of attributes which, in part, may account for an overall increase in an organisation's performance. For example, individuals who are resilient show more emotional stability when faced with adversity, are more flexible to changing demands, and are open to new experiences (Luthans et al., 2006). Despite the lack of attention given to this topic, research has shown that the resilience of

workers is related to their performance and proposes organisations that develop such resilience in their employees will be more adaptive and successful over time (Luthans, Avolio, Walumbwa, & Li, 2005). It is also important to note that a bad experience of failure on a task in an individual's organisational life does not have to be a reason for career derailment. For example, Hind, Frost, and Rowley (1996) showed that resilient employees may use an adverse experience to increase performance on subsequent tasks and may actually be much more valuable to the organisation in terms of their adaptability in times of subsequent change or uncertainty.

1.5 Physical Activity

1.5.1 What is physical activity? The term physical activity (PA) is defined as “any bodily movement produced by skeletal muscles that requires energy expenditure” (WHO, 2012). To fully understand PA it is important to differentiate between ‘physical activity’ and ‘physical exercise’; two concepts often referred to as the same thing due to their similar characteristics. For example, both forms involve the production of bodily movement and energy expenditure through the use of skeletal muscles. They are measured by kilocalories varying from high to low, and have a positive relationship with physical fitness as frequency, duration, and intensity of movements increase (Caspersen et al., 1985). However, given PA may represent any aspect of daily activity (except sleep), physical exercise is widely thought of as a subcategory of PA, defined specifically as “planned, structured, repetitive, and purposeful in the sense that the improvement or maintenance of one or more components of physical fitness is the objective” (WHO, 2012).

1.5.2 Physical inactivity. Physical inactivity (also known as a lack of PA) has long been a global issue with well documented statistics demonstrating the extent and significance of the problem. For example, in New Zealand alone only 48 percent of adults are achieving

the minimum recommended level of PA; at least 30 minutes a day, on five or more days a week (MOH, 2012). The World Health Organisation (WHO), perhaps the world's leading organisation in tackling this issue, has identified physical inactivity as the fourth leading risk factor for global mortality, responsible for approximately 3.2 million deaths each year (6% of deaths globally). WHO also emphasise that physical inactivity is estimated to be the main cause for approximately 21–25% of breast and colon cancers, 27% of diabetes and approximately 30% of ischaemic heart disease burden. It is suggested that current levels of physical inactivity are partly due to insufficient participation in PA during leisure time and an increase in sedentary behaviour during occupational and domestic activities. Likewise, an increase in the use of "passive" modes of transport has also been associated with declining PA levels (WHO, 2012).

1.5.3 The benefits of physical activity. The benefits of PA are vast, impacting at all levels from the individual through to the economy. At a physiological level, PA reduces the risk of heart disease, strokes, diabetes, breast and colon cancer, and the risk of falls for elderly (Fletcher, Balady, & Amsterdam, 1996). It improves bone and functional health and is well known for improving your sleep (Fletcher et al., 1996). Physical activity is essential for increasing and maintaining muscle and bone strength, and is also a key determinant of energy expenditure, and thus essential to energy balance and weight control (MOH, 2012). From a psychological standpoint, PA has been found to raise one's self-esteem, reduces levels of anxiety, and makes people less susceptible to depression (MOH, 2012). An annotated bibliography produced in Australia by the National Centre for Culture and Recreation Statistics (2001), identified eight categories which are positively affected by physical exercise. Included in these categories were a number of social benefits, such as community pride/identity, crime prevention, development of life skills, social behaviour, and social cohesion. Finally, from an economic perspective, taking into account the number of New

Zealand adults who meet PA guidelines through participation in sport and recreation, the gross personal benefits as a result of increased work productivity and improved health outcomes are estimated to have been \$4.2 billion in 2009 (Dalziel, 2011).

1.5.4 Physical activity and work engagement. While there has been no apparent research into the direct effect of PA on WE, there have been a number of studies looking into the effect of workplace-based wellness programs, particularly in terms of job satisfaction. For example, research has shown that wellness programs help promote healthy practices and positive work behaviours, reduce absence rates and healthcare costs across organisations, and increase performance (Parks & Steelman, 2008). Similar evidence by Kirkcaldy, Cooper, Shephard, and Brown (1994) suggested that the physical benefits of participating in wellness programs is in turn linked to an increase in job satisfaction and general psychological well being. Two reasons may explain this phenomenon.

The first explanation for the link between wellness programs and job satisfaction is that participation in an organisational wellness program simply makes employees feel better physically. For example, a study examining the effects of fitness on police officers concluded that those officers who were more physically fit felt better about themselves and thus were more satisfied with their job (Kirkcaldy et al., 1994). General Motors also found that employees who participated in fitness activities had higher levels of job satisfaction than those who did not participate (Baun, Bernacki & Tsai, 1986). Given the primary aim of the GCC is to increase employees' levels of PA, for many corporate employees, particularly those who had low levels of activity pre GCC, this may have a significant impact on their level of fitness and physical well-being. Based on this fact, it is again reasonable to suggest that the sense of physical well-being achieved through increased (and sustained) PA may contribute to an increase in WE. Therefore, it is hypothesised that:

H1. Level of PA (total step count) will be positively related to a significant increase in WE between time 1 (pre-exercise intervention) and time 2 (post exercise intervention 4 months later).

The second idea is that employers who provide wellness programs are viewed as having more concern for their employees and as a result enhance employees' attitude toward the organisation. This idea is derived from the theory of Perceived Organisational Support (POS). POS is the extent to which employees believe their organisation values their contribution and cares about their personal well-being (Eisenberger, Huntington, Hutchison, & Sowa, 1986). The basic premise of POS is SET (see Work Engagement Theory), according to which, POS is influenced by various aspects of organisational treatment including rewards, benefits, and job conditions (Guzzo, Noonan, & Elron, 1994), and has been shown to positively impact job satisfaction (Rhoades & Eisenberger, 2002). In the current study, not only are employees receiving the physical and psychological benefits of maximising their PA, they may also feel a sense of gratitude toward their employer for the social rewards of being involved in a competition as part of a team. For example, new relationships may be formed, old relationships made stronger, and any team cohesion developed throughout the challenge has a potential crossover effect back into the workplace. It is also possible that a program such as the GCC may engender a sense of pride among employees in representing their respective business, promoting a more positive view of their organisation and their position within it. Based on this idea of POS, the following is hypothesised:

H2. There will be a significant increase in WE between time 1 (pre-exercise intervention) and time 2 (post exercise intervention 4 months later).

1.5.5 Physical activity and resilience. To date, no studies appear to have investigated the direct effects of physical exercise on resilience. There is a general belief, however, that PA and exercise have positive effects on reducing depression and anxiety

disorders, and a great number of studies describe an association between PA and general well-being, mood and anxiety (Strohle, 2009). To that end, it is highly possible that PA may act as a form of protective mechanism against mental disorders and other psychological vulnerabilities. Theoretically speaking, it is therefore plausible that resilience may be a moderating/mediating variable within this relationship. The current study looks to extend the scope of research into this area by analysing the direct relationship between PA and resilience.

The Resilience Core Model (Wagnild, 2009) suggests that people can support and replenish their core through “Resilience Supports”, which include: seeking social support; taking care of one’s health; engaging in life, and; balancing recreation, rest, and responsibilities. The current study argues that by increasing their level of PA, participants are actively engaging in supporting their health (see 1.3.3 Benefits of Physical Activity). By improving their health through PA, participants may therefore report an increase in their perceived level of resilience; that is, they are strengthening their Resilience Core and therefore their ability to deal with life’s challenges. Thus, the third hypothesis is as follows:

H3. Level of PA (total step count) will be positively related to a significant increase in resilience between Time 1 (pre-exercise intervention) and Time 2 (post exercise intervention 4 months later).

Further to this, it is argued that participation in the GCC falls under the umbrella of any one of these four Resilience Supports (e.g., engaging in life, taking care of one’s health) to varying extents. For example, the GCC may assist in balancing recreation, rest, and responsibilities by encouraging participants to conduct PA outside of their working day, particularly after being cooped up in an office such is the case for many corporate employees. The team-based nature of the challenge may also broaden employees social support network by learning more about their work colleagues and developing new friendships during the

challenge. To that end, participation in the GCC (regardless of PA levels) may in itself positively influence resilience. Therefore the fourth and final hypothesis is as follows:

H4. There will be a significant increase in resilience between Time 1 (pre-exercise intervention) and Time 2 (post exercise intervention 4 months later).

Method

2.1 *Participants*

In total 579 employees returned the RS-14 and the UWES at Time 1 and 200 were returned at Time 2. Of the 200 participants, 125 (62%) were female and 76 (38%) were male. Participation in the programme was voluntary and full informed consent was given. Participants were also provided with a detailed information sheet, presented in Appendix A, outlining their rights and responsibilities as a participant in the study. In terms of employee level, 113 (56.5%) were general employees, 68 (34%) middle management, and 19 (9.5%) upper management.

2.2 *Materials*

Work engagement and resilience were assessed using a questionnaire, which included the Utrecht Work Engagement Scale (UWES) and the RS-14. Physical activity was measured by way of ‘total step count’; a summation of daily pedometer recordings over the 16 week period.

The first section of the questionnaire labelled ‘*Your information*’ required participants to provide a range of demographic and occupational details (e.g. age and gender, position within organisation, current exercise level).

Resilience. The second section of the questionnaire labelled ‘*The 14-Item Resilience Scale (RS-14)*’ had a total of fourteen questions and evaluated the level of employees’ resilience. Participants were asked to specify the extent to which they agreed or disagreed

with a series of statements. For example, “*When I’m in a difficult situation, I can usually find my way out of it*”. For each question, a 7-point scale was used from *strongly disagree* (1) to *strongly agree* (7). The RS-14 exhibits high internal consistency, Cronbach’s $\alpha = .93$ (Wagnild & Guinn, 2009). See Appendix B for a full copy of the RS-14.

Work engagement. The third and final section of the survey was labelled ‘*Work and Well-Being*’. This section used the nine-item UWES to gauge the level of engagement individuals were currently experiencing at their work. Participants were asked to specify how often a certain state applied to them. The scale comprises of three subscales: vigour, dedication and absorption. A sample question to gauge vigour was, “*At my work, I feel bursting with energy*”. A sample question to measure dedication was, “*I am enthusiastic about my job*”. A sample question to assess absorption was, “*I am immersed in my work*”. For each question, a 7-point scale was used, from *never* (1) to *always* (7). To standardise participants responses, each of the seven points are quantified (Schaufeli & Bakker, 2003); for example, *rarely* (3) means ‘once a month or less’, whereas *almost never* (2) means ‘a few times a year or less’. The UWES also exhibits excellent internal consistency, Cronbach’s $\alpha = .93$ (Schaufeli & Bakker, 2003). The UWES is presented in Appendix C.

Physical activity. To assess levels of PA, participants wore a pedometer around their ankle which recorded their daily step count. The pedometers functioned by recognising the impact of a participants foot striking the ground, each time adding one step to their daily count. At the end of each day participants submitted this figure into their online personal database. At the beginning of each day the pedometer was reset to zero and the process repeated. Participants total daily step count over the 16 week challenge was used as the indicator of PA.

2.3 Procedure

This study examined the effect of PA on self-reported WE and resilience among corporate employees. Participants from a range of corporate New Zealand businesses took part in a 16-week workplace-based health initiative known as the GCC, aimed at increasing levels of PA among employees. Participants recorded their daily level of PA through the use of a pedometer, and submitted daily levels into an online personal database provided by the GCC. Self-reported measures of WE and resilience were assessed using the UWES and RS-14, both prior to, and following the GCC. The data was gathered by way of an online questionnaire, which took approximately 5-10 minutes to complete. The use of questionnaires or surveys can be done either via internet or conventional paper and pencil method. As all of the participants had access to a computer and internet it was decided that the survey would be made available on-line through Survey Monkey. This allowed participants a secure, easy-to-follow, convenient means of completing the survey.

2.4 Design

To evaluate the effect of physical exercise on resilience and WE, a within subjects repeated measures design was adopted, as data was gathered from the same participants at two separate time points. The RS-14, UWES and total step count constituted the measured independent variables.

Results

Employment level and change in work engagement. A one-way ANOVA was performed for WE across the three employment levels. There were no significant differences between general employee, middle and upper management in their changes in WE from Time 1 to Time 2, $F(2, 197) = 0.325, p = .72$.

Employment level and change in resilience. A one-way ANOVA was performed for resilience across the three employment levels. Participants' level of employment did not have a significant effect on their changes in resilience from Time 1 to Time 2 $F(2, 197) = 0.433, p = .64$.

Incomplete data. A series of independent t-tests were conducted to identify differences between those that completed the measures (i.e. the RS-14 and UWES) at Time 1 and Time 2, and those that completed measures at Time 1 but did not complete them at Time 2.

Exercise levels pre-GCC. Prior to starting the GCC, all participants indicated how many times on average they exercised a week. The t-test revealed a non significant difference between the people that completed the measures at both times ($M = 2.39, SD = 0.89$) and those that did only Time 1 ($M = 2.38, SD = 0.93$), $t(577) = 0.08, p = .92$. Therefore, the amount a person exercised before starting the GCC had no reflection on whether or not they continued their participation in the study.

Resilience pre-GCC. In addition, differences in resilience between people were tested at Time 1. The t-test showed that there was no significant difference in resilience between those who completed the measures in both times ($M = 5.13, SD = 0.85$) and those that did not ($M = 5.20, SD = 0.86$), $t(577) = 1.10, p = .30$, suggesting one's level of resilience prior to starting the GCC did not influence their continued participation.

Work engagement pre-GCC. Finally, WE was compared between those that did or did not complete participation in the study. The t-test found a significant difference in levels of WE between those that went on to continue their participation in the study ($M = 4.06, SD = 0.85$) and those that did not ($M = 5.12, SD = 0.87$), $t(563) = 13.85, p < .01$. This result

demonstrates that the most engaged employees were actually the ones who failed to complete the measures at Time 2.

3.1 *Work Engagement*

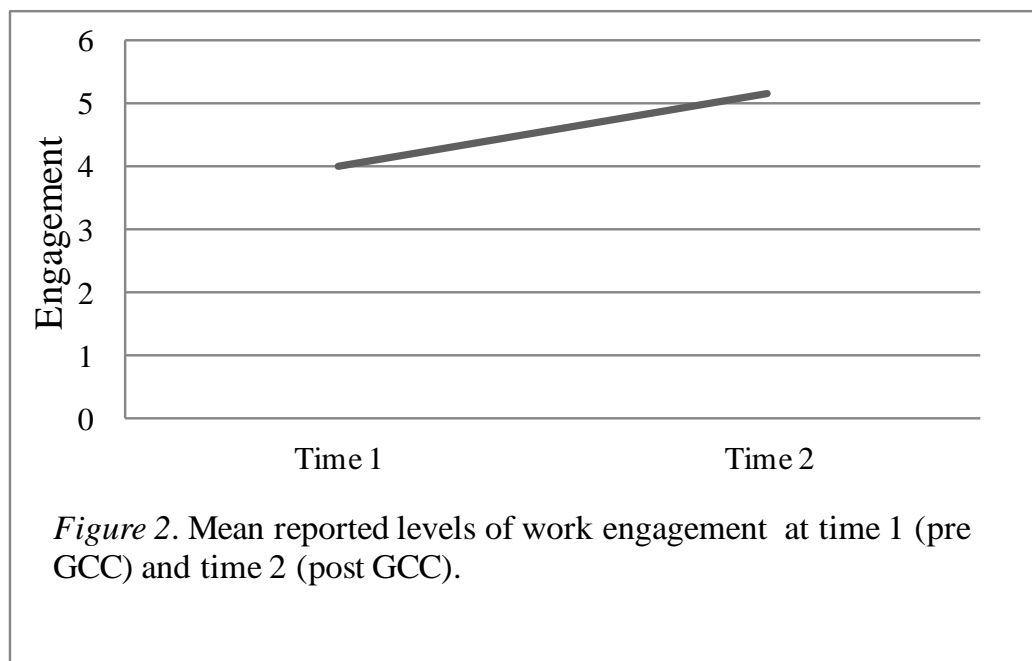
Factor Analysis. The 9 items of the UWES were subjected to principal components analysis (PCA) using SPSS version 18. Prior to this however, suitability of each items response was assessed. It was revealed that all 9 items correlated at least .3 with at least one other item, suggesting suitable factorability. In addition, the communalities were all above .30, confirming sufficient common variance between each item. Finally, the Kaiser-Meyer-Olkin measure of sampling adequacy was .88, above the recommended value of .60, and Bartlett's test of sphericity was significant ($\chi^2(91) = 5.88, p < .01$). Given these indicators, factor analysis was conducted with all 9 items. Principal components analysis revealed the presence of one component accounting for 43.98 percent of the variance.

Sex differences. First, between group differences were tested. Participants were grouped by sex to determine whether men and women differed in regards to their overall level of WE. A 2 Sex (Male & Female) X 2 Work Engagement (Time 1 & Time 2) ANOVA with repeated measures on the last factor was then performed. There was no significant difference between male ($M = 4.57, SE = 0.07$) and female ($M = 4.59, SE = 0.09$) participants in their overall level of WE ($F(1, 197) = 0.04, p = .85$). Therefore, men and women were grouped together when performing additional analyses.

Physical activity and change in work engagement. Physical activity, as measured by Step-total, was correlated with change in WE to investigate whether level of PA (the extent to which participants were active) affected a change in engagement levels. A non significant correlation ($r = .01, ns$) was found between Step-total and WE Time 1 to Time 2. From this result it was interpreted that the observed increase in WE was not affected by 'how much' participants were active, suggesting more active does not necessarily mean more engaged.

This finding is inconsistent with Hypotheses 1, which predicted that level of PA (total step count) would be positively related to a significant increase in WE between Time 1 and Time 2.

Change in work engagement. Within group differences were tested to investigate whether participation in the GCC might be positively related to an increase in WE. Only the 200 participants who completed both Time 1 and Time 2 measures of WE were included in this analysis. A dependant measures *t*-test was performed for Time 1 and Time 2 with WE as the dependant variable. As shown in Figure 2, and consistent with Hypothesis 2, there was a significant main effect for WE from Time 1 to Time 2, $(199) = 20.57, p < 0.01$. Participants reported significantly more WE at Time 1 (pre-exercise intervention) ($M = 4.01, SD = 0.84$) than at Time 2 (post exercise intervention 4 months later) ($M = 5.16, SD = 0.84$), suggesting participation in the GCC has lead to an increase in WE.



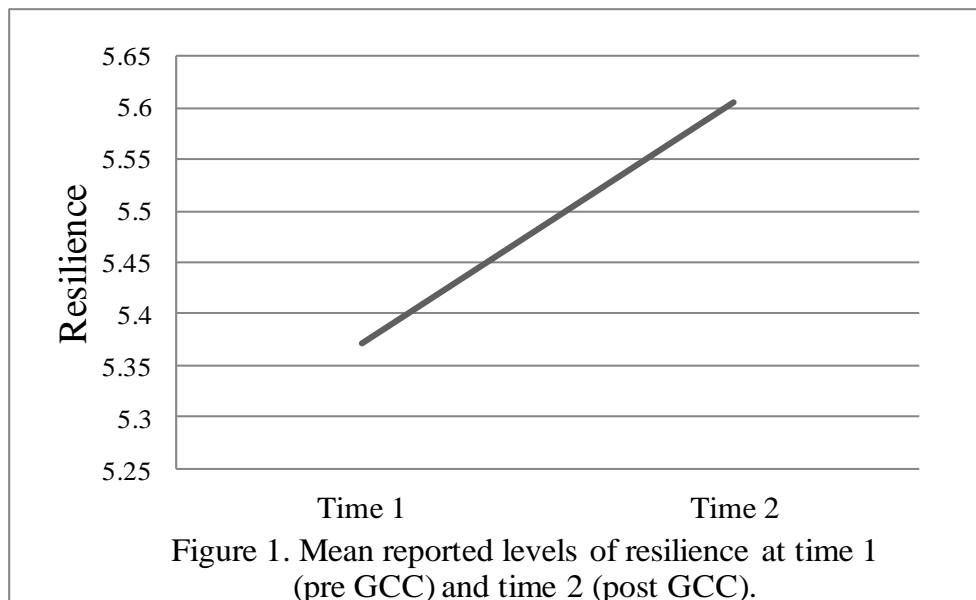
3.2 Resilience

Factor analysis. The 14 items of the RS-14 were subjected to PCA using SPSS Version 18. Prior to performing the analysis the suitability of items response was measured. All 14 items correlated at least .3 with at least one other item, suggesting reasonable factorability, while communalities were all above .30, confirming sufficient common variance between items. The Kaiser-Meyer-Olkin measure of sampling adequacy was .94, above the recommended value of .60, and Bartlett's test of sphericity was significant ($\chi^2(91) = 1837.30, p < .01$). Given these results, PCA was conducted revealing the presence of one factor, accounting for 58.17 percent of the variance.

Sex differences. Between group differences in resilience were tested. Participants were grouped by sex to determine whether men and women differed in regards to resilience. A 2 Sex (Male & Female) X 2 Resilience (Time 1 & Time 2) ANOVA with repeated measures on the last factor was then performed. When calculated, no significant main effect was found between males ($M = 5.43, SE = 0.08$ and females ($M = 5.52, SE = 0.06$), $F(1, 198) = 1.24, p = .27$. This shows that men and women did not differ in their overall levels of resilience and therefore could be treated as one group when performing additional analyses.

Physical activity and change in resilience. Physical activity was correlated with resilience to investigate whether the extent to which participants were active affected a change in resilience between Time 1 and Time 2. A non significant correlation ($r = .10, ns$) was found between Step-total and Resilience Time 1 to Time 2. From this result it was interpreted that the observed increase in resilience was not affected by 'how much' participants were active, suggesting more active does not necessarily mean more resilient. This finding is inconsistent with Hypothesis 3, which predicted that level of PA (total step count) would be positively related to a significant increase in WE.

Change in resilience. Within group differences were tested to investigate whether participation in the GCC may be positively related to an increase in resilience. Only the 200 participants who completed both Time 1 and Time 2 measures of WE were included in this analysis. A dependant measures *t*-test was performed for Time 1 and Time 2 with Resilience as the dependant variable. As shown in Figure 3 there was a significant difference in resilience from Time 1 ($M = 4.95$, $SD = 0.60$) to Time 2 ($M = 5.36$, $SD = 0.90$), $t(199) = 6.70$, $p < .01$. This results supports Hypothesis 4, which predicted a significant increase in resilience between time 1 (pre-exercise intervention) and time 2 (post exercise intervention 4 months later).



Discussion

This study examined the effect of physical activity (PA) on self-reported work engagement (WE) and resilience among corporate employees. Participants from a range of corporate New Zealand businesses took part in a 16-week workplace-based wellness program known as the Global Corporate Challenge (GCC), aimed at increasing levels of PA among employees. Participants recorded their amount of PA through the use of a pedometer and uploaded daily levels into an online personal database provided by the GCC. Self-reported measures of WE and resilience were assessed using the 9-item Utrecht Work Engagement Scale (UWES) and the 14-item Resilience Scale (RS-14), both prior to, and following the GCC. Results of the study provided support for the hypotheses that both WE and resilience would increase after participation in the GCC, however, contrary to further hypotheses, increasing levels of PA did not improve WE and resilience among participants.

The finding that WE increased after participation in the GCC is consistent with the theory of perceived organisational support (POS) (Eisenberger et al., 1986). In line with this idea that employees' attitude toward the organisation can be influenced by a range of organisational treatments such as rewards, benefits, and job conditions, the current study, through the use of the GCC, offered participants opportunities and benefits they would be otherwise unlikely to attain in the workplace. For example, employees had the opportunity to engage in a workplace-based wellness program which, through maximising PA, they were encouraged to work together as a team in order to compete against other similar organisations from all around the world. Not only were employees receiving the physical and psychological benefits of maximising their PA, they may have also felt a sense of gratitude toward their employer for the social rewards of being involved in a competition as part of a team. For example, new relationships may have been formed, old relationships made stronger, and team cohesion developed throughout the challenge may have had a crossover effect back into the

workplace. It is also possible that a program such as the GCC may have engendered a sense of pride among employees in representing their respective business, promoting a more positive view of their organisation and their position within it. Given the results of the current study, these types of factors may have facilitated in increasing employees' POS; their perception of how much their organisation values their contribution and cares about the personal well-being.

From a theoretical standpoint, this finding supports and builds on the current scope of POS and WE literature. Researchers (e.g., Gronningsaeter, Hytten, Skauli, Christensen, & Ursin, 1992) have suggested that providing work site wellness programs engenders a positive attitude, making employees happier with the organisation and therefore more satisfied with their jobs. The current study validates this by demonstrating that not only job satisfaction, but also WE can be enhanced through the implementation of wellness programs oriented around increasing PA. Moreover, because the GCC is outside the scope of day-to-day responsibilities, employees may perceive this as genuine concern and support for their health and well-being without any underlying (financial) agenda, increasing POS, and thus WE.

This theory may be successfully applied in organisations which are suffering from low employee WE, in which traditional methods such as surveys, focus groups and suggestion programs may have failed to change the status quo. As shown in the current study, organisations can generate a climate of caring and support simply by allowing employees the opportunity to participate. By employing a program such as the GCC, at minimal cost to the organisation, the current study provides empirical evidence for improved WE of employees, and thus a range of improved performance outcomes (Schaufeli & Bakker, 2003).

It is recommended that future research replicate this study with the inclusion of two control groups. The first control group would conduct PA in their own time and it would be unrelated to the organisation, while the second control group would conduct no 'planned' PA

at all. In doing so, researchers could examine whether POS is affecting WE over and above the health benefits of PA. In accordance with the findings of the current study, it would be expected that employees in the organisation-sponsored program may see a larger increase in WE than those in the first control group, while no change is expected to occur within the second control group. That said, a similar increase between employees in the organisation program and the first control group would suggest there is little difference in the effects on WE between (1) the health benefits of PA, and (2) POS achieved through wellness programs.

The finding that resilience increased after participation in the GCC is consistent with the Resilience Core Model (Wagnild, 2009). The model suggests that people can support and replenish their core through “Resilience Supports”, which include: seeking social support; taking care of one’s health; engaging in life, and; balancing recreation, rest, and responsibilities. The current study argued that participation in the GCC could fall under the umbrella of any one of these four Resilience Supports (to varying extents). It can be interpreted from this finding that participation in the GCC (regardless of PA levels) can in itself increase levels of resilience among employees. This idea lends support to the central theme of Wagnild’s (2009) Resilience Core Model, that “a healthier lifestyle buttresses a weaker Resilience Core and facilitates one’s ability to strengthen their levels of resilience” (p. 17).

From a theoretical stance this finding has provided further insight into the relationship between wellness programs and employee outcomes such as WE and job satisfaction. For example, past studies (e.g., Rhoades & Eisenberger, 2002; Kirkady et al., 1994) have suggested that organisational wellness programs can increase job satisfaction through the enhancement of POS, as well as simply making employees feel better physically. Interestingly however, the current study has revealed that as well as an increase in WE, participants also reported a significant increase in resilience; an important ‘personal resource’

and a key driver of WE (see JD-R Model, Bakker & Demerouti, 2008). It is therefore plausible that wellness programs such as the GCC are not simply ‘making employees feel better physically’, but are having a genuine influence on employees personal resources (e.g., resilience, self-esteem, optimism etc), which is in turn affecting employee outcomes. The current study argues that personal resources are most likely moderating the relationship between participation in the GCC and WE.

Based on this notion of enhancing personal resources, the current finding has another important practical application. According to the JD-R Model, job resources (e.g., autonomy, personal feedback, social support, supervisory coaching etc) become more salient and gain their motivational potential when employees are confronted with high job demands (e.g., workload, emotional demands, and mental demands) (Bakker & Demerouti, 2008). Research has also shown that job and personal resources are mutually related, and that employees with higher optimism, self-efficacy, resilience and self-esteem are well able to mobilise their job resources, and generally more engaged in their work (Xanthopoulou, Bakker, Demerouti, & Schaufeli, 2009). Based on this notion that job and personal resources have particularly positive impact on engagement when job demands are high, the current study suggests that wellness programs such as the GCC may be implemented prior to, or during, a particularly demanding period of the financial year. As well as fostering engagement (via personal resources), employing this type of program at such a time may provide balance and respite from the increased job demands and stressors.

It is recommended that future research explore this theory by conducting a multiple regression; measuring the individual variables encompassed by the term ‘personal resources’ (e.g., self esteem, resilience, self-efficacy etc) in order to control for them during the analysis stage. Given the positive relationship between wellness programs and both resilience and WE, the current study suggests that when controlling for such variables, there would be a

significant drop in the direct relationship between participation in a wellness program and WE. Similarly, future research could employ the same format looking at the effect of wellness programs on psychological issues such as depression, anxiety, and stress management. Due to the predicted moderating effect of personal resources, the current study again suggests a significant drop in the direct relationship when controlled for.

The finding that level of PA was not significantly correlated with the observed increase in WE is inconsistent with research conducted by Kirkady et al. (1994). Kirkady found that police officers who were more physically fit felt better about themselves and were therefore more satisfied with their job. It was inferred from Kirkady that participants in the current study who conducted more PA (higher Step-total), would have reported a significantly higher level of WE due to their improved level of fitness, compared to those with a lower Step-total. Interestingly however, it appeared that while being involved in the challenge was important for increasing WE, 'how much' PA participants conducted was not a contributing factor.

From a theoretical standpoint, this finding does not suggest that PA has no effect on WE at all, and that increasing PA does not increase WE. It does however suggest that it is a matter of degree. The current study infers that the relationship between PA and WE may be characterised by the law of diminishing returns. According to this law, and contrary to the idea suggested by Hypothesis 1, the relationship between PA and WE is not linear. In fact, while increases in PA appear to influence WE at the lower level, it is plausible that there is a limit, at which point no matter how much more PA one does the effect on WE is negligible. It is recommended that future research validate this theory, as accurate figures on the optimal amount of PA required for maximising WE would prove useful when promoting and implementing wellness programs in the workplace.

The finding that levels of PA did not significantly correlate with the observed increase in resilience is contradictory to Hypothesis 3 and as a result provides theoretical insight into the Resilience Core Model (Wagnild, 2009). Similar to the relationship with WE, it is highly plausible that PA is influencing resilience to some extent, yet with diminishing returns. Due to the fact that a significant increase in resilience was observed, it is likely that an increase in PA has accounted for a certain amount of this variation. However, unlike the linear relationship predicted by Hypothesis 3, more PA does not always mean more resilience. The Resilience Core Model suggests that ‘taking care of one’s health’ will assist in strengthening one’s Resilience Core (Wagnild, 2009), however it appears that optimal levels for achieving this does not mean maximising PA each day. Rather, the results of the current study suggest that conducting an amount of exercise which keeps you physically healthy and provides balance in your life is far more beneficial. It is again recommended that future research validate this theory, as accurate figures on the ideal amount of PA required for maximising resilience would assist in the application of wellness programs.

Two limitations challenge the utility of this study. First, there was a significant drop in participant numbers between Time 1 and Time 2, meaning potentially significant relationships may have been lost due to sample size. To remedy this in the future, collecting data from more participants at Time 1 (given the inevitable drop-off) would ensure a large enough sample size at Time 2. Second, because WE and resilience were only assessed at the beginning and end of the challenge, researchers were unable to identify whether such levels may have been achieved earlier than 16 weeks, or whether levels may have even been higher at earlier stages in the challenge. Taking a mid-point assessment of these measures would allow for further insight into the effects of the independent variables.

4.1 Conclusion

This study revealed important findings into the effects of PA on WE and resilience among corporate employee, and identified key areas for further investigation. In particular, the study demonstrated the positive influence of participation in PA-based wellness programs on WE and resilience, and highlights the importance of future research investigating the optimal levels of PA needed to maximise employee outcomes. These findings support the theory that providing work site wellness programs engenders a positive attitude, making employees happier with the organisation and therefore more satisfied with their jobs (Gronningsaeter et al., 1992). Nevertheless, future research is needed to identify whether POS is affecting WE over and above the health benefits of PA. These findings also support the theory of personal resources acting as a key driver of WE (Bakker & Demerouti, 2008). However, future research must validate this idea of personal resources moderating the relationship between PA and WE through multiple regression. Limiting factors in the study include sample size, which may have concealed potential significant relationships, and a midpoint measure of PA would have allowed for more in-depth analysis of the measured variables. This research may assist businesses in developing employees' POS and personal resources, thus improving WE and resilience among their employees. The application of such, achieving not only a workforce better equipped to handling the challenges and stressors of today's workplace, but organisational success, and financial performance (Saks, 2006).

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Appendix A
Information Sheet

University of Canterbury

Department of Psychology

You are invited to participate as a subject in the research project – The effect of physical activity on work engagement and resilience among corporate employees.

This aim of this study is to assess whether increasing employee's levels of physical activity through the use of a workplace-based initiative improves self-reported work engagement and resilience.

Your involvement would require participation in the 2011 Global Corporate Challenge and the completion of an online survey. All participants will also go in the draw to win one of four iPod Nanos.

By completing the online survey, you are giving consent for the results of the present study to be published, but you are assured of the complete confidentiality of information provided. However, you have the right to withdraw from the study at any time, including withdrawal of any information provided. Participants will be referred to only by code number; no identifying information will be stored with the data. To ensure this, data will be securely stored in a password protected computer, only accessible by the researchers. The data will be destroyed after 10 years.

The study is being conducted as a requirement for the Master of Science in Applied Psychology by Michael Coom. Michael can be contacted via email on mgc58@uclive.ac.nz or via phone on 027 224 5342 or 364 2987 extn. 7705. The project is under the supervision of Joana Kuntz and Alex Mckenzie who can be contacted at 364 2987 extn. 7705. Both Michael and his supervisory team will be pleased to discuss any concerns you may have about participation in the project.

The results of this thesis will be a public document within the University of Canterbury library database. The project has been reviewed and approved by the University of Canterbury Human Ethics low risk reporting process.

Appendix B

Utrecht Work Engagement Scale (UWES) ©

The following 9 statements are about how you feel regarding your studies. Please read each statement carefully and decide if you ever feel this way about your job. If you have never had this feeling, cross the “0” (zero) in the space after the statement. If you have had this feeling, indicate how often you feel it by crossing the number (from 1 to 6) that best describes how frequently you feel that way.

	Almost never	Rarely	Sometimes	Often	Very often	Always
0	1	2	3	4	5	6
Never	A few times year or less	Once a month or less	A few times a month	Once a week	A few times a week	Every day

1. _____ When I'm doing my work as a student, I feel bursting with energy
2. _____ I feel energetic and capable when I'm studying or going to class
3. _____ I am enthusiastic about my studies
4. _____ My studies inspires me
5. _____ When I get up in the morning, I feel like going to class
6. _____ I feel happy when I am studying intensely
7. _____ I am proud of my studies
8. _____ I am immersed in my studies
9. _____ I get carried away when I am studying

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Appendix C

The 14-Item Resilience Scale (RS-14)

Date_____

Please read the following statements. To the right of each you will find seven numbers, ranging from "1" (Strongly Disagree) on the left to "7" (Strongly Agree) on the right. Circle the number which best indicates your feelings about that statement. For example, if you strongly disagree with a statement, circle "1". If you are neutral, circle "4", and if you strongly agree, circle "7", etc.

Circle the number in the appropriate column	Strongly Disagree				Strongly Agree		
I usually manage one way or another.	1	2	3	4	5	6	7
I feel proud that I have accomplished things in life.	1	2	3	4	5	6	7
I usually take things in stride.	1	2	3	4	5	6	7
I am friends with myself.	1	2	3	4	5	6	7
I feel that I can handle many things at a time.	1	2	3	4	5	6	7
I am determined.	1	2	3	4	5	6	7
I can get through difficult times because I've experienced difficulty before.	1	2	3	4	5	6	7
I have self-discipline.	1	2	3	4	5	6	7
I keep interested in things.	1	2	3	4	5	6	7
I can usually find something to laugh about.	1	2	3	4	5	6	7
My belief in myself gets me through hard times.	1	2	3	4	5	6	7
In an emergency, I'm someone people can generally rely on.	1	2	3	4	5	6	7
My life has meaning.	1	2	3	4	5	6	7
When I'm in a difficult situation, I can usually find my way out of it.	1	2	3	4	5	6	7

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