Incorporating Unpaid Work Strain into Karasek's Job Demand-Control Model

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Lynsay Hnatuk

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Abstract

The relationship between paid and unpaid work strain and psychological well-being, in the context of Karasek's Job Demand-Control model (1979), was studied. A multiple linear regression was conducted using the results from a telephone survey of 1160 participants; 486 were male and 674 were female. Psychological distress was measured with the Kessler-6. Paid and unpaid job strain was measured with a version of Karasek's Job Content Questionnaire. Regardless of gender, unpaid work strain accounted for a significant proportion of psychological distress after controlling for paid work strain. Results support the strain hypothesis; the idea that it is high demands and low control that is most detrimental to psychological well-being. This was found for paid and unpaid work strain and for males and females.

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Chapter One

Introduction

The traditional gender roles relating to work, with men being employed outside of the home, and women maintaining the household, are quickly becoming less common (Duxbury, Higgins & Lee, 1994). Females generally assume the majority of the responsibility in regards to domestic work, such as housecleaning and childcare (Krantz, & Ostergren, 2001; Walters et al., 1996). However, men have increased their participation in domestic work. According to Statistics Canada in 1986, roughly 50% of males contributed to domestic work. This proportion increased to 70% by 2005 (Marshall, 2006). Females are entering the job force in far greater numbers then what has been common in the past (Lundberg, 1996; Peeters, Montgomery, Bakker, & Schaufeli, 2005). In 1986 the proportion of females involved in paid labor was 39%, and this number increased to 45% in 2005. As work trends change over time, and dual-income households become the norm rather than the exception, this results in families in which both parents are working outside of the home while trying to maintain the household (Marshall, 2006). This can create strain in both parents, as they are attempting to maintain two roles; the parent and the employee. As a result, research examining how qualities in both the work and home environment impact well-being have increased.

Karasek's Job Demand-Control Model

What qualities in the paid work environment are essential determinants of psychological health? Once issues relating to the physical and toxicological hazards in the workplace have been addressed, Stansfeld and Candy (2006) had stated that enhancement of the psychosocial environment would be the next step. The 'psychosocial environment' has been defined as "the socio-structural range of opportunities that is available to an individual person to meet his or her needs of well-being, productivity and positive self experience" (Siegrista & Marmot, 2004, 1465).

According to Karasek's Job Demand-Control (JDC) model, the psychosocial factors of the work environment that determine the level of job strain are psychological demands and decision

latitude (Karasek, 1979). Psychological demands are in reference to the obligations of the job, such as workload and time pressures. Karasek was only interested in the *psychological* aspects of job demands, and did not look at differential levels of other types of demands, such as physical. *Decision latitude* is a combination of *decision authority* and *skill discretion.* Decision authority refers to control someone has over their work. Skill discretion is concerned with the variety of work one does and their opportunity to use their skills in order to complete the work. The term "job control" will be used for the remainder of the paper when referring to "decision latitude".

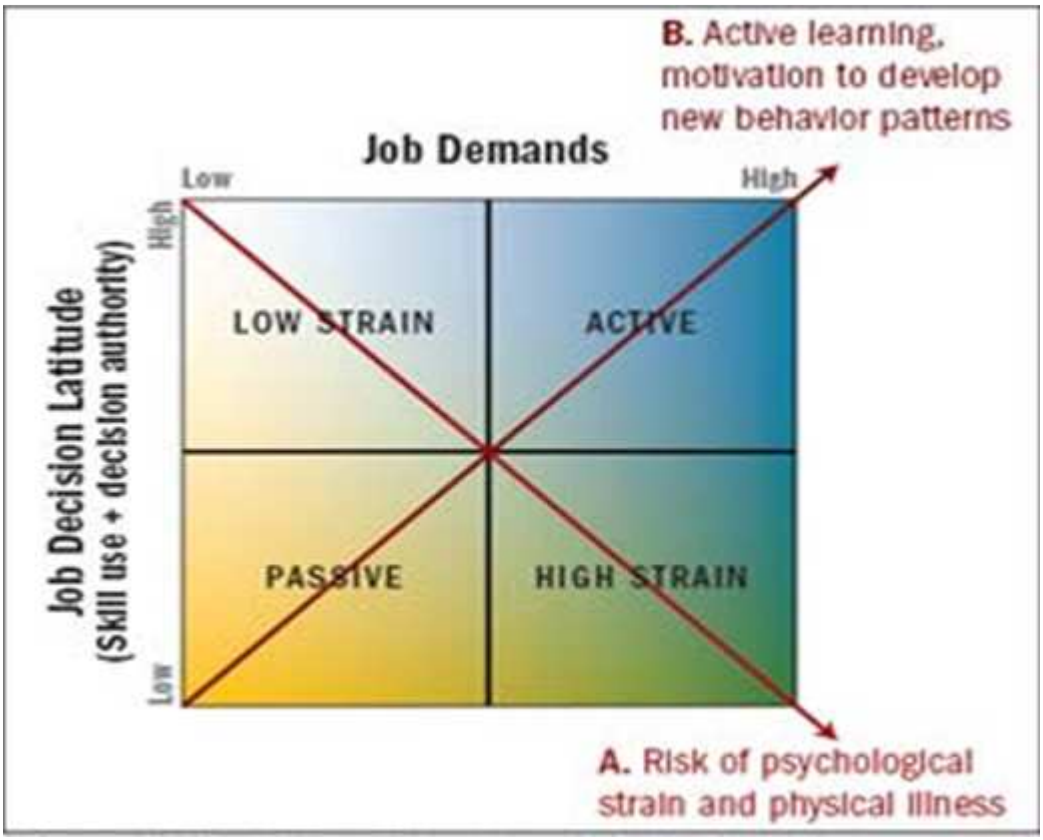
Karasek defined "job strain" as the level of psychological demands and job control inherent to a job. Karasek believed that it was the *interactive* rather than *individual* impact that job demands and job control had on well-being that determined the level of job strain (see Figure 1). Specifically, he predicted that jobs which were characterized by a high level of demands combined with a low level of control would be associated with the highest level of job strain. He referred to this type of jobs as "high strain". He theorized that this strain was a result of a manifestation of stress that results when a worker has a high level of demands, and is unable to decide which course of action to take and must engage in other activities as a result of their low level of control. When workers are provided with a high level of control, Karasek predicted this would reduce the degree of strain, when compared to a "high strain" job. He contended this was true even when demands were high, and referred to this type of job as an "active" job. While active jobs are associated with high demands, it was suggested that the high level of control would help, as workers would be able to choose how to utilize their skills, and deal with the demands of their work. Therefore, active jobs were predicted to be associated with lower than average strain.

Jobs with low demands and low control were referred to as "passive" jobs. Having low control combined with low demands could be demoralizing, and were predicted to have a negative impact on well-being, but to a lesser degree than high strain jobs. Finally, "low strain" jobs were predicted to be

associated with the lowest level of job strain, as they are characterized by a low level of demands and a high level of control.

Until recently many studies which examined work strain have concentrated on either one work sector or the other, looking at how work strain or family strain impact well-being, rather than investigating their combined influence (eg. Wallace, 2005; Ertel, Koenen, & Berkman, 2008). One purpose of the present study is to determine whether unpaid work strain accounts for variability in participants' psychological distress over and above what is explained by paid work strain alone.

Figure 1: Karasek's Job Demand-Control Model



Karask(1979)

Incorporating Unpaid Work Strain into Karasek's JDC Model

According to the JDC model, high demands and low control result in job strain. While this model is generally used in the context of the paid work environment, the same theory can be applied to the unpaid work environment. Unpaid work refers to anything related to maintaining the household, such as cleaning, house maintenance and childcare. What makes the unpaid work environment different from paid work is largely the fact that unpaid work is done for the benefit of the family, whereas paid work is done for economic benefits and possibly social rewards (Lombardi & Ulbrich, 1997). Job control, or decision latitude, can vary in regards to how much freedom a person has in their ability to choose what needs to be done, or how it should be done. Job demands can also vary in the unpaid work environment, as a person may have less time, or more pressure to complete tasks in one home environment when compared to another. A high level of job strain at home could just as easily impact psychological well-being as job strain in the paid work environment.

Significance of Current Study

The validity of a work strain scale in both the paid and unpaid work sector. There are few studies that have explored the relationship between well-being and unpaid work strain. When unpaid work strain is taken into consideration, it is often measured by a single factor (eg. Ertel, Koenen, & Berkman, 2008) or by using scales that have not been substantiated by studies showing their reliability/validity (eg. Lombardi & Ulbrich, 1997; Peeters et al., 2005). The current study will measure unpaid work strain with a scale adapted from the JCQ. The JCQ has been the attention of a number of reliability/validity studies and has been shown to be an adequate measure of work strain. The current study will further our knowledge about the validity of the JCQ in the paid work sector and will also provide evidence of its validity in the unpaid work sector. If an adequate internal consistency is found when using the JCQ in measuring unpaid work strain, this will provide evidence of reliability of this scale in an unpaid work environment.

The same measure for both paid and unpaid work strain. Past research has suggested that high strain jobs leads to psychological distress. Does unpaid work have the same impact on psychological well-being? Some studies have explored the relationship between unpaid work strain and well-being, but few have measured unpaid work strain in the same way in which paid work strain was measured. This makes it difficult to draw any conclusions from the results, as this is measuring different constructs in each work environment. The current study will investigate how job strain impacts well-being and whether variation in psychological well-being can be better understood when taking both paid and unpaid work into consideration.

Impact of gender. Studies which investigate the influence that both paid and unpaid work strain have on well-being often focus on women (Kibria et al., 1990; Styland-Nyman et al., 2008) or control for gender (Ertel, Koenen, & Berkman, 2008; Wallace, 2005). This provides little information regarding the differential impact job strain has on males and females. When Karasek first introduced the JDC model, and created the JCQ, he excluded females from his study. He stated that "the relationship between work and mental status for women is often complicated by the additional demand of housework" (Karasek, 1979, 289). While this notion may have been relevant at that time, in today's society the gender roles have changed substantially. As discussed earlier, the nature of the work force has changed. Since males are contributing to the unpaid work sector to a larger degree and females are entering the paid work sector, it is vital that the unpaid work environment is taken into consideration before fully understanding the relationship between paid work strain and well-being.

Studies that have focused on paid work and well-being, and have investigated gender differences, have often found that females' psychological distress is not as strongly linked to the level of strain they experience in their paid work environment when compared to males (Vermeulen & Mustard, 2000). Other studies have suggested that a low strain home environment can buffer the negative impact of a high strain paid job, and that this was found particularly true for women (Kibria et al., 1990). Research also suggests that women's well-being is more directly impacted by unpaid work

strain when compared to paid work strain (Staland-Nyman, Alexanderson & Hensing, 2008). This suggests that males' psychological well being is more closely associated with their paid work environment, whereas females' psychological well-being is being impacted more by factors in the unpaid work environment.

This gender difference could be due to differences in gender role identity. It has been suggested that "stress that occurs in roles that are particularly important or salient to an individual's sense of self is more likely to have a deleterious impact on psychological well-being than stress that occurs in roles evaluated as less important" (Marcussen, Ritter, & Safron, 2004, 289). Females are often socialized in a manner that encourages nurturing behavior. Also, social expectations often dictate that the female ought to be the main keeper of the home (Duxbury, Lyons, & Higgins, 2007). This could increase the likelihood that females perceive their role as a "parent" and "homemaker" as being more important than their role in their paid work environment (Simon, 1998). Males, on the other hand, who may have been socialized to be more assertive and competitive, could perceive their role as an "employee" as more important. Social expectations often dictate that the male of the household is the "breadwinner" (Simon, 1998), and if the female is earning more money this is considered a "status-reversal" (Duxbury, Lyons, & Higgins, 2007).

If it is true that roles which are evaluated as more important have a greater impact on psychological well-being, this would be a potential explanation for why females' well-being might be more closely associated to their unpaid work environment whereas males' psychological well-being may be affected more by their paid work environment. While the current study will be focusing on *if* there is a gender difference in the impact paid and unpaid work strain has on well-being, gender identity could be a potential explanation for *why* a relationship might exist, and could be the focus of future research.

Chapter Two

Literature Review

There has been extensive research on the concept of job strain in the paid work sector. Some studies have used models other than Karasek's Job Demand-Control model. Past research has also focused on a variety of dependent variables as a means of assessing the impact that job strain has had on well-being. This literature review will focus on studies which have employed Karasek's JDC model and have used psychological distress as the dependent variable, as this research is most relevant to the current study. However, research exploring the relationship between unpaid work and well being is not as extensive, and studies using other models/variables will also be discussed.

Paid Work

Vermeulen and Mustard (2000) looked at how psychological distress was related to paid work strain. They used data collected for the National Population Health Survey which was administered to households across Canada. A sample of 7,484 respondents, consisting of 3,812 men and 3, 672 women, completed measures of psychological distress and job strain. High strain jobs and active jobs were found to be associated with higher levels of psychological distress, when compared to low strain jobs. They found that women, overall, reported a higher level of psychological distress when compared to men. They also found that the relationship between job strain and psychological well-being was stronger for men then it was for women. Males reported a greater level of psychological distress when employed in a high strain job versus an active job, whereas females' psychological distress did not seem to differ to the same degree as a function of the level of strain they reported at work. They concluded that the Job Demand-Control model did not fully explain the variation in females' psychological distress and other factors, such as work-family conflict or work and family roles ought to be considered in order to develop a greater understanding of factors that may be contributing to the psychological well-being of females.

VanDoef and Maes (1999) asserted that two separate hypotheses can be derived from Karasek's Job Demand-Control model; The strain hypothesis and the buffer hypothesis. According to the strain hypothesis, a high strain job, or the combination of high demands and low control, would have the most negative impact on well being, whereas a low strain job would have the least impact. This theory does not necessarily say anything regarding the impact an active or passive work environment would have on psychological distress. Being employed in either an active or passive work environment would be expected to be associated with learning, motivation and development of skills, where an active job would be associated with increased levels and a passive job with decreased levels. Since the current study is focused on psychological distress levels as the dependent variable, this theory cannot be tested. On the other hand, according to the buffer hypothesis, control can buffer the negative impact high demands have on well being. Based on this hypothesis, both passive and active work environments ought to be significantly associated with psychological well being. If high control can buffer the negative impact high demands have on well being, an active work environment should be associated with lower psychological distress levels in comparison to a high strain work environment (Van Der Doef &Maes, 1999). The researchers noted the practical implications of the distinction between the two hypotheses. If the buffer hypothesis is correct, employers would benefit from altering the level of control their employees have without changing the level of demands. However, if the strain theory is correct, the detrimental impact demands have on well-being would remain unchanged even with a high level of control. Van Der Doef and Maes (1999) conducted a review of 63 studies over a period of 20 years of research. They found considerable evidence suggesting that the combination of high demands and low control were the most detrimental to well being. The idea that control has the ability to buffer the negative impact of high demands on psychological well being was found to be less consistent.

Wallace (2005) explored the relationship between psychological distress and work strain in lawyers. One of the purposes of the study was to test the strain versus the buffer hypothesis. His sample consisted of 1201 lawyers, 836 males and 365 females, who were recruited from the Law Society of Alberta. He employed Karasek's Job Demand-Control model, measuring job strain on the basis of perceived job demands and job control. They did not split participants into groups of low, high, active and passive strain, but rather they used the scores they obtained on the scale as a continuous measure. They did not look at gender differences, but instead they controlled for gender. They found that high job demands and low control was associated with reduced psychological well-being. Specifically, higher perceived demands at work were associated with higher levels of depression. Control was found to have a positive effect on well-being as a higher level of control was associated with lower levels of depression. In order to determine if control had a moderating effect on the relationship between demands and well-being they looked at whether control significantly interacted with demands in their impact on depression levels. They found that the relationship between demands and depression was not significantly different based on the level of control. They concluded that their results supported the strain theory and the idea that it is the additive rather than interactive impact that job demands and control have on psychological well being.

While the above studies are cross-sectional, there have been some longitudinal studies that have examined the relationship between job strain and well-being. For example, Dalgard et al. (2009) measured the psychological distress and job strain of a large sample from Norway (n = 1346). Their sample included both males and females, but gender differences were not discussed. Psychological distress and job strain measured and then re-measured 11 years later. This way, not only could they investigate whether job strain was related to psychological distress at baseline, they were also able to investigate how this relationship changed over time. They found that high strain jobs, a high level of demands combined with low support, were associated with psychological distress at base-line as well as at follow up. However, when looking at job demands and control alone, an interesting finding

emerged. As predicted by the model, low levels of control at baseline were significantly associated with higher psychological distress at follow-up. The opposite was true with regards to job demands, and higher psychological distress at baseline was found to be associated with higher job demands at follow-up. The authors explained this "reverse causality" as a product of the way in which participants perceived their work environment. It could be that people who have poor mental health at baseline tend to perceive their job as more demanding over time. They referred to this as "gloomy perception" (p. 293). Overall, the results do support Karasek's job-demand control model. Participants who were employed in high strain jobs at baseline reported greater psychological distress at follow-up when compared to participants who were employed in a low strain, active or passive job at baseline. This suggests that it is the combination of high demands and low control that are associated with future psychological distress.

A review was conducted by Stansfeld and Candy (2006). They focused their review on longitudinal studies which examined the relationship between psychosocial work factors and mental health. A meta-analysis was conducted, looking at the results of 11 studies. They found that the strongest predictor of mental health problems at follow-up were the combination of high job demands and low control. However, they concluded that the relationship between job strain and well being was "additive" rather than "multiplicative", as they did not find evidence to support the idea that a high level of control had the ability to buffer the negative impact high demands had on well being (such as an active job) nor did they find that a low level of control combined with a low level of demands lead to significantly reduced mental health (as in a passive job). Rather, they found that it was the combination of high demands and low control that was associated with increased future mental health issues. This conclusion is similar to Wallace (2005) who also found that job demands and control were significantly associated with well being individually, but did not significantly interact suggesting that control did not significantly buffer the negative impact high demands had on well being. Rather, they found that a high level of demands was associated with reduced well being and a high level of

control was associated with increased well being. This was true regardless of gender. The only significant gender difference was females' higher consistency in reported job demands. The researchers suggested this could have been a result of females having lower variability in level of job demands, in comparison to males.

Unpaid Work

While there are many studies concerning psychosocial work factors that influence well-being in paid work, few studies take into consideration the work that is being done at home (unpaid work). Kibria et al. (1990) investigated how the quality of both the paid and unpaid work environment was associated with psychological well-being. Their sample consisted entirely of women who were employed outside of the home. They included a number of variables as their measurement of job strain, and the items fit into three subscales: *job concerns, job rewards, and control.* The sub-scale *job concerns* contained items that were related to job demands, such as "overload", "hazard exposure", discrimination, and measured concerns regarding lack of social support. Participants were asked to rate how much of a concern each of the items were. The *job rewards* sub-scale included items relating to helping others, decision authority, supervisor support, challenging work etc. and they were asked to rate how rewarding they found each item. The *control* sub-scale assessed participants perceived level of control of a number of work related dimensions such as work pace, hours, vacations etc.

They measured strain in the home in a similar manner. Participants' concerns regarding unpaid work were measured. Some of these concerns included disliking housework, lack of challenge, time pressures etc. Issues of control were also included in this sub-scale scale, and included items such as "not being able to set goals" and control over budget. Participants were asked how rewarding various aspects of their home responsibilities were, including "keeping the house looking nice and cared for", "being free to make your own schedule" etc. They included an additional sub-scale for unpaid work strain that measured control, and included items relating to autonomy and control over household

income. Workload for unpaid work was also measured by the number of dependents (children or adults) the participant cared for.

A series of regression analyses were conducted that investigated the relationship between the quality of the unpaid work environment and well-being. They found that a higher quality unpaid work environment was associated with better psychological well-being. They also ran a separate regression model that investigated the paid work environment and well-being, and this was also found to be statistically significant, with a higher quality of paid-work environment being related to increased psychological well-being.

Additional analyses revealed that the impact the paid and unpaid work environment had on well-being was not merely additive. They found that the home environment was able to buffer any negative impact the paid work environment had on well-being. This was particularly true for women employed in a low quality paid work environment. These women had significantly higher psychological well being when their unpaid work quality was high compared to when it was low. This suggests that that a home environment that contains less strain may negate the potential negative impact that paid job strain may have on well-being. This could provide a potential explanation for the variability in the relationship between paid job strain and well-being that is sometimes found in past studies. Studies that have not found a significant relationship between job strain and well-being, particularly for women, may have failed to see a significant relationship because they did not take the unpaid work environment into consideration.

Walters et al. (1996) surveyed 2285 nurses in the province of Ontario. The purpose of their study was to determine how both paid and unpaid work was related to self-reported health status. Participants' health status was assessed with questions that asked how often they experienced exhaustion, depression, back pain, migraines, insomnia, difficulty "getting going", and feeling fatigued at work in the past month. Similar to Kibria et al. (1990) they conceptualized job strain by measuring the respondents' level of "concerns" and "rewards" in both the paid and unpaid work environment.

In regards to paid job strain, their results were more or less consistent with past studies, in that high job demands had a direct negative impact on health. The relationship between paid work strain and well-being did not vary based on gender. They found that unpaid work had a significant effect on well-being as well, and this impact was apparent after paid work strain was controlled for. One indicator of unpaid work strain was number of children at home. The results suggested that having children at home (less than five) significantly reduced health problems, rather than contributing to them, and this was true for both males and females. It could be the case that having children at home may reduce strain by providing additional social support or children may simply contribute to a parent's happiness and well-being. Having a larger family (5 or more children) reduces the positive impact the presence of children has on well-being, but does not significantly reduce overall well-being either.

Feelings of "not having enough time" and caring for dependent adults appeared to be related to women's well-being only. This could be due to the greater likelihood that women will bear the responsibility of caring for dependent adults as well as the majority of the housework (Krantz, & Ostergren, 2001; Walters et al., 1996). The only unpaid work factor that was significantly related to males' well-being was "disliking housework". The authors suggested that males who dislike housework, and were forced to contribute to work that they do not enjoy, experience health problems as a result. Overall, the results suggest that paid and unpaid work have an impact on well-being, but focusing on one domain does not provide a complete picture. The researchers concluded that when looking at the relationship between job strain and well-being, both paid and unpaid work ought to be taken into consideration. The authors reported that the combined paid and unpaid work strain accounted for 31% of the variance in participants' well-being. However, when looking at the difference between paid and unpaid work, their results were focused on the significance of individual items (gender differences in "disliking housework") rather than reporting the results of paid and unpaid work strain as a whole. Results from Kibria et al. (1990) and Walters (1996) suggest that the

psychosocial quality of the home environment has an impact on well-being. While the results are interesting, they do not tell us a lot about the differential impact the paid and unpaid work environment had on well-being as a whole.

Lombardi and Ulbrich (1997) considered the impact that decision latitude and job demands had on mastery and psychological distress in both the paid and unpaid work environment. The survey contained a number of items and 992 women were asked to respond on a 4-point scale whether they agreed or disagreed with the statements. The sub-scale that measured decision latitude included three items: (1) how much choice a person had in how the housework was done; (2) the degree of variation in tasks; (3) how much say a person had in their work. They looked at psychological demands and respondents were asked to agree or disagree with two items (1) whether they have enough time to complete work; (2) whether their work is free from conflicting demands. They also looked at physical demands and the items asked how much the work requires: (1) them to work fast; (2) physical effort; (3) rapid and constant physical activity. They also measured depressed mood and anxiety which were used as indicators of psychological well-being.

They found that a high level of physical demands in the paid work environment was associated with a statistically significant increase in depression. This is consistent with past research, which often finds that high job demands are associated with psychological distress (eg. Wallace, 2005; Vermeulen & Mustard, 2000). However, they did not find a direct relationship between decision latitude and well-being in the paid work environment. They found that there was a direct relationship between decision latitude and well-being in the unpaid work environment. Specifically, they found that higher decision latitude was associated with reduced psychological distress. A high level of control in the unpaid work environment was associated with a significantly increased psychological well-being. Psychological demands in the unpaid work environment were *not* significantly related to psychological well being. This suggests that control at home is an important contributor to females' well-being but regardless of whether demands are high or low psychological well being is not significantly impacted. Unpaid work,

which is work that is being done for the family's well-being, even when it is demanding, may be more fulfilling and consequently may affect psychological well-being to a lesser degree than paid work demands. However, these results suggest that, at least for females, having control over their unpaid work environment is a significant determinant of psychological health.

Peeters et al. (2005) conducted a study in which they examined the relationship between both paid and unpaid work demands. They conceptualized job strain based on participants perceived job demands. They asserted that past studies which looked at job strain tend to focus on quantitative demands, such as workload, and fail to take into consideration other aspects of the job such as emotional and mental demands. Questions measuring job demands at their paid work were taken directly from The Dutch Questionnaire on the Experience and Evaluation of Work and four items measuring quantitative demands (e.g., "Do you have to work very fast?"), emotional demands (e.g. "Is your work emotionally demanding?") and mental demands (e.g., Must you be very precise in your work?") were administered. The instrument used to measure unpaid work demands, or "home demands" was created for the purpose of the study. The same items were used, but were reworded so that they would be applicable to the home environment. For example, quantitative demands were measured by asking questions such as "Do you have to carry out a lot of tasks at home", emotional home demands; "How often do emotional issues arise at home" and mental demands; "do you have to remember a lot of things with regard to your home life". In this way, unpaid work demands were measured in a more thorough way, rather than focusing on one element of the home environment, such as the number of children in the household, as an indicator of home strain. They summed the quantitative, mental and emotional demands to come up with a total number that represented "work demands" in relation to paid work and "home demands" in relation to unpaid work demands.

Their dependent variable was "burnout" which was defined as "the draining of mental resources caused by chronic job stress" (p. 45). Burnout was measured by administering the Maslach Burnout Inventory, which includes items which assessed exhaustion (e.g., "I feel used up at the end of the

workday") and cynicism (e.g., "I have become less enthusiastic about my work"). Work-home interference was also measured, which refers to the degree to which one's work demands interfere with home demands, and home-work interference, the degree to which home demands interfere with work.

The results suggest that both paid and unpaid work demands had a direct impact on burnout, as a higher level of demands both at home and at work were related to higher burnout. However, they found that home demands were more strongly related to burnout for males than for females. This suggests that the males in this sample may be less capable of dealing with home strain to the same degree as females, as females burnout did not vary as a function of home demands to the same degree as males' burnout. The researchers also found an indirect relationship between home/work demands and burnout. Specifically, they found that paid work demands were significantly related to work-home interference, which was in turn significantly related to burnout. The same was true with unpaid work demands, which were significantly related to home-work interference, and home-work interference was significantly related to burnout.

Ertel, Koenen, and Berkman (2008) conducted a study in which they looked at the relationship between job strain and depression, and whether this relationship could be further explained when taking home demands into account. They interviewed 452 employees in an extended care facility in Massachusetts. They measured depressive symptoms with a shortened version of The Center for Epidemiologic Studies Depression Scale. They created a measurement of job strain in the paid work sector based on Karasek's JDC model, and looked at job demands and levels of control. As an indicator of strain in the unpaid work environment, they looked at the number of children below the age of 18 that the participant cared for. In order to account for any potentially confounding variables, they controlled for age, gender and SES (socio-economic status).

They determined that there was a direct relationship between job strain and depression. High job strain, or a job characterized by a high level of demands and a low level of control, was associated with a higher level of depression. However, this relationship was moderated by the presence of a child

at home. Specifically, having children at home was associated with an increase in depression. This was true regardless of whether a person was employed in a high strain or a low strain job. They concluded that factors at home ought to be considered when investigating a relationship between work strain and well-being. Ertel et al. (2008) conceptualized home strain based solely on the presence/absence of children and social support, which is not a thorough measurement of strain as many other factors, such as workload and control, could influence the level of strain in an unpaid work environment. As mentioned earlier, the presence of children has been found to reduce rather than increase psychological distress (Walters et al., 1996).

Staland-Nyman, Alexanderson and Hensing (2008) measured job strain by administering Karasek's JCQ. The sample consisted of 1,417 employed Swedish females. However, they measured unpaid work strain and altered the items in order to measure the psychological demands and level of control participants had in their domestic environment. They used a median split that categorized all participants as having high or low control and high or low demands in the domestic work environment. Women were then categorized into one of four group: (1) high demands and low control (high strain); (2) low demands and high control (low strain); (3) low demands and low control (passive); (4) high demands and high control (active). Their dependent variable was a self-rated health survey, and included 36 items which assessed respondents' physical well-being (bodily pain, vitality) and psychological well-being (social functioning, mental health).

They conducted a multivariate analysis on "domestic job strain" and self-rated health. They first entered potentially confounding sociodemographic variables (age, education, household income). They found statistically significant associations between well-being and unpaid work strain, and these associations remained even after factors related to paid work were entered. Specifically, after controlling for paid work strain, a high level of unpaid work strain was associated with a significantly reduced mental health and social functioning, which were the two factors they used to assess psychological well-being. They also found that reduced vitality and general health, which were used as

indicators of physical health, were also significantly and negatively associated with domestic job strain. However, in the current female sample, there was a stronger association between unpaid work strain and psychological well being, when compared to physical well-being. Overall, the results suggest that unpaid work strain explained a significant proportion of variance in females' psychological well-being, over and above what paid work strain was able to explain. This would have been unknown had the unpaid work environment not been taken into consideration. They concluded that the domestic environment ought to be taken into consideration when evaluating women's health and psychological well-being.

Overall, research suggests that with regards to paid work strain, it appears that the highest level of psychological distress is often associated with a job environment characterized by a high level of demands and a low level of control and this pattern is similar for both males and females (Dalgard et al., 2009; Stansfeld & Candy, 2006; Vermeulen & Mustard, 2000; Wallace, 2005). However, researchers suggest that paid work strain accounts for less variability in females psychological distress and factors other than paid work strain appear to be more relevant for female well-being (Stansfeld & Candy, 2006; Vermeulen & Mustard, 2000). While few studies have investigated the relationship between unpaid work strain and well-being in the context of Karasek's Job Demand-Control model, studies that have looked at unpaid job strain have contained items that have assessed unpaid job demands and unpaid control as a part of their study (Ertel, Koenen, & Berkman, 2008; Kibria et al., 1990; Lombardi & Ulbrich, 1997; Peeters et al., 2005; Walters et al., 1996). As discussed in the previous literature review, the results overall suggest that unpaid job demands and unpaid control appear to have a significant impact on well-being. Staland-Nyman, Alexanderson and Hensing (2008) is one of the few studies that have investigated the relationship between unpaid work strain and well-being in the context of Karasek's Job Demand-Control model, showing that unpaid work strain explains the variation of psychological distress over and above what was explained by paid work strain. It is difficult to comment on gender differences due to the fact that the majority of these studies focused

on a female sample (Kibria et al., 1990; Lombardi & Ulbrich, 1996; Staland, Alexanderson & Hensing, 2008). Walters et al. (1996) found that "not having enough time" in the unpaid work environment was only significant to females' well being and not males, suggesting that the level of demands in the unpaid work environment may be more significant for females' well being than males. However, Peeters et al. (2005) suggest that home demands may be more closely linked to males' psychological well being as they found that "home demands had a more substantial direct relationship with burnout compared to females" (55). Therefore, more research is required in order to understand gender differences in the relationship between unpaid work strain and well-being.

Chapter Three

Method

Research Design and Research Question

The present study measured paid work strain with Karasek's Job Content questionnaire. Unpaid work strain was measured with a survey that was adapted from the JCQ. The current study was designed in order to determine how work strain, in both the paid and unpaid work sectors, are related to psychological distress and whether there are any gender differences in the way work strain impacts psychological well-being. More specifically, this study will focus on two main research questions: (1) Are participants' psychological distress explained more fully when looking at both paid and unpaid work strain rather than focusing on one work sector alone; (2) Are there any gender differences in the way in which paid and unpaid work strain are related to psychological well-being?

Hypotheses

Hypotheses 1a and 1b. It is hypothesized that paid work strain will be associated with reduced well being. This is *hypothesis 1a.* Specifically, high job demands combined with low control will be associated with an increase in psychological distress. *Hypothesis 1b* is in regards to the unpaid work environment. It is predicted that unpaid work strain (high demands and low control) will be associated with increased psychological distress.

Hypothesis 2. Research suggests that females' psychological well-being is not as closely linked to their paid work environment as it is for males' well-being (Vermeulen & Mustard, 2000). Other studies have shown that the quality of the unpaid work environment has the ability to buffer the negative impact a high strain paid work environment has on well-being, particularly for women (Kibria et al., 1990). Therefore, it is predicted that females' psychological distress will be more strongly related to the level of strain in their unpaid work environment whereas the variation in males' psychological distress will be explained more fully by their paid work environment.

Procedure

A work, family and health telephone survey, conducted in Saskatoon, Canada in 2005, provided the data for this study (Dziak et al., 2010; Tao et al., 2010). The interviews were conducted by trained interviewers. Participants were selected only if they fulfilled the following criteria: (1) English-speaking; (2) between the ages of 25 – 50; (3) employed; (4) was the parent of at least one child under the age of 20 living in the household. Random telephone numbers were dialed. They were selected from a sampling frame that included all registered phone numbers in the city. The eligible person in the household was asked to participate in the study. When more than one eligible participant lived in a selected household, then one of them was randomly selected for participation. Each interview took approximately 40 minutes, and was conducted with the use of a computer assisted telephone interviewing system (CATI).

Sample

There was a total of 1160 participants; 486 were male (41.9%) and 674 were female (58.1%). The average age was 36.0 with a standard deviation of 7.28.The sample included 49.8% of participants whose age rage fell between 25 and 34 and 50.2% whose age fell between 35 and 54. The minimum age was 25 and the maximum was 50.

The majority of the participants were partnered (67.2%) while the remaining participants were single (32.8%). Most participants had either 1 (35.5%) or 2 (39.0%) children at home, and the remaining 25.5% reported having 3 or more children. Participants were also asked if they had children in the household below the age of 5. A little over half of the sample (53.9%) answered yes to this question.

Educational attainment was relatively equal across categories with 34.4% participants reporting that they had a college/university degree, 32.9% with some postsecondary and 32.7% with high school or less.

Measures

Psychological distress. The Kessler-6 (K6) was used as a measurement of psychological distress. It is a 6-item self-report measure which requires respondents to estimate on a 5-point scale how often they experienced various symptoms of psychological distress (see Appendix A). The scale ranged from 0 *("none of the time"*) to 4 *("all of the time"*). This resulted in scores ranging from 0 – 24 with a higher score associated with higher psychological distress. This scale resulted in high internal consistency with the current sample (alpha = 0.80).

The K6 was developed for the redesigned US National Health Interview (Kessler et al., 2002). The NHIS is administered annually by the US government and was being redesigned in 2002. A scale that measured non-specific psychological distress, as opposed to a scale that measured a specific disorder, was needed. Also, due to the time constraints involved in administering the NHIS, the measure needed to be brief (6-8 items). The K6 was developed in order to meet these requirements (Kessler, 2002). Before the K6 was included in the NHIS, it went through a number of stages of development. The initial item pool contained 612 questions. This number was reduced to 235 by eliminating unclear and redundant items. These items were then submitted to an expert advisory panel who were then asked to rate each item based on clarity of wording. Only the items which were consistently rated as clear were retained which reduced the item pool to 45. A mail pilot study and a telephone pilot study were conducted (Kessler, 2002). A 10-question version of the scale, called the K10, and a 6 question version of the scale, called the K6, were developed based on the results of the pilot studies using Item Response Theory (IRT).

In order to compare the performance of the K6 and the K10, in relation to existing scales, Furukawa, Kessler, Slade and Andrews (2003) administered these measures, as well as the General Health Questionnaire (GHQ-12). They found that the K6 and the K12 both outperformed the GHQ-12 as a screening tool for DSM-IV mood and anxiety disorders, and has been found to outperform other well known psychological scales. They also compared the performance of the K6 and the K10. While

they found the K10 to have a slighter advantage in terms of precision, they concluded that the K6 was more consistent across subsamples. They concluded that the K6 would be the preferred screening tool in any general heath survey due to its shortness and consistency across subsamples.

In the current study the psychological distress scores were skewed slightly to the left. In order to satisfy the assumptions of linear multiple regression, the scores were transformed using the square-root transformation method, which creates a distribution that more closely resembles a normal curve (Field, 2009).

Psychosocial job quality. Both paid and unpaid job strain was measured by administering a version of Karasek's Job Content Questionnaire (JCQ) which assesses psychosocial job quality. The Job Content Questionnaire is a self administered survey that assesses a person's psychosocial work environment (Karasek, 1979). It measures a number of psychosocial work factors including psychological demands, decision authority, and skill discretion. Psychological demands are assessed with 9 items. The items deal with pace, effort, and volume of work as well as conflicting demands (e.g., "My job requires long periods of intense concentration on the task"). Decision authority is assessed with 3 items and measures the degree to which a person has authority to use their own skills at work (e.g., "My job allows me to make a lot of decisions on my own"). Skill discretion is assessed using 6 items, and deals with a person's ability to use their own skills in doing their work (e.g., "I have an opportunity to develop my own special abilities"). Skill discretion and decision authority are combined and used as an indicator of "job control". The JCQ measures other aspects of the work environment including social support, physical demands, and job insecurity. The recommended length for the complete instrument is 49 items. The focus of the current study will be to test the JDC model, and determine if high psychological demands and low control result in reduced psychological well-being. As a result, it will be these sub-scales that will be the focus of this discussion.

Reliability. The internal consistency of the JCQ has been the focus of a number of studies. Karasek (1998) examined the reliability of the JCQ scales. He looked at the results of six separate

studies conducted in four different countries (U.S., Japan, Canada, Netherlands). He found a relatively high level of internal consistency. The alpha level, across all six samples, were .73 for men and .74 for women. Looking at the sub-scales of the JCQ, the alpha levels remain relatively high for both men and women on measurements of skill discretion and decision authority (job control). However, the alpha levels for psychological demands were only "boarderline" (Karasek et al., 1998, 336). In this review, Karasek only examined the five-item version of psychological demands. These five items are the following: (1) My job requires working very hard; (2) The job requires working very fast; (3) My job does not involve an excessive amount of work; (4) I am free from conflicting demands; (5) I have enough time to get the job done.

Research often finds a lower internal consistency for psychological demands then for decision latitude scales. For example, Ertel et al. (2008) reported an alpha level of 0.82 for decision latitude and 0.66 for psychological demands. Vermeulen and Mustard (2000) reported an alpha level of 0.61 for decision latitude and 0.34 for psychological demands. Their internal consistency was lower than other studies and this may have been the case because they used a shortened version of the scale (5 items for decision latitude and 2 items for psychological demands).

Choi et al. (2008) conducted a study that examined the internal consistency of the five-item version of the psychological demands scale. Results indicated relatively low alpha levels in a U.S. sample (.62), Korean sample (0.62), and Japanese sample (0.63). An exploratory factor analysis was conducted to further explore the consistency of the scale. Overall, they did not find support for the idea that the five items were measuring the same construct, and determined that it appeared to be "multidimensional". A three-factor model appeared to be the best fit in both the U.S. and Japanese datasets. "Work hard" and "work fast" appeared to be a good fit for one factor, while "excessive work" and insufficient time" fit well as another factor and "conflicting demands" for the third factor. Therefore, in a scale that contained five questions, they found reason to believe they were measuring three separate constructs. However, the Korean dataset did not fit this model. They concluded that,

while the results suggest that the 5 item scale is measuring multiple factors, further research is required to determine precisely which factors fit best, and will be appropriate cross-culturally.

While the aforementioned studies measured psychological demands using a 5-item scale. Other studies have investigated the internal consistency of psychological demands using longer versions of the scale. Maizura, Masilamani, and Aris (2009) measured the internal consistency of the JCQ in a multi-national company in Kuala Lumpur. The sample consisted of office workers, and they employed a version of the JCQ that consisted of 8 items to measure decision latitude and 7 items that measured psychological demands. Once again, the alpha level for psychological demands (0.64) was lower than the alpha level for control (0.76).

Inter-rater reliability is another valuable means of measuring the reliability of a scale. Ostry et al. (2001) conducted a study to evaluate the inter-rater reliability of the JCQ. Four job evaluators from a sawmill in B.C. were asked to participate. The participants had had some previous experience working with an instrument very similar to the JCQ, as it is part of their job to evaluate the job site in terms of physical demands, psychological demands, and control over decision making. The participants were provided with a list of 54 job titles in the industry and were asked to rate each job title, using an 18-question version of the JCQ, on levels of psychological demands, physical demands, control and social support.

The inter-rater reliability was relatively high in regards to the control variable. However, inter-rater reliability for psychological demands was very low. The researchers suggested this could be due to the fact that psychological demands are associated with cognitive and emotional components, which make them difficult for external observers to rate, in comparison to other aspects of job strain. However, as mentioned earlier, inter-rater reliability may have been reduced for the same reason that internal consistency has been low in studies employing a self-report method; the sub-scale measuring psychological demands is in fact measuring more than one dimension of work strain. The authors also

noted this, stating that two items in particular, “work hard” and “work fast”, were likely tapping into physical as well as psychological demands.

Validity. Convergent validity is assessed by examining the degree to which scores from two different scales correlate when they are measuring similar traits (Zhu, 2000). If these correlations are high, this would be evidence of convergent validity, as it would suggest that the scale is measuring the construct in question. According to Campbell and Fiske correlations associated with convergent validity should be "statistically significant and large enough to warrant further examination of validity" (Zhu, 2000, p. 191). There have been a number of studies that have investigated whether scores on the JCQ are correlated with various measurements of well-being such as work-to-family conflict (Gronlund, 2007), work satisfaction (De Witte, Verhofstadt, & Omey, 2007), and psychological well-being (Ertel, Koenen & Berkman, 2008; Vermeulen & Mustard, 2000). All of these studies are similar in terms of the methodology. A self-report method is used and scores on the JCQ are correlated with the variable in question (work satisfaction etc.). If the JCQ is a valid measurement of job strain, one would expect scores on the JCQ to be negatively correlated with job satisfaction and psychological well-being and positively correlated with work-to-family conflict, which would be evidence of convergent validity. In all instances this was the case, and high strain jobs were associated with lower work satisfaction and psychological well-being and higher work-to-family.

Construct validity refers to whether the scale is measuring the construct in question, or whether it is tapping into separate, unrelated constructs. Ikuma, Reeves and Nussbaum (2008) conducted an experiment in which they manipulated the level of job demands and job control in a simulated manufacturing job. Using questions from the JCQ they measured perceived psychological demands and control, and looked at whether the manipulations were apparent in the participants’ responses. If the construct validity of the JCQ is high, the manipulations in this experiment ought to be apparent in the responses on the scale. Participants who were in the high control, high social support manipulation reported higher levels of decision authority. However, the manipulation of demands failed to result in

a significant change in reported levels of demands. An increase in social support, however, did result in an increased reported level of psychological demands. The researchers claimed that their manipulation of job demands may not have been strong enough to result in a change in perceived demands. They used verbal encouragement as a means of manipulating perceived demands, rather than changing the actual work pace. However, as mentioned earlier, the subscale measuring psychological distress may be in fact measuring a number of factors, rather than just one, and the inability for their experimental manipulation to alter perceptions of demands could be a result of problems with the construct validity and internal consistency of the scale rather than the manipulations. Therefore, this study provides further evidence that the control scales on the JCQ may be more valid, and the psychological demands scale may need to be looked at again in order to ensure that it is measuring the intended construct. The fact that the manipulation of social support resulted in differences in perceived psychological demands suggest the psychological demands scale may also be tapping into work factors relating to social support as well as job demands.

The JCQ was first introduced roughly 30 years ago, yet it continues to be a work in progress. It may be a valid measurement of job strain, overall. As past studies suggest, scores on the JCQ are associated with psychological distress, job satisfaction, and work-to-family conflict. This suggests that scores on the JCQ may be a valid predictor of well-being and employers can get an idea of the degree of strain their employees are experiencing.

When looking at the scale as a whole, a relatively high level of internal consistency is often found (Karasek, 1998). However, the sub-scales of the JCQ appear to have lower consistency, particularly in regards to psychological demands. Therefore, anyone wishing to use this scale ought to be cautious when attempting to make inferences on the results of these sub-scales. The results of psychological demands, for example, may not be a genuine reflection of psychological demands but may be a result of multiple factors including perceptions of physical demands and social support.

However, the use of the scale as a whole still appears to be a valid and reliable indicator of overall job strain. In regards to the present study, and the attempt to determine if job strain is related to well being, the JCQ would be an adequate measurement of job strain. The purpose of the study was to test the Job Demand-Control model and the idea that high strain results in psychological distress. The JCQ would be an adequate means of addressing this, regardless of the fact that "psychological job demands" may be tapping into other job demands.

Paid work strain. Cronbach's alpha in the current study was 0.74 for decision latitude and 0.64 for psychological demands. Psychological demands were assessed with 9 items, and questions dealt with pace, effort, and volume of work as well as conflicting demands (e.g., "My job requires long periods of intense concentration on the task"). Decision authority was assessed with 3 items and measured the degree to which a person had authority to use their own skills at work (e.g., "My job allows me to make a lot of decisions on my own"). Skill discretion was assessed using 6 items, and dealt with a person's ability to use one's own skills in doing their work (e.g., "I have an opportunity to develop my own special abilities"). The scores from decision authority and skill discretion will be combined and is referred to as decision latitude or "job control". To better represent Karasek's proposed model of job strain, participants' scores on the job demands and decision latitude scales were then categorized using the median splits resulting in four dimensions of psychosocial work quality; (1) high strain (high job demands, high decision latitude); (2) low strain (low job demands, high decision latitude); (3) active (high job demands, high decision latitude); (4) passive (low job demands, low decision latitude).

The scores on the Job Content Questionnaire were used to classify participants as being employed in a "low strain", "passive", "active" or "high strain" paid work environment. Some items were reverse coded (see Appendix B). First, scores on the job demands sub-scale of the JCQ were used to determine whether their job was associated with either a "low" or "high" level of demands. The scores on the demands subscale ranged from 12 – 35 with a mean of 24.6, a standard deviation of 4.39

and a median of 25. The median was used as a cutoff point, and those participants whose scores were 24 and lower were categorized as having "low" demands whereas those whose score were 25 and above were categorized as having "high" demands. The use of the median is a common means of dichotomization (Vermeulen & Mustard, 2000).

The level of control in the paid work environment was calculated by summing the scores from the skill discretion subscale and the decision authority subscale. These scores were then used to categorize participants as having either a "low" or "high" level of control. The scores on the control subscale ranged from 9 – 36. The average score was 26.1, the standard deviation was 5.29 and the median was 26. Scores on the control scale that were 25 and below were categorized as "low control". Any scores that were 26 and above were said to have "high control" in their paid work environment.

Participants who described their paid work environment as a combination of low demands and high control were categorized as having a "low strain" job. A combination of low demands and low control was categorized as "passive"; high demands and high control as "active" and finally the combination of low control and high demands were categorized as being employed in a "high strain" job. The categorical variables (low strain, passive, active, and high strain) were coded as dummy variables. Low strain was used as the baseline category as it was expected that low strain jobs would be associated with the lowest level of psychological distress.

Unpaid work strain. A measure of unpaid work strain was also used (Janzen, Muhajarine, Zhu, & Hellsten-Bzovey, 2007). It follows the same format as the JCQ, and assesses psychological demands, decision authority and skill discretion, but the items have been altered so that the questions apply to the home environment (see Appendix C). The measure of unpaid work strain was designed to reflect key psychosocial work characteristics from Karasek's model of job stress: psychological demands, skill discretion, and decision authority. Subscale Cronbach's alphas for this new measure ranged between .55 and .70 with the current sample. A factor analysis was conducted by Janzen et al. (2007). Exploratory factor analysis was conducted with 17 items and the results suggested that a 3

factor model was the best fit. Two factor analyses were conducted. After the initial factor analysis, two items did not seem to fit. With these two items removed a second factor analysis was conducted using the remaining 14 items. These results provided more evidence for a strong 3-factor model. The current study used the 14 items that were suggested by Janzen et al. (2007). Factor 1 consisted of 5 items and best fit with psychological demands (see Appendix C). Factor 2 included 4 items and fit with skill discretion. The third factor included 5 items and fit with the decision authority category.

Janzen et al. (2007) also examined the internal consistency of the subscales. They found that the 5 items in the demands subscale ($\alpha = 0.689$) and the 4 items in the 4 items of the skill discretion subscale ($\alpha = 0.689$) had adequate internal consistency. However, the internal consistency for the decision authority subscale was low ($\alpha = 0.565$). They concluded that caution should be used when making any decisions based solely on the decision authority subscale until further research is conducted that will determine more representative items that will more adequately represent "decision authority" in the unpaid work environment.

The same procedure was used to recode the data resulting from the Job Content Questionnaire in regards to participants' unpaid work environment. The scores on the unpaid demands subscale ranged from 5 – 20 with a mean of 13.2, a standard deviation of 3.02 and a median of 14. The median was used a cut-off point that distinguished between participants being labeled as "low" or "high" demands. Participants having a score that was 13 or lower were classified as having low demands and participants whose score was 14 and higher were classified as having high demands in the unpaid work environment. The scores from the decision latitude subscale and the skill discretion subscale were summed in order to get a "control" score. The unpaid control scores ranged from 13 – 36 with a mean of 25.4, a standard deviation of 3.96 and a median of 26. Once again the median was used in this subscale in order to classify participants as being either low or high control. Control scores that were 25 and lower were associated with low control; scores that were 26 and above were associated with high control in the unpaid work environment. Each participant was then further classified as low

strain, high strain, passive and active depending on the combination of perceived demands and control in their unpaid work environment. An unpaid work environment that was described as having low demands combined with high control was called low strain. A combination of low demands and low control were called passive work environments. High demands combined with high control were active unpaid work environments and finally a high strain unpaid work environment was characterized by high demands and low control. Data that resulted from these categorical variables were then converted to dummy variables with low strain serving as the baseline category.

Covariates. The number of weekly work hours was used as a covariate. It was a continuous variable, and participants were asked to report the number of hours they worked in a week. All other covariates were categorical in nature. Marital status was a covariate and participants were asked whether they were single (never married, separated/divorced, widowed) or partnered (living together, married). The number of children participants had was another covariate and participants reported whether they had "1", "2" or "3 or more" children. Being the parent of a young child ($\leq$ 5 years old) was another covariate and the categories included "yes" and "no" in response to whether they had a child under the age of 5 years. Educational attainment was also entered as a covariate. Participants reported the highest level of education attained and categories included "high school or less", "some postsecondary completed" and "a college/university degree completed". Income adequacy was the final covariate. Participants were asked if they "agree" or "disagree" with the fact that they have an adequate level of income. Data that resulted from these questions were dummy coded.

Data Analysis

Data analyses involved a multi-stage process consisting of univariate, bivariate, and multivariable analyses using SPSS 15.0. Bivariate analyses were conducted to examine the socio-demographic, work, and mental health characteristics of the study participants according to gender. Differences between men and women were tested using chi-square tests for categorical variables and t-tests for continuous measures.

A multiple linear regression was conducted (Field, 2009). The dependent variable was scores on the psychological distress scale. The independent variables were psychological job demands and job control for paid work strain as well as job demands and control for unpaid work strain.

Analyses were conducted separately for males and females in order to aid interpretability. Independent variables were entered into the linear regression in successive blocks: Model 1: Covariates (weekly hours worked, marital status, number of children, being the parent of a young child, educational attainment, income adequacy). Model 2: paid work strain (low strain, passive, active and high strain), Model 3: unpaid work strain (low strain, passive, active and high strain). Inspection of the variance inflation factors and tolerance levels indicated that multicollinearity was not a major concern in these regression analyses.

Ethical Considerations

This study followed the ethical rules outlined by the University of Saskatchewan and received ethical approval by the University's Behavioural Research Ethics Board. The participants were informed of their right to withdraw from the study at any time. They were told that their responses would remain anonymous, as only aggregated forms of the data would be presented in research papers and presentations.

Chapter Four

Results

Descriptives.

Intercorrelations among the variables (see Table 1) were generally low suggesting that the variables were adequately orthogonal. The key explanatory variables, according to gender, are shown in Tables 2 and 3. Independent sample t-tests were conducted in order to determine if there was a significant gender difference in the continuous variables (age, psychological distress, weekly hours worked). Males' average age (M = 35.9, SD = 7.44) did not differ significantly from females (M = 36.2, SD = 7.17) $t(1158) = -0.69$, $p = .490$. There was no significant gender difference in psychological distress scores. There was a significant gender difference in regards to weekly hours

Table 1: Correlation Matrix

	Educational Attainment	Number of Children	Marital Status	Income Adequacy	Weekly Hours Worked	Paid Job Demands	Paid Job Control	Unpaid Job Demands	Unpaid Job Control
Educational Attainment	1								
Number of Children	-.024	1							
Marital Status	-.093 **	.043	1						
Income Adequacy	.064*	.024	.194 **	1					
Weekly Hours Worked	.069*	-.004	.047	.102**	1				
Paid Job Demands	.007	.012	,032	-.026	.182**	1			
Paid Control	.181 **	-.029	-.166**	.214**	.082**	.262**	1		
Unpaid Demands	.133**	.039	.000	-.063*	-.039	.171**	-.010	1	
Unpaid Control	.133**	.000	.018	.275**	.099**	-.069*	.059	-.124**	1

* Correlation significant at $p<.05$

** Correlation significant at $p<.01$

worked with males (M = 42.6, SD = 11.03) reporting a significantly higher number of weekly hours worked when compared to females (M = 37.4, SD = 10.94) $t(1158) = 7.95$, $p<.001$ (see Table 2).

Chi-square analyses were conducted in order to determine whether there were significant gender differences in the proportion of males and females in each sub-category of the variables. Analyses show the proportion of participants at all levels of marital status, number of children, having a child 5 and under and income adequacy did not vary as a function of gender (see Table 3). There was a significant association between gender and educational attainment. There were a significantly larger proportion of females who reported having completing a post secondary degree, when compared to males.

The proportions of participants in each of the four categories (low strain, passive, active and high strain) were relatively equivalent for paid work strain across gender. There were some significant gender differences when looking at unpaid work strain. A larger proportion of females described their unpaid work environment as active and a larger proportion of males described their unpaid work environment as passive and high strain (19.8%). The number of participants in each job category in their paid work environment did not vary as a function of gender $\chi^2(3) = 2.36$, $p = .50$.

In relation to unpaid work, the proportion of participants in each sub category was very similar across subcategories, with one exception. There was a slightly lower amount of participants who described their unpaid work environment as being low in both demands and control, or passive (12.5%). This proportion was slightly lower than those who described their unpaid work environment

Table 2: Explanatory Variables (continuous)

	Males		**Females**		
	Mean	**SD**	**Mean**	**SD**	***t*-test**
Age	35.9	7.44	36.2	7.17	$t(1158) = -.69$, $p = .490$
Psychological Distress	3.11	0.54	3.13	0.57	$t(1157) = -0.64$, $p = .523$
Weekly Hours	42.6	11.03	37.4	10.94	$t(1158) = 7.93$, $p < .001$

as low strain (22.9%), active (20.7%) and high strain (23.9%). There was a significant relationship between gender and job category in the unpaid work environment $\chi^2(3) = 22.78$, $p<.001$. There were no significant associations with regards to the percentage of males and females who reported either a low strain or high strain unpaid work environment. Of interest for both genders was the number of

Table 3: Explanatory Variables (categorical)

		Males	Females	χ^2
Marital Status	Single	29.8% (145)	35.0% (236)	
	Partnered	70.2% (341)	65.0% (438)	$\chi^2(1) = 3.43$, $p = .06$
Number of Children	1	34.8% (169)	36.1% (243)	
	2	40.7% (198)	37.7% (254)	
	3 or more	24.5% (119)	26.2% (177)	$\chi^2(2) = 1.16$, $p = .56$
Educational Attainment	High School or Less	32.7% (159)	32.6% (220)	
	Some Postsecondary	38.3% (186)	29.1% (196)	
	College/University Graduate	29.0% (141)	38.3% (258)	$\chi^2(2) = 14.29$, $p < .05$
Child Age 5 <	No	43.0% (209)	48.4% (326)	
	Yes	57.0% (277)	51.6% (248)	$\chi^2(1) = 3.27$, $p = .07$
Income Adequacy	Agree	79.7% (372)	79.0% (503)	
	Disagree	20.3% (95)	21.0 %(134)	$\chi^2(1) = 0.08$, $p = .78$
Paid Work Strain	Low	20.8%(101)	22.8%(154)	
	Active	28.6% (139)	31.2% (210)	
	Passive	26.1% (127)	23.1% (156)	$\chi^2(3) = 2.36$,
	High	18.7%(91)	20.6%(139)	$p = .502$
Unpaid Work Strain	Low	23.9% (116)	23.9% (161)	
	Active	17.9% (87)	22.7% (153)	
	Passive	18.1% (88)	8.5% (57)	$\chi^2(3) = 22.78$,
	High	24.5% (119)	21.8% (147)	$p<.001$
Paid Job Demands	Low	72.5%(266)	70.4%(366)	$\chi^2(1) = 0.46$,
	High	27.5%(101)	29.6%(154)	$p=.497$
Paid Control	Low	34.6%(127)	30.0%(156)	$\chi^2(1) = 2.10$,
	High	65.4%(240)	70.0%(364)	$p=.147$
Unpaid Job Demands	Low	59.5%(175)	58.8%(210)	$\chi^2(1) = 0.03$,
	High	40.5%(119)	41.2%(147)	$p=.856$
Unpaid Control	Low	29.9%(88)	16.0%(57)	$\chi^2(1) = 18.16$,
	High	70.1%(206)	84.0%(300)	$p<.001$

individuals who described their unpaid work environment as either passive or active (see Table 3).

More males and fewer females described their unpaid work environment as being low in both demands and control than what was expected. In contrast, a larger proportion of females and a smaller proportion of males described their unpaid work environment as active, or having a high level of demands and a high level of control.

When examining the proportions of males and females who described their paid work as being either low or high in demands, there were no significant differences. The proportion of males who described their paid work as high in demands (27.5%) was similar to the proportion of females (29.6%) and the same was true in regards to low demands with 72.5% of males and 70.4% of females reporting their paid work environment was low in demands $\chi^2(1) = .461$, p=.497. There were no gender differences in relation to paid control either as 65.4% of males and 70% of females reported they had a high level of control in their paid work environment. A similar proportion of males (34.6%) as females (30.0%) reported having low control in their paid work environment $\chi^2(1) = 2.1$, p=147.

There were no gender differences in unpaid demands as 59.5% of males and 58.8% of females described their unpaid work environment as low in demands and for both males and females the proportion of those who saw their unpaid work environment as low in demands was 40.5% $\chi^2(1) = .03$, *p=.856.* There was a gender difference in regards to unpaid control with a higher proportion of females (84%) reporting a high level of control when compared to males (70.1%) and a lower proportion of females (16%) having a low level of control in comparison to males (29.9%) $\chi^2(3) = 18.16$, *p<.001.*

Multiple Regression

Results of the multiple regression analysis, reported separately for men and women, are shown in Tables 4 and 5. For men, the covariates alone in model 1, failed to explain a significant proportion of variation in males' psychological distress (see Table 3). Model 1 accounted for only 0.4% of the variation in psychological distress scores in males. Marital status, number of children, having a child

Table 4: Standardized (Beta) Coefficients from Regression Analyses (Males)

Step	Variable	**Model 1**	**Model 2**	**Model 3**
1	Educational attainment[a]			
	Some post-Secondary	*-.12	*-.13	*-.13
	High school or less	-.04	-.08	-.06
	Child 5 and under	.04	.02	.02
	Marital status	.02	.00	-.03
	Number of children[b]			
	3 or more	.04	.02	.01
	2	-.07	-.07	*-.10
	Income adequacy	.07	.05	.03
	Weekly hours worked	-.01	-.01	-.05
2	Paid Strain [c]			
	Active		***.24	***.21
	Passive		**.18	*.14
	High strain		***.29	***.24
3	Unpaid Strain [d]			
	Active			**.18
	Passive			.04
	High strain			***.19
	Adjusted R^2	.00	.06	0.09
	F (df) for change in R^2	1.21 (381)	***8.99 (378)	*5.13 (375)

[a] compared to university/college graduates; [b] compared to 1 child; [c] compared to low strain paid work strain; [d] compared to low strain unpaid work strain

*p ≤ 0.05 **p≤ 0.01 ***p≤.001

under the age of 5 and income adequacy were not significantly associated with male's psychological distress scores. Only educational attainment was significant. Specifically, males who reported completing some post secondary had a lower level of psychological distress when compared to college/university graduates.

Table 5: Standardized (Beta) Coefficients from Regression Analyses (Females)

Step	Variable	**Model 1**	**Model 2**	**Model 3**
1	Educational attainment[a]			
	Some post-Secondary	**.14	**.13	**.14
	High school or less	.09	.09	*.10
	Child 5 and under	.00	.02	.01
	Marital status	.01	.01	.00
	Number of children[b]			
	3 or more	***-.20	***-.17	***-.17
	2	***-.17	***-.16	*** -.16
	Income adequacy	***.19	***.18	***.15
	Weekly hours worked	-.05	-.09	*-.09
2	Paid Strain [c]			
	Active		*.12	*.11
	Passive		.01	.01
	High strain		***.21	***.20
3	Unpaid Strain [d]			
	Active			.10
	Passive			.03
	High strain			**.17
	Adjusted R^2	0.08	0.12	0.13
	F (df) for change in R^2	***6.45 (503)	***7.96 (500)	*3.66 (497)

[a] compared to university/college graduates; [b] compared to 1 child; [c] compared to low strain paid work strain; [d] compared to low strain unpaid work strain

*p ≤ 0.05 **p≤ 0.01 ***p≤.001

Model 2, which included both the covariates as well as paid work strain, accounted for 6.3% of the variation in males' psychological distress. This was statistically significant at $p < .01$. The results of model 1 were the same as noted above, and the only covariate associated with significant results was educational attainment. Males with some post-secondary education reported a lower level of psychological distress when compared to post-secondary graduates. Regarding paid work strain, males who described their paid work environment as passive, active and high strain were all associated with a significantly higher level of psychological distress when compared to males who were employed in a low strain work environment.

Model 3 included the covariates, paid work strain and unpaid work strain. This model was significantly significant at $p < .01$ and accounted for 9.3% of the variation in males' psychological distress. The results associated with the covariates as well as paid work strain were the same as noted above. Unpaid work strain was significantly associated with males' psychological distress. Males who perceived their unpaid work environment as either active ($p < .01$) or high strain ($p < .001$) reported a higher level of psychological distress when compared to males who reported that their unpaid work environment was low in strain.

For women, the covariates accounted for a significant proportion of variation in females' psychological distress. Model 1 explained 7.9% of variation in female psychological distress. Marital status, or having a child under the age of 5, were not significant predictors of psychological distress. Results for educational attainment suggest that females who completed some post-secondary displayed a significantly higher level of psychological distress when compared to post-secondary graduates. This is in contrast to males, as male college graduates reported a lower level of distress when compared those who completed some post secondary and female college graduates reported a higher level of psychological distress than those who reported completing only some post secondary.

The number of children females had was significantly associated with their reported levels of psychological distress. Results show that having 2 or more children was associated with a lower level

of psychological distress when compared to having 1 child. Income adequacy was also found to be significantly associated with females' psychological distress, and those who felt their income level was adequate reported a significantly lower level of psychological distress when compared to those who felt their income level was not adequate.

Model 2, which included the covariates and paid work strain, accounted for 11.5% of variation in females' psychological distress. Females who described their paid work environment as either active or high strain had a significantly higher level of psychological distress when compared to females who worked in a low strain work environment. The psychological distress levels of females working in a passive paid work environment did not differ significantly from those working in a low strain work environment. All the paid work variables were significant at $p<.001$.

Looking at model 3, 12.9% of the variation in females' psychological distress was accounted for when taking unpaid work into consideration along with the covariates and paid work strain. As with paid work strain, females who described their unpaid work environment as either active or high strain reported a significantly higher level of psychological distress when compared to low strain. However, those who reported that their unpaid work environment was passive did not have a significantly different level of psychological distress when compared to those who reported that their unpaid work environment was low strain.

Chapter 5

Discussion

How is work strain related to psychological well-being? According to Karasek (1979), the work factors that determine the level of work strain are the level of psychological demands as well as the level of control. He asserted that it was a high level of psychological demands combined with a low of control results in a job that is high in strain. While this theory is generally applied to the paid work environment, the purpose of the current study was to investigate the unpaid work environment in the context of Karasek's Job Demand-Control model. The following research question was addressed in the current study: is participant's psychological distress explained more fully when looking at both paid and unpaid work strain rather than focusing on one work sector alone?

Summary of Results

Separate multiple regressions were ran for males and females (p. 46 – 47). The multiple regressions consisted of 3 models. Model one including covariates; which were variables that could potentially have a confounding impact on the relationship between work strain and well-being. The second model focused on paid work strain while the third model focused on unpaid work strain.

Model one showed that a significant proportion of females' psychological well-being was explained by the covariates whereas the covariates accounted for less than a half a percent of males' psychological distress scores. When looking at model two, it showed that the largest difference in psychological well being was the difference between low strain and high strain work environments. Hypothesis 1a was supported, as it was predicted that high job demands combined with low control would be associated with an increase in psychological distress.

The results of model three suggest that unpaid work strain does account for a significant proportion in the variation of psychological distress that was not explained by the covariates or paid work strain alone. For males, 6.3% of the variation in psychological distress was accounted for when looking at the covariates and paid work strain. The inclusion of unpaid work strain increased this

proportion to 9.3%. Unpaid work strain accounted for a significant proportion of the variation in females' psychological distress. The variation in psychological distress that was accounted for by the covariates and paid work strain was 11.5 % but increased to 12.9% when unpaid work strain was added into the regression. Therefore, hypothesis 1b was supported as it was predicted that unpaid work strain would be related to well being in a similar manner as paid work strain.

Hypotheses 1a and 1 b were both supported, as paid work strain and unpaid work strain were statistically significant predictors of psychological well-being. However, the amount of psychological well-being that was predicted in the current study was relatively low. Only 12.9% of females' psychological distress and 9.3% of males' psychological distress levels were explained when taking the covariates, as well as paid and unpaid work strain, into consideration. This means that the current study failed to account for 90.7% of the variation in males' psychological well-being and 87.1% of the variation in females' psychological well-being. Therefore, while both paid and unpaid work strain were found to be statistically significant predictors of psychological distress levels, the results suggest that there are other factors, those which were not considered in the current study, that impact the variation in participants' psychological well-being.

Paid Work in Relation to Past Research

The results of the current study, in relation to the paid work environment, were consistent with past research. Participants who were employed in a job that was high in strain reported a significantly higher level of psychological distress when compared to participants in a low strain job. This was true for both males and females. These results are consistent with Karasek's Job Demand-Control model and the idea that it is the combination of high demands and low control that leads to an increase in psychological distress (Karasek, 1979). Studies that have investigated the Job Demand-Control model generally find that a high strain job is most detrimental to well being, in comparison to a low strain, active and passive jobs (Dalgard et al., 2009; Vermeulen & Mustard, 2000; Wallace, 2005). Stansfeld

and Candy (2006) stated that "the strongest prospective associations were found for the combination of decision latitude and psychological demands (high job strain) (p. 451).

Past studies often report a stronger association between paid work strain and well being for males (Stansfeld & Candy, 2006; Vermeulen, & Mustard, 2000). After covariates were accounted for, paid work strain accounted for an additional 3.6% of the variation in psychological distress for females and 5.9% of the variation in psychological distress for males. This does suggest that the paid work strain was able to predict a slightly larger proportion of males' psychological distress than females'.

There was a gender difference in the relationship between paid work strain and well being. Males who reported having a significantly low level of demands combined with a low level of control (passive job) was associated with a higher level of psychological distress when compared to a low level of demands and a high level of control (low strain). Females who perceived their paid work environment as passive did not have psychological distress scores that differed significantly from those who perceived their paid work environment as low strain. This suggests that as long as demands were low, regardless of the level of control, females reported a significantly lower level of psychological distress in comparison to when demands were high.

This suggests that Karasek's theory of "learned helplessness" and the idea that a passive work environment would be detrimental to mental health was only supported in males (Karasek, 1979). These results are similar to the findings of Gronlund (2007) where they researched the relationship between work strain and work-to-family conflict. They found that both males and females who were employed in a high strain job were associated with a significantly higher level of work-to-family conflict. However, a low level of control was only associated with increased work-to family conflict for males. The researchers asserted that women, who typically carry the majority of the responsibility at home, would find a job that is low in control advantageous as they can use this freedom to balance the demands they have at home with the ones they have at work. This notion is relevant in the current study, as it could explain why females' well being was not associated with an increase in psychological

distress when employed in a passive job. Females in the current sample were more likely to describe their home environment as active and less likely to describe it as passive, when compared to males. This suggests that females have more of an active role in the home work environment. It could be the case that a passive paid work environment is less detrimental to females' well being because the home work environment is a resource for feelings of fulfillment and learning opportunity. As mentioned earlier, socialization often creates the belief that females ought to be the home-maker and males the main contributor to household income (Daxbury, Lyons & Higgins, 2007) and roles that are more salient to an individual's sense of self will have a greater impact on psychological well being (Marcussen, Ritter, & Safron, 2004). This could explain why a male who is employed in a passive work environment would experience more psychological distress, as the combination of low demands and low control would be more psychologically damaging in the paid work environment, a role that may be more salient to the male than it is the female (Simon, 1998).

In regards to the other levels of paid work strain, there were no gender differences. For both males and females, the lowest level of psychological distress was associated with those who perceived their paid work environment as low strain. The highest level of psychological distress was associated with those who perceived their work environment as high in strain. There was little difference between participants who described their work environment as active and high strain. This suggests that when demands are perceived as high, regardless of the level of control, participants report a higher level of psychological distress in comparison to when demands were low. This is consistent with researchers (Stansfeld & Candy, 2006; Van der Doef & Maes, 1999; Wallace, 2006) who have argued that the relationship between job demands/job control and well being is additive rather than interactive. For both males and females, as demands increased, so did psychological distress. These results seem to support the strain hypothesis, as opposed to the buffer hypothesis, and the idea that it is the combination of high demands and low control that is most detrimental to psychological well-being. When both demands and control were low, this resulted in the lowest levels of psychological distress

and when both demands and control were high, this resulted in the highest. However, control did not significantly reduce the negative impact high demands had on psychological distress, as for both males and females the difference in psychological distress between those in an active job and a high strain job were minimal.

However, Karasek (1979) had stated that an active job, which is a job characterized by high demands and high control, would be associated with the "highest satisfaction" as the satisfaction of the high demands combined with high control would create a challenge and an opportunity to learn. It could be argued that participants employed in an active job may have reported a higher level of job satisfaction than participants who were employed in a high strain job. Job satisfaction was not measured in the current study so this cannot be tested. Studies that have taken job satisfaction into consideration (DeWitte, Verhofstadt, & Omey, 2007) have found that the combination of high demands and high control was associated with the highest increase in skills, in comparison to other job categories, and a higher level of job satisfaction in comparison to a high strain job. Therefore, these results do not refute Karasek's theory that an active paid job is less detrimental to well being in general, in comparison to a high strain job. It suggests, however, that a high level of control does not significantly reduce the negative impact high demands have on psychological distress.

Unpaid Work in Relation to Past Research

While the Job Demand-Control model is generally used in the context of the paid work environment (Karasek, 1979), the results show it is also relevant in the unpaid work sector. In accordance with Karasek's theory, the combination of high demands and low control was associated with the highest level of psychological distress for both males and females. An unpaid work environment that was characterized as high strain, high in demands and low in control, was found to be associated with the highest level of psychological distress. The current study also showed that unpaid work strain accounted for a significant proportion of the variation in psychological distress over and above what was explained by paid job strain. After paid work strain was entered into the regression

model, unpaid work strain accounted for a significant proportion of the variance in participants' psychological distress. This was true for both males and females. This is significant as it shows that the way in which participants perceived their unpaid work environment, particularly in regards to the level of demands and control, was significantly related to their psychological well-being.

It was predicted that females' psychological well being would be more closely associated with their unpaid work environment in comparison to males. This was not supported in the current study. The inclusion of factors relating to the unpaid work environment into the regression model accounted for an additional 3% of the variability in psychological distress for males, over and above what was accounted for by the covariates and the paid work environment. For females, the addition of the unpaid work factors only accounted for an additional 1.3% of the variability in psychological distress. This suggests that the unpaid work environment was able to explain a slightly larger proportion of males' psychological distress. Other studies have found that males' well being is more strongly associated with unpaid work strain than females. Peeters et al. (2005) found that males' home demands were more strongly associated with their level of burnout in comparison to females. Burnout was measured with items that assessed exhaustion ("I feel used up at the end of the day", p.49) and cynicism ("I have become less enthusiastic about my work", p.49). They suggested that males were less capable of coping with the strains of home demands, and this manifested into a stronger level of burnout, whereas females were better able to cope with their home demands. This could be why, in the current study, there was a slightly larger association between males' unpaid work environment and psychological health. Females, who generally assume more of the unpaid work responsibility (Krantz, & Ostergren, 2001; Walters et al., 1996) and may have been socialized from a young age to engage in household related work (Simon, 1998), might be better able to cope with a higher level of demands and low control. Therefore, unpaid work strain may not necessarily impact their psychological distress levels to the same extent as males, who may find the responsibility of home demands new and more psychologically distressing.

The pattern in the relationship between psychological distress and unpaid work categories was very similar across gender. As mentioned earlier, participants who reported having a high level of demands and a low level of control was associated with the highest level of psychological distress in comparison to all other job categories. The combination of low demands and high control was associated with the lowest level of psychological distress. The results were consistent with Staland-Nyman, Alexanderson and Hensing (2008) as they also found that unpaid work strain accounted for a significant proportion of distress even after paid work strain was controlled for. While Staland-Nymand et al. (2008) only included females in their study, the current study suggests a similar pattern emerges for males as well.

Control seemed to have very little impact on psychological distress. For both males and females, the difference in psychological distress of those who perceived their work environment as passive was very minimal when compared to those who perceived their work environment as low in strain. Regardless of whether control was high (as in low strain) or low (as in passive) when demands were low participants reported a significantly lower level of psychological distress in comparison to those who perceived their unpaid work environment as high in strain. There was also a very small difference between those who perceived their unpaid work environment as active and those who perceived it as high strain. Once again, regardless of the level of control, whether it was high (active) or low (passive), when demands were high participants reported a significantly higher level of psychological distress in comparison to those who saw their unpaid work environment as low in strain. Taken together, this suggests that demands in the unpaid work environment have a greater impact on psychological well being in comparison to control.

These findings are in contrast to the findings of Lombardi and Ulbrich (1997). Their study included only females, so they were unable to investigate gender differences. While they did not administer the Job Content Questionnaire, the questions used to measure control were similar to the items used in the current study (how much choice a person has in how the housework is done, the

degree in variation in tasks, how much say a person has in their work). The items used to measure psychological demands were also similar to the current study (whether they had enough time to complete tasks, whether their work was free from conflicting demands). The researchers' findings were opposite to the current study in terms of the relationship between unpaid job demands and control and well being. They found that control in the unpaid work environment was significantly related to psychological well-being whereas psychological demands were not.

Other studies have found that control in the unpaid work environment had a significant impact on females' psychological well-being. Overall, the results of Kibria et al. (1990) were very similar to the current findings in that they found that after controlling for paid work strain, unpaid work strain accounted for a significant proportion of variation in psychological health. However, when looking at the level of control they found that females well being was significantly impacted by the level of control they had at home. They concluded that when the homemaking role included a sense of autonomy, this resulted in a positive impact on well being. This study only included females, so it is unknown if any gender differences would have emerged.

These differences could be a reflection in the changing dynamics of the family unit. Lombardi and Ulbrich (1997) noted the differences in the meaning of work in the paid and unpaid work environment. The meaning of control in the household is more specific to families due to the more personal and noncompetitive dynamics of a family unit in comparison to a paid work environment that is impersonal and competitive. The authors suggested that it is these differences in the paid and unpaid work environment that make it difficult to reliably measure unpaid control in comparison to the paid work environment as the meaning of control in the unpaid work environment is specific to the family. If it is true that the measurement of a work environment, either paid or unpaid, is impacted by the meaning of the work environment, this could explain the shift in the importance of unpaid demands and control. As mentioned earlier, the increase of females in the paid work environment and the higher contribution of males in the unpaid work environment may have contributed to changes in the

idea of a "typical" household with the male being the main provider and the female being the homemaker (Marshall, 2006). Lombardi and Ulrich (1996) found that control in the unpaid work environment was significantly related to psychological well being while demands were not. Similarily, Kibria (1990) found that control at home was a significant predictor of psychological well-being. This could be a reflection of the accepted norms at that time, and the idea that the female ought to have control in the household. A female who did not have control of the unpaid work environment may have experienced more psychological distress as a result. However, as times change, and males and females begin to take on more of an equal responsibility in the unpaid work environment, having control in the unpaid work environment may be less important. This would increase the importance of job demands in the unpaid work environment. As both males and females are working outside of the household, it makes sense that the level of demands in the unpaid work environment are more important and consequently have a larger impact on psychological well-being. That is what was found in the current study. As demands increased, so did psychological distress. This was true regardless of the level of control and was true for both males and females.

A more recent study conducted by Krantz, Berntsson and Lundberg (2005) found a relationship between demands and well-being but failed to find a relationship between control and well-being in the unpaid work environment. They were not investigating Karasek's Job Demand-Control model (1979), but were investigating the relationship between total workload and work stress on general health. Participants' health was assessed by asking questions regarding the prevalence of various physical and psychological symptoms (headaches, stomach pain, sleep disturbance, lower back pain, loss of appetite, shoulder and neck pain). Individual items were used to assess work strain, including an item that assessed "perceived total workload" and "control over household work". The "perceived total workload" involved asking participants about conflict between childcare and household duties and other responsibilities, which is very similar to the unpaid work demands measured in the current study. When measuring "control over housework", participants were asked about their influence at home,

their level of control and their ability to make their own decisions, which is very similar to the control measure that was used in the current study. They found that for both men and women a higher "perceived total workload" was associated with higher symptom prevalence. They found no relationship between "control over housework" and well being. They did not find any gender differences in these relationships. These results are similar to the current findings in that for both men and women having a high level of household demands was associated with a reduced physical and psychological well-being. Control in the household, on the other hand, did not have a significant impact on well being. It could be the case that as men and women are becoming more evenly responsible for the domestic responsibilities over time and having control in the household may be becoming less important. However, as both men and women are more often working outside of the household, the level of demands and conflict between responsibilities becomes a more important contributor to well-being due to a higher time constraint for both the male and the female in the household.

In general, the results are consistent with the strain hypothesis, and the idea that it is the additive, rather than the interactive effect that unpaid job demands and control had on well being. If the buffer hypothesis was correct, then psychological distress scores of those who reported having an active unpaid work environment would have been considerably lower than a high strain unpaid work environment. Also, a passive unpaid work environment would have been associated with an increase in psychological distress as a result of the low level of control. However, for both males and females, psychological distress scores did not differ significantly when describing their unpaid work environment as low strain or passive, suggesting that a low level of control in the passive work environment did not significantly impact psychological well being. This suggests that for both males and females, when unpaid demands are low, this is associated with a reduced level of psychological distress in comparison to when demands are high.

Conclusion

The relationship between paid work strain and well-being has been well documented, and many studies find a relationship between high job strain and well-being (eg. Ertel, Koenen, & Berkman, 2008; Vermeulen & Mustard, 2000; Wallace, 2005). However, few studies have investigated Karasek's Job Demand-Control model in the context of both the paid and the unpaid work environment (Staland-Nyman, Alexanderson and Hensing, 2008). In the current sample, the highest level of psychological distress was associated with a work environment characterized by a high level of demands and a low level of control, or a high strain work environment. The lowest level of psychological distress was associated with low demands and high control (low strain). This was true in both the paid and unpaid work environments and was true for both males and females. This suggests that whether a person is referring to their paid work environment or unpaid, having a high level of control and a low level of demands is associated with lower psychological distress.

Practical Implications

It is apparent that understanding how the paid work environment impacts well being is an important topic due to the high number of studies dedicated to promoting the understanding of paid work strain. Employers are motivated to increase productivity in their employees and employees are motivated by a desire to be employed in a healthy work environment. Research shows that workers who experience conflict between their paid and unpaid work are three times more likely to consider quitting and workers who believe their paid work is interfering with their personal lives make more mistakes at work (Peeters et al., 2005). An employer who has a better understanding of their employees unpaid work situation can alter their paid work environment, in terms of schedule flexibility, work demands and support levels in a way that compliments the demands of their unpaid work environment. This would reduce paid work strain and impact levels of unpaid work strain at the same time by providing an employee with more time and attention to devote to their unpaid work.

However, some jobs are high in strain due to the nature of the job itself. High demands and low control may be inherent in certain occupations. In situations like this, it may be beneficial to have a means of addressing employees unpaid work strain, such as providing them with strategies on reducing demands and in turn reducing strain in the unpaid work environment. The results suggest that a high level of unpaid work strain, particularly unpaid work demands, have a negative impact on psychological well-being. Companies could provide parental training, work on ways in which work can be completed from home or offer facilities for child care (Peeters et al., 2005). These resources could help in reducing the demands associated with unpaid work responsibilities and in turn would increase productivity in the paid work environment.

Limitations and Directions for Future Research

The current study is focused on the results of a cross-sectional study. The results suggest that high strain work environments, in both the paid and unpaid work environments, were associated with reduced psychological well-being. Does this mean that high strain jobs cause psychological distress? Not necessarily. Personality characteristics, such as intelligence, social skills, motivation, influence the type career a person pursues (Ackerman & Beier, 2003). A person who has reduced psychological health may be attracted to a high strain job, as a low level of control could be attractive to a person who may have psychological issues in the form of a reduced self-confidence. In contrast, a person who has a healthy psychological well-being may have a higher self-confidence, increased motivation and be more capable in general which may aid in working toward a position that includes a low level of demands and a high level of control; or a low strain job. As a result, those who have low psychological health may be over-represented in high strain jobs and under-represented in low strain jobs, while the opposite may be true for those with a higher psychological well-being.

Or perhaps someone who is already psychologically distressed is simply more likely to perceive his/her paid and unpaid work in a negative light (ie., high demands and low control) than someone who is not distressed. Longitudinal research in paid work strain suggests that high work strain in the paid

work environment often does lead to future psychological distress (Van Der Doef, 1999). However, other longitudinal studies have found that a reduced level of psychological demands was associated with a higher level of reported demands at follow up (Dalgard et al., 2009). They suggested this was a result of a "gloomy perception" and the reduced psychological being resulted in the perception that their unpaid work environment was high in demands. This would be an alternate explanation for the findings in the current study, as participants who reported having high demands and high control, in both the paid and unpaid work environment, was associated with the highest level of psychological distress. Was the psychological distress a result of their paid/unpaid work strain, or was the high level of psychological distress a reason for interpreting their work environment in that manner? A direction for future research would be looking at the relationship between both paid and unpaid work strain while employing a longitudinal approach.

While it was true that both paid and unpaid work strain accounted for a significant proportion of the variation in psychological distress, the percentage was minimal, suggesting that a number of other factors were associated with the variation in psychological well-being. This means that a number of other variables, those that were not measured in the current study, are important contributors to participants' psychological distress levels. While the current study employed Karasek's Job Demand-Control model, there are other variations of the theory that includes other variables. This model was later expanded to include a support variable and was referred to as the Job Demand-Control Support model (Johnson, Hall & Theorell, 1989). Studies that have included a measure of social support have found that social support can have a mediating effect on the relationship between unpaid work and well-being. For example, Ertel et al. (2008) found that the participants with a high level of paid work strain as well as a high level of demands at home (measured by the presence/absence of a child at home under the age of 18) reported significantly fewer depressive symptoms when they reported having a high level of social support at work. Therefore, future research ought to explore the relationship

between unpaid work strain and well being while taking other variables into consideration, such as social support.

Another limitation is in regards to the generalizability of the results. It was a sample derived from one city, and it is difficult to say if the results would generalize to other populations. Also, the data was collected via telephone interview. The phone numbers were randomly selected from all registered phone numbers in the city. This selection process excludes anyone who does not have a phone or does not have their phone number listed. It could be the case that these groups of people might significantly differ from those who do have phones and have their phone numbers listed.

Another limitation is regarding the scale used to measure unpaid work strain. There have been a number of different measures that have been used in past research to assess the unpaid work environment. However, these measures have not received the required attention regarding their validity and reliability. When a measure is low in validity, it is not measuring the construct in question. It is difficult, if not impossible, it make accurate conclusions about research that is based on measures that are low in validity. Measures of unpaid work strain are sometimes created by researchers for the purpose of their study (eg. Peeters et al., 2005). Others employ measures adapted from past research (eg. Kibria et al., 1990; Staland-Nyman). However, there is not a measure of unpaid work strain available that has gone through the steps required to ensure that it is valid and reliable. The results of the current study suggest that the combination of a high level of demands and a low level of control result in the highest level of psychological distress, in comparison to other levels of work strain. This was true in both the paid and unpaid work environment and for both males and females. Though statistically significant, both paid and unpaid work strain accounted for a minimal percentage of variation in psychological well-being. This could be due to a reflection of factors other than work strain playing an important role in participants' psychological distress levels. It could also be an indication of measurement error. Future research is required in order to verify which is more accurate.

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Appendix A: Kessler-6

During the past 30 days, about how often did… (response items included most of the time, some of the time, a little of the time, and none of the time)

…you feel so depressed that nothing could cheer you up?

…you feel hopeless?

…you feel restless or fidgety?

…you feel that everything was an effort?

…you feel worthless?

…you feel nervous?

Appendix B: Job Content Questionnaire

"I would like you to consider the time you spend at work. For each statement that I read please respond with the options strongly disagree, disagree, agree or disagree."

Job Demands

1. My job requires working very fast.
2. My job requires working very hard.
3. I am not asked to do too much work. *
4. I have enough time to get the job done.*
5. The demands that other people make of me often conflict.
6. My job requires long periods of intense concentration on the task.
7. My tasks are often interrupted before I can finish them so that I have to go back to them later.
8. My job is very hectic.
9. Waiting on work from other people or departments often slows me down on my job.

Skill Discretion

10. My job requires that I learn new things.
11. My job involves a lot of repetitive work. *
12. My job requires me to be creative.
13. My job requires a high level of skill.
14. I get to do a variety of different things on my job.
15. I have an opportunity to develop my own special abilities.

Decision Authority

16. My job allows me to make a lot of decisions on my own.
17. On my job, I have very little freedom to decide how I do my work. *
18. I have a lot of say about what happens on my job.

* Items marked with a star were reversed coded.

Appendix C: Family, Work Demands and Resource Scale

"I would like you to now consider the time you spend at home. For each statement that I read please respond with the options strongly disagree, disagree, agree or disagree."

Demands
1. I have enough time to get everything done. *
2. My household-related tasks are often interrupted before I can finish them.
3. I have to work very hard.
4. My life is very hectic.
5. I have to work very fast in order to get things done.
Skill Discretion
6. My household or child-care related activities give me a chance to develop and to learn new things.
7. My household related activities usually involve doing a number of different kinds of things.
8. I do creative things around the house.
9. My role as a parent requires me to be creative.
Decision Authority
10. I am expected to do too much. *
11. The demands my family makes of me often causes conflict. *
12. At home I am free to make my own schedule.
13. I have little control over the family budget. *
14. In general, I feel I have control over what happens in most situations at home

* Items marked with a star were reversed coded.