TROUBLE AT WORK: A MODEL TESTING RELATIONSHIPS AMONG

JOB STRAIN, SOCIAL SUPPORT, PRO-SOCIAL BEHAVIOR, AND WELL-BEING

By

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Abstract

The present study tested a proposed model to better understand the potential relationships among pro-social behavior, social support, job strain, and well-being. By using a cross-sectional self-report survey design, this study used path analysis to test a moderated mediation model, with social support as the moderating variable. Findings indicated partial support for the model, specifically with social support predicting well-being and strain predicting well-being. An exploratory model was also tested and showed better fit. Practical and theoretical implications as well as future research directions are discussed.

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Introduction

Nearly 63% of Americans experience stress in the workplace (American Psychological Association, 2017). Prolonged stress is often correlated with an increase in unhealthy behaviors, such as drug and alcohol abuse, overeating, a reduction in exercise, and an increased risk of employing more maladaptive coping strategies (Richardson, Arsenault, Cates and Muth, 2015; Anshel, 2000; Holton, Barry, & Chaney, 2016). Higher levels of stress can also cause employees to exhibit poor work behaviors and contribute to creating an unhealthy workplace (Donald, Taylor, Johnson, Cooper, Cartwright, & Robertson, 2005; Holton, et al., 2016). This means that employee stress can impact a business' bottom line profit in terms of employee health insurance costs, productivity, turnover, absenteeism, employee satisfaction, and customer satisfaction (Harter, Schmidt, and Keyes, 2003; Spector, 1997; Keyes, Hysom & Lupo, 2000). Some of the key contributing factors to increased stress and decreased well-being in the workplace include social strains (such as interpersonal conflict, cooperation, and low perceived social support), heavy workload, and decreased control in work-related decisions (Holton, et al., 2016). However, what remains unclear is how social aspects of work affect stress and well-being.

The present study seeks to investigate the nature of the relationships among job strain, well-being, cooperation (also referred to as cooperativeness), and social support. Job strain, as conceptualized in Karasek's Job Demands-Control model (1979), is the outcome resulting from a prolonged experience of high job demands and low job control. The present study first investigates whether job strain affects employee mental well-being. Second, the model examines whether employee's cooperativeness affects how

strained an individual may feel at work (i.e. job strain). Finally, as cooperativeness is inherently social (Ross, Rausch & Canada, 2003), the present study investigates the role of social support as a potential mediator between cooperativeness and job strain. The present study seeks to provide conceptual clarity on the relationships among these variables in hopes of further understanding how organizations can positively affect employee well-being in the future. The following sections include a review of the existing literature and theory surrounding these variables.

Literature Review

Employee Well-being

Keyes and colleagues (2000) defined well-being as the subjective evaluations and perceptions of the quality of life. Individual well-being can be divided into the two categories of eudaimonic well-being and subjective (or hedonic) well-being (Machado, de Oliveira, Peregrino, & Cantilino, 2019). The latter involves satisfaction of needs and desires, involving a cognitive and affective component (Machado, et al., 2019). Alternatively, eudaimonic satisfaction involves realizing one's potential, having self-acceptance and having satisfying positive relationships with others (Machado, et al., 2019). In 2014, the World Health Organization defined health as "a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity." However, as job strain, cooperativeness, and social support are oriented towards psychological and social states of being, the present study primarily focuses on the mental and social sides of employee well-being, as opposed to the physical, economic, and financial aspects.

Well-Being at Work Employee well-being is essential to the long-term success of organizations as employee well-being affects the organization's productivity and profit margins (Harter, et al., 2003; Spector, 1997; Keyes, Hysom & Lupo, 2000). However, employees that experience a consistent high level of stress are likely to report lower levels of overall well-being (Khan and Kurshid, 2017; Coffey, Dugdill, & Tattersall, 2004). Other contributors to low employee well-being include a lack of support, structure, and recognition in the workplace (Holton, et al., 2016).

Job Strain: The Job Demands-Control (JDC) Model

Researchers and practitioners alike have distinguished between stressors (the particular triggers that lead to stress) and strain (the behavioral, physical, or psychological outcomes of perceived negative stress; Tetrick & Quick, 2011).To assess prolonged stress at work, researchers have developed several models, including Karasek's Job Demands-Control model (1979), which is used as a framework for the present study. The Job Demands-Control model assesses how job demands and job control affect the outcome of job strain. Job demands refer to the perceived amount of task-specific psychological work. In contrast, job control is organized into two types: decision latitude and skill discretion (Schonfeld & Chang, 2017). According to the model, a continuous combination of high job demands and low job control results in high job strain (Karasek, 1979). Additionally, the model argues that active jobs are characterized by a combination of high job demands with high control. In contrast, passive jobs are characterized by the combination of low job-demands and low control.

Johnson and colleagues (1989) added social isolation to the model, which later became known as social support. Social support refers to work-related relationships that are helpful with tasks and information, and companionship, as was demonstrated in two meta-analyses (Fila, Purl, & Bracken, 2013; Van der Doef & Maes, 1998) in addition to several other publications (Karasek & Theorell, 1990; Nahapiet & Ghoshal, 1998). In general, adding a social component to the JDC model has increased the model's predictive abilities (Van der Doef & Maes, 1998, 1999). Some studies have added resources to the model, referring to the physical, social, psychological or other forms of resources. Adding resources further increased the model's predictive abilities, however this study focuses primarily on the resource of social support, as other constructs in the proposed model (cooperativeness/pro-social behavior) are social in nature. Overall, the job demands-control-social support model is well known and well supported in the literature (Van der Doef & Maes, 1998; 1999). The present study has included more information about social support in the sections below.

Job Strain and Well-Being High job strain has been tied to several unhealthy personal behaviors (smoking and excessive eating and drinking) as well as unproductive work behaviors (counterproductive work behaviors, turnover, work absenteeism; Kahn & Byosiere, 1992). Studies have found that high job strain can also impact physical well-being (e.g. blood pressure, body mass index, risk of cardiovascular issues, and increased mortality rates; Johnson, et al., 1989; Kono, Uji, & Matsushima, 2015). It is important to note that some populations are more susceptible to job strain, such as lower income populations (Fila, et al., 2013). In addition, there is a gender difference wherein males tend to report higher job strain (Fila, et al., 2013; Luchman and González-Morales, 2013).

Schaufeli and Bakker (2004) found positive relationships between strain and negative health outcomes, and a negative relationship between strain and psychological well-being. This leads to the first hypothesis:

Hypothesis 1: High job strain negatively predicts mental well-being.

Cooperation and Pro-Social Behavior

Researchers have called for further study into other constructs that relate to job strain (Fila, et al., 2013; Kain & Jex, 2010). The present study investigates cooperation as a potential antecedent of job strain. Cooperation may be understood as an individual's active and necessary willingness to empathize, be tolerant of, and work harmoniously with others (Cloninger, Przybeck, Svrakic, & Wetzel, 1994). Cooperation can be understood from several viewpoints, including a biological perspective, a personality perspective, and a behavioral perspective (Cloninger, et al., 1994). These three perspectives each view cooperation in a slightly different light, providing insight on when, why, and how humans exhibit cooperation with one another. The present study adopts cooperation from the behavioral perspective, specifically that of pro-social behavior.

The biological perspective views cooperation as being genetic as it is passed down through generations who successfully cooperate with one another via natural selection (Cloninger, et al., 1994). A majority of the research behind the biological perspective investigates potential ties between cooperation, genetics, and neurological processes (Cloninger, et al.,1994; Axelrod & Reisine, 1984; Eysenck & Hans, 1990). While there is some evidence supporting this perspective (Cloninger, et al., 1994;

Cloninger, 2008), further research is necessary to fully understand it (Farmer and Goldberg, 2008).

The second perspective views cooperation as a personality trait, known as cooperativeness. Most literature on this perspective has been conducted by Cloninger within the perspective of the psychobiological model of personality (e.g. Cloninger, et al., 1994; Zuckerman & Cloninger, 1996; Cloninger, 2008; Cloninger, 2013). This model has received international attention and been influential in psychological and psychiatric research over the past twenty years (Farmer & Goldberg, 2008). According to the Psychobiological Model, personality can be understood as the integration of emotion-based skills and habits (otherwise known as temperament) and concept-based values and goals (otherwise known as character). However, this perspective has mixed support, as Farmer & Goldberg (2008) noted that some facets of temperament do not differentiate well. Further research is necessary (Cloninger, 2008; Kose, Celikel, Akin, Kaya, Cumurcu, Etikan & Cloninger, 2017).

Lastly, the behavioral (otherwise known as the 'social' perspective) views cooperation as a learned behavior exhibited by individuals in a group setting (Axelrod & Reisine, 1984). The behavioral perspective is based on the idea that when cooperative behaviors are socially reinforced, the likelihood that these behaviors will occur again also increases (Street, Hoppe, Kingsbury, & Ma, 2004). The opposite is also true, that when behaviors are punished, they are less likely to occur. This theory implies that individuals who experience a positive reward as a result of engaging in cooperative behaviors are more likely to engage in cooperation again. The present study views cooperation as a

behavior. This perspective views cooperation as people working together with shared goals and methods, usually involving pro-social behaviors (Axelrod & Reisine, 1984). Within the work context, this may be seen in successful team behaviors, helping behaviors, and organizational citizenship behaviors.

Pro-Social Behavior Keeping within the behavioral perspective, the present study operationalizes cooperation specifically as pro-social behavior. While the author recognizes that using pro-social behaviors to measure cooperation is not ideal for construct validity purposes, it was a decision caused by a lack of a cooperation/cooperativeness measures appropriate for the study at hand. The first issue is that most cooperation measures use games to directly measure cooperation as a set of observable behaviors (Semsar-Kazerooni & Khorasani, 2009), which did not fit into the design of the present study. The second issue was that most cooperation questionnaires juxtapose cooperation against other constructs such as competition, which is not relevant to the study at hand (Luo, Slotegraaf and Pan, 2006). Of the few that did not juxtapose an unrelated construct, they were either used for populations not relevant to the study, such as fourth grade students (Rigby, Cox, & Black, 1997), or the items were not work related, (e.g. Helpfulness Attitude Scale; Aktepe, 2010). Thus, it would be ideal to develop a cooperation measure for the purposes of this study. However, time did not permit this within the context of this thesis project. Future studies that assess this model should consider first developing a measure of cooperation to further protect construct validity.

Pro-Social Behavior and Cooperation Pro-social behavior is similar to cooperation in that both are socially harmonious behaviors exhibited by two or more

individuals helping one another accomplish a goal (Hinde & Grobel, 1991). Both are helping behaviors that individuals engage in for a variety of altruistic and selfish reasons, including social approval, self-gain, and concern for others. Additionally, both are typically learned during childhood socialization from parents and/or family members (Hinde & Grobel, 1991).

An additional similarity may be found within the perspective of sociology. While this paper is certainly one from a psychological perspective, by understanding addition perspectives of human behavior, such as those provided by sociological work, one may have a more complete understanding of behavior overall. According to Simpson & Willer (2015), cooperation and pro-social behavior are both considered micro-level manifestations of social order. This is because they are determined by the norms of a social group, the reputations/rank of its members, and the relationships among the members, as based upon character and connections (Simpson & Willer, 2015). Some research also suggests that cooperation and pro-social behaviors are more than personal characteristics that are the product of altruism or agreeableness (Hinde & Groebel, 1991; Simpson & Willer, 2015). For this reason, the personality trait of agreeableness was added to the study as a control.

While the pro-social behavior and cooperation are very similar, it's also important to note the differences. One distinction is that typically pro-social behaviors may not expect reciprocity, while cooperative behaviors typically do (Hinde & Groebel, 1991). Additionally, pro-social behavior is more often associated with short-term interactions, while cooperation usually involves an established longer-term relationship

that has trust and reciprocity (Hinde & Groebel, 1991). For this reason, cooperative relationships are often seen as being akin to an alliance, but pro-social behaviors do not carry this same connotation (Hinde & Groebel, 1991).

Cooperativeness and Well-being

Cooperation has been linked to well-being. First, research has found that low cooperation predicts low levels of well-being (Holton, et al., 2016; Khan and Kurshid, 2017; Coffey, et al., 2004). Second, high cooperation predicts higher levels of well-being (Cole, Lazarick & Howard, 1987; Street, Hoppe, Kingsbury, & Ma, 2004). This relationship is often explained by social support, as lower levels of cooperation predict lower levels of social support and thus, lower well-being, and vice versa (Holton, et al., 2016).

It is thought that low levels of cooperation with others limits perceived positive social interactions and the amount of help they receive in their work from others (also known as perceived social support), which may cause stress that leads to negative health outcomes. A strong correlation was also found between cooperativeness and perceived social support (Josefsson, Jokela, Cloninger, Hintsanen, & Salo, 2013). In addition, the trait of cooperativeness is positively correlated with life satisfaction and well-being (Josefsson, et al., 2013). Cooperativeness was also found to be negatively associated with mental afflictions such as bipolar disorder, depression, anorexia nervosa, social phobia, panic disorder, post-traumatic stress disorder, obsessive-compulsive disorder, and bulimia nervosa (Kono, et al., 2015).

The opposite has also been found to be true as positive social relationships have been found to relate to positive well-being (Cole, et al., 1987; Street, et al., 2004). As noted by Cloninger (2008), individuals high in the trait of cooperativeness had the highest well-being. Having social support is also thought to reduce stress, a common threat to well-being (Haslam, O'Brien, Jetten, Vormedal, & Penna, 2005; Aspinwall & Taylor, 1997; Berkman, 1985; Cohen & Wills, 1985). In fact, well-being and social support are so closely tied that most definitions of well-being include the presence of social support (Allport, 1961; Ryff & Keyes, 1995; Hogan & Roberts, 2004). Cooperation is necessary to maintain social support and is therefore necessary to maintain one's well-being (Street, et al., 2004).

Additionally, a healthy social life is often considered a tenant of reaching psychological maturity and well-being (Allport, 1961; Ryff & Keyes, 1995; Hogan & Roberts, 2004). Although there is much discussion on whether the process of maturity is a linear process, most agree that increased levels of maturity denote increased levels of well-being (Joseffson, et al., 2013). This means that cooperation is likely key to maintaining a higher level of maturity and well-being.

Cooperativeness, Social Support and Job Strain

The present model proposes the overarching idea that a lack of cooperation can lead to a breakdown of the social support in the workplace, which can lead to job strain. The following sections break down the relationships among cooperation, social support and job strain.

Cooperativeness and Job Strain Kono and colleagues (2015) reported that low cooperativeness predicted mental disturbance and presenteeism at work but was mediated by high job strain and low workplace social support. In addition, low cooperation in the workplace can lead to higher chances of conflict among employees (Pearson, Andersson, & Porath, 2005). Conflict and incivility hinder team performance and can ultimately harm organizations (Aquino, 2000; Pearson, Andersson, & Porath, 2005). Low cooperativeness and high interpersonal conflict can lead to increased work demands, a key predictor of job strain (Kono, et al, 2015; Karasek, 1979; Ilies, Johnson, Judge, & Keeney, 2011). This leads to the following hypothesis:

Hypothesis 2a: Pro-social behavior is negatively correlated with job strain.

Cooperativeness and Social Support Cooperation is inherently a social idea, relating to how accepted individuals feel by other people around them (Ross, et al., 2003). Likewise, social support refers to both formal and informal supportive interactions involving an exchange of resources (House, 1981). As Kono and colleagues (2015) noted, certain personality traits, like cooperativeness, can impact perceived level of social support as generally uncooperative individuals may not be as accepted by their peers. Within the work context, low levels of cooperation can put pressure on social relationships. This would be especially relevant within the context of workplaces that place a higher emphasis on teamwork. For example, a professional freight truck driver may not interact with coworkers as often on the job. Therefore, cooperativeness and social supportiveness may not be as pertinent. However, team-oriented jobs rely heavily on effective cooperativeness and social support within teams. Additionally, it is possible

that individuals low in cooperativeness may be more likely to use maladaptive coping strategies when addressing their stress in the workplace (Kono et al., 2015). This could decrease the likelihood of developing supportive relationships (decreasing perceived social support) and affect mental well-being and presenteeism at work (Kono, et al. 2015). In contrast, individuals that are highly cooperative may experience higher levels of social support. Their cooperative behavior is a part of being socially competent, which is related to perceived social support (Semrud-Clikeman, 2007). This leads to the following hypothesis:

Hypothesis 2b: Pro-social behavior is positively correlated with social support.

Social Support and Job Strain Social support has been known to mitigate stress levels (Baqutayan, 2011). Additionally, social support improves the Karasek model of job strain (Van der Doef & Maes, 1999). In the literature, there are two main hypotheses on how social support impacts job strain: the iso-strain hypothesis and the buffer hypothesis.

The iso-strain hypothesis predicts that employees with the combination of high demands, low control and low social support will experience the greatest number of negative outcomes. Alternatively, the buffer hypothesis views social support as a moderator between high job strain and well-being. Essentially, the difference between the two is that the iso-strain hypothesis views low social support as a part of a formula that results in negative well-being, while the buffer hypothesis views the positive buffering effects of social support as a moderator, mitigating the effects of job strain on employees. In their meta-analysis, Van der Doef & Maes (1999) found that there is support for both hypotheses, a finding consistent with a later meta-analysis (De Lange, Taris, Kompier,

Houtman, & Bongers, 2003). Further investigation is needed to fully understand the role of social support in the job demands-control model of job strain, hence its inclusion in the present model.

A meta-analysis by Luchman & Gonzolez-Morales (2013) assessed the levels of social support from supervisors and coworkers. The metanalysis revealed a negative relationship between supervisor support and job demands, and a negative relationship between coworker support and job demands. In other words, as job demands increase, perceived social support from coworkers decreased. This makes sense as employees have more work to do for their own job, they may spend less time at work engaging in social behaviors. Also, positive relationships between job control and supervisor support as well as between job control and coworker support were found. This leads to the following hypothesis:

Hypothesis 2c: Social support is negatively correlated with job strain.

In all, this portion of the proposed model has three relationships: job strain-cooperation, cooperation-social support, and social support-job strain. Cooperation and job strain are proposed to have a negative correlation because employees engaging in cooperative behavior are less likely to add to their work demands (a key component of job strain) by decreasing the chances of conflict. Likewise, higher cooperation among employees increases the team's ability to handle complex tasks. Second, social support and cooperation are proposed to have a positive relationship as cooperative behaviors serve to increase social bonds, and vice versa. Third, social support has been shown as an effective coping strategy, mitigating stress. This leads to the following hypothesis:

Hypothesis 2: Pro-social behavior is negatively correlated with job strain, as

mediated by social support.
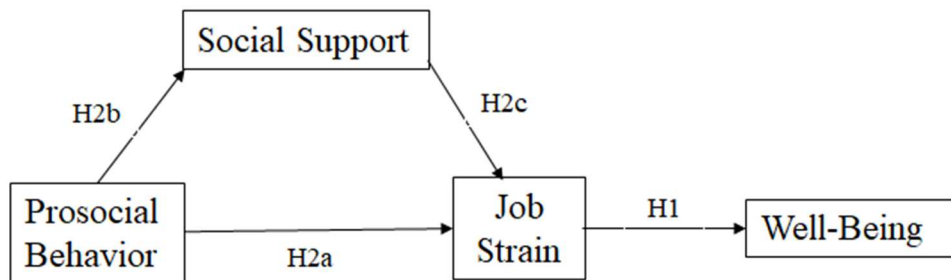
Figure 1. Proposed Model of Pro-social Behavior, Social Support, Job Strain & Well-Being.

Methods

Participants

This sample was recruited via word of mouth and snowball sampling. The survey was initially posted by the primary investigator on social media (i.e. LinkedIn, Facebook, Twitter, and Instagram) and this post was shared a total of nine times by various friends and connections. To be qualified to take the survey, the participants were required to be adults over the age of 18 who were currently employed for more than 30 hours per week. The original sample included 153 participants, with 22 incomplete submissions, and 1 self-reported data integrity issue (see procedure for more information). The data set used in the analysis included 130 participants with 87 females (63.0%) and 43 males (31.2%). Participant ages ranged from 20-70 years ($M = 37.5$, $SD = 14.32$). The sample was relatively homogeneous, with 94.6% Caucasian, followed by Black or African American

(.8%), American Indian or Alaska Native (.8%), Asian (.8%), Mixed race (.8%), Other

(.8%), and one non-response. For educational levels, participants reported 46.9% had a 4-

year degree, followed by 28.5% with a master's degree, 9.2% having some college, 6.9%

with a 2-year degree, 3.8% with a doctoral, and 3.8% with a postgraduate degree. The top

three most common industries represented in the sample were Healthcare (23.8%),

Professional/Technical/Scientific services (19.2%), and Educational services (16.9%).

Seventy-five percent of the participants work 40-50-hour weeks ($M = 42.89$, $SD = 7.63$)

Measures

Job Strain To measure job strain, 11 items from the short form version of the

Copenhagen Psychosocial Questionnaire (COPSOQ; Pejtersen, Krestensem, Borg, &

Bjorner, 2010) were used. Developed by the Danish National Institute of Occupational

Health, the COPSOQ has been established in over 25 countries. The COPSOQ was

originally based on a variety of theories and is compatible with the job demands-control

model of job strain (Berthelsen, et al., 2018). The short version of the job strain section

that was used measures the following dimensions, with reliability coefficients found in

Pejtersen et al. (2010): job satisfaction (4 items, $\alpha = .75$), behavioral stress symptoms (4

items, $\alpha = .65$) and cognitive stress symptoms (4 items, $\alpha = .85$). Data in the present study

revealed strong internal consistency, as shown by a relatively high Cronbach's alpha of

.87. Job strain is measured as an average of all the items from the three sections. Higher

scores indicate higher strain, while lower scores indicate lower strain, with response

choices from 1 (*not at all*) to 5 (*all the time*). An example item is, "How often do you

have trouble relaxing at work?"

Job Demands Because job demands and control are potential contributors to job strain, a scale for each variable (job demands and job control) was added to this study to be investigated as potential controls. This allowed the researcher to compare the scores of work demands and work control independently and in combination and to investigate each variables relationship with other constructs in the proposed model. The present study used the Quantitative Workload Inventory (Spector & Jex, 1998; Chen, Dai, Spector & Jex, 1997) to measure work demands, as it has shown to have a high average internal consistency (coefficient alpha) of .82 or higher across several studies (Jex & Spector, 1998; Bollen & Lennox, 1991; Keenan & Newton, 1985; Peters & O'Connor, 1980). Data in the present study revealed strong internal consistency, as shown by a relatively high Cronbach's alpha of .88. The Quantitative Workload Inventory is comprised of 5 items designed to capture the amount of workload participants experience at work, with response choices from 1 (*less than once per month or never*) to 5 (*several times per day*). In this measure, the participants were asked to rate how often each statement occurs at their job, with higher scores denoting a heavier workload. An example item would be, "How often is there a great deal to be done at work?"

Job Control To capture the level of work autonomy, otherwise known as job control, the Organizational Constraints Scale (OCS; Spector & Jex, 1998; Chen, Dai, Spector & Jex, 1997), was used. The OCS has a total of 11 items, with response choices ranging from 1 (*low frequency*) to 5 (*high frequency*), with higher scores representing a higher level of constraints (low autonomy/control). The OCS is comprised of items assessing typical organizational constraints such as training and work supplies. An example item is, "Please rate how often you find it difficult or impossible to do your job

because of the following: organizational rules and procedures." As explained in Spector & Jex (1998), these items are not considered parallel forms of organizational constraints, and instead are responses to the effects of the underlying construct. Although the items are combined to measure the construct of organizational constraints, because they are not parallel forms, reliability should not be measured by coefficient alpha, even though an alpha of .85 is still given in Spector & Jex (1998). The alpha for the present study was .87.

Social Support To measure social support within the workplace, items contained within the social support dimensions of the Copenhagen Psychosocial Questionnaire were used. Social support was assessed using 9 items from the following dimensions, with items averaged for reliability coefficients found in Pejtersen et al. (2010): social support from supervisor ($\alpha = .79$), social support from colleagues ($\alpha = .70$), and social community at work ($\alpha = .85$). Data in the present study revealed strong internal consistency, as shown by a relatively high Cronbach's alpha of .87. An example item would be, "How often do you get help from your colleagues, if necessary?" For this measure, higher scores represent higher levels of perceived social support in the workplace, with response choices from 1 (*never/hardly*) to 5 (*always*), with the extra response choice of "*I do not have colleagues/a supervisor*" (coded as 0).

Pro-Social Behavior As there is a shortage of questionnaires measuring cooperativeness that do not juxtapose it against competition or other constructs unrelated to the present study (see Cooperativeness section), a measure of pro-social behavior was used to conceptualize the cooperative behaviors of interest in the present study. The

Prosocialness Scale for Adults (Caprara, Steca, Zelli & Capanna, 2005) was used, wherein a Cronbach's alpha (α) for the entire set of .91 has been historically observed. Data in the present study revealed strong internal consistency, as shown by a relatively high Cronbach's alpha of .88. The scale has 16 items, with response choices ranging from 1 *(never/almost never true) to* 5 (*almost always/always true*), with higher scores representing a higher level of pro-social behavior. An example item would be, "I am available for volunteer activities to help those who are in need."

Well-Being To measure well-being, the WHO-5 Well-Being Index (Topp, Ostergaard, Sondergaard & Bech, 2014) was used. Example items include "In the past two weeks, I have felt calm and relaxed" and "In the past two weeks, my daily life has been filled with things that interest me." Response choices range from 1 (*never*) to 6 (*all of the time*), with higher scores representing higher well-being. The 5-item scale has been shown to be a valid measure of well-being (e.g. Topp, et al., 2015). Additionally, data in the present study revealed strong internal consistency, as shown by a relatively high Cronbach's alpha of .88.

Agreeableness The personality trait of agreeableness will be used as a potential control for pro-social behavior. Items measuring agreeableness were used from the Big Five Mini Markers measure (Saucier, 1994). The Big Five Mini Markers measure was made to be a shorter version of a Big Five measure by Goldberg (1992). Agreeableness was added to this study to be investigated as a potential control for the proposed model. Response choices range from 1 (*extremely inaccurate*) to 9 (*extremely accurate*), with higher scores representing a higher level of agreeableness (after reverse coding). The

eight items ask participants to rate themselves on how much they feel that they exhibit the following characteristics: warm, sympathetic, cooperative, kind, unsympathetic, rude cold, and harsh, with the last four being reverse scored. The scale has been shown to be a valid measure of agreeableness (Saucier, 1994). Data in the present study revealed strong internal consistency, as shown by a relatively high Cronbach's alpha of .86.

Procedure

To test the proposed model, a self-report survey comprised of four sections was administered online via Qualtrics. All items were optional to answer, with each measure on a separate page. Most studies assessing the job demands-control model of job strain have also employed this cross-sectional self-report survey design (Van der Doef & Maes, 1999; Berthelsen, Hakanen, Westerlund, 2018; Fila, et al., 2013). After consenting to the study, participants began with two disqualifying questions: "Are you currently employed in a job where you work more than 30 hours per week?" and "Are you 18 years or older?" Participants that answer "no" to either of these questions are disqualified from the survey. Next, they filled out the Pro-socialness Scale for Adults, the COPSOQ II, and the WHO well-being items. Next were the items measuring agreeableness, job demands, and job control. After this, demographic questions were administered regarding race, sex, and industry. The additional items, "Should we use your data?" and "Why should we not use your data?" were added at the end of the survey to ensure data integrity. One participant indicated on these items they had not paid attention during the survey and was therefore removed from the study. In total, the survey has 106 items. After correcting for outliers (n = 4) that took over 24 hours to complete the survey, the survey took participants an

average of 17 minutes and 54 seconds to complete (*SD* = 17 minutes and 2 seconds). The

researchers attempted to minimize the number of items to limit participant survey fatigue.

Results

Analysis was completed using SPSS and AMOS. Before data analysis began, a

total of 23 participants' data were listwise deleted due to nonresponse bias (*n* = 22) and

data integrity issues (respondent reported all 1's for well-being, all 2's for Pro-socialness,

etc.; *n* = 1). To begin the preliminary analysis, the assumptions of linearity, multivariate

normality, homogeneity of variances, homoscedasticity, independence, collinearity, and

sample size were tested, with no assumptions found to be violated. Next, reliability

coefficients (alphas) were run for each scale, revealing alphas above .80 for each scale. A

correlation matrix of the scales was also examined (see Table 1).

Table 1. Descriptive Statistics and Intercorrelations

	M	SD	1.	2.	3.	4.	5.	6.	7.
1. Pro-social Behavior	4.11	0.48	.88						
2. Stress	2.5	0.71	.09	.87					
3. Social Support	3.22	1.08	.06	-.12	.88				
4. Well-Being	2.43	0.96	.05	**-.51**	**.24**	.83			
5. Workload	2.43	1.02	**.18**	**.25**	**-.23**	**-.17**	.86		
6. Organizational Constraints	1.91	0.70	.06	**.40**	**-.33**	**-.28**	**.53**	.87	
7. Agreeableness	7.35	1.06	**.54**	-.05	.15	.11	.08	**-.21**	.88

Note: Coefficient alphas for each measure are reported on the diagonals. Bolded
correlations are significant at the .05 alpha level (2-tailed).

To test the proposed model, a path analysis with measurement error correction

was conducted using a latent variable structural equation model, as demonstrated by Cole
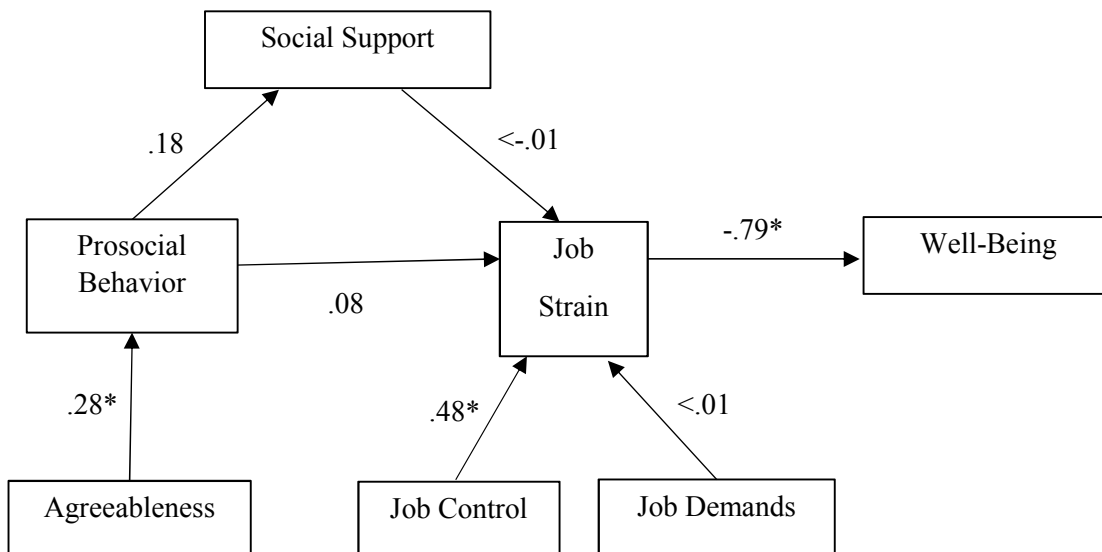
and Preacher (2014). The model includes the variables of pro-social behavior, social

support, job strain, and well-being, with agreeableness controlled for in pro-social

behavior and job control and demands controlled for in job strain (see Figure 2). The

CMIN was significant (χ = 42.45, *df* = 13, p = .00001), the goodness of fit (GFI) was

0.91, the normed fit index (NFI) was 0.78, the comparative fit index (CFI) was 0.83, the

root mean square error of approximation (RMSEA) was 0.13, the AIC was 72.45 and the

BIC was 115.46. Analysis revealed a decent fit (with the exception of the RMSEA) and

nonsignificant relationships for most the relationships in the proposed model, with the

exception of a significant relationship between well-being and stress that supports

Hypothesis 1 (β = -0.79, *SE* = .12, *p* < .01). The model did not support Hypotheses 2a, 2b,

and 2c. Table 2 displays the path effects for the proposed model.

Table 2. Effect Sizes of the Proposed Model

Path			*Estimate*	*SE*	*C.R.*	*p*
Agreeableness	→	Pro-Social Behavior	0.28	0.04	7.12	<.01*
Pro-Social Behavior	→	Social Support	0.18	0.23	0.81	0.42
Job Control	→	Job Strain	0.48	0.13	3.77	<.01*
Job Demands	→	Job Strain	<.01	0.09	-0.05	.96
Pro-Social Behavior	→	Job Strain	0.08	0.13	0.62	.54
Social Support	→	Job Strain	<-.01	0.06	-0.14	.89
Job Strain	→	Well-Being	-0.79	0.12	-6.64	<.01*

Note. Significant paths at the .05 level denoted by asterisks.

Figure 2. Proposed Model with Relationship Estimates.

Note: Path significant at the .001 alpha level; significant paths marked by asterisk.

Exploratory Findings

An exploratory model was built based on the significant intercorrelations between the variables (Table 1). While the exploratory model was built based on the significant observed relationships, the ordering and overall structure was built keeping theory and logic in mind. The exploratory model includes the variables of pro-social behavior, social support, job strain, and well-being, agreeableness, job control, and job demands (see Figure 3). For this exploratory model, the CMIN was nonsignificant ($\chi = 6.431$, df = 10, p = .778), the goodness of fit (GFI) was 0.99, the normed fit index (NFI) was 0.96, the comparative fit index (CFI) was 0.99, the root mean square error of approximation (RMSEA) was 0.001, the AIC was 42.43, and the BIC was 94.5. The decreased AIC and BIC shows increased model fit from the Proposed Model. Analysis revealed a nonsignificant relationship between job demands and job strain, job strain and social

support, and well-being and pro-social behavior. Analysis also revealed significant relationships between pro-social behavior and agreeableness ($\beta = 0.28$, $p < .05$), as well as pro-social behavior and job demands ($\beta = 0.08$, $p < .05$). Significant relationships were also found between well-being and social support ($\beta = 0.17$, $p < .05$) and job strain ($\beta = -0.76$, $p < .05$). Table 3 displays the path effects for the exploratory model. While this model was not based on hypothesized relationships, it does support the proposed relationship of well-being and job strain (Hypothesis 1). In addition, the exploratory model also supports several findings supported from the literature (see Discussion section for further information).

Table 3. Effect Sizes of the Exploratory Model

Path			Estimate	SE	C.R.	p
Agreeableness	→	Pro-Social Behavior	0.28	0.04	6.95	<.01*
Job Demands	→	Pro-Social Behavior	0.08	0.04	2.12	.03*
Job Demands	→	Job Strain	0.01	0.09	0.16	.87
Job Demands	→	Social Support	-0.04	0.14	-0.27	.79
Job Control	→	Job Strain	0.46	0.13	3.57	<.01*
Job Control	→	Social Support	-0.57	0.20	-2.83	.01*
Social Support	→	Well-Being	0.16	0.07	2.18	.03*
Job Strain	→	Well-Being	-0.76	0.12	-6.44	<.01*
Pro-Social Behavior	→	Well-Being	0.18	0.17	1.09	.28

Note. Significant paths at the .05 level denoted by asterisks.

Figure 3. Proposed Model with Estimates of Significant Paths.
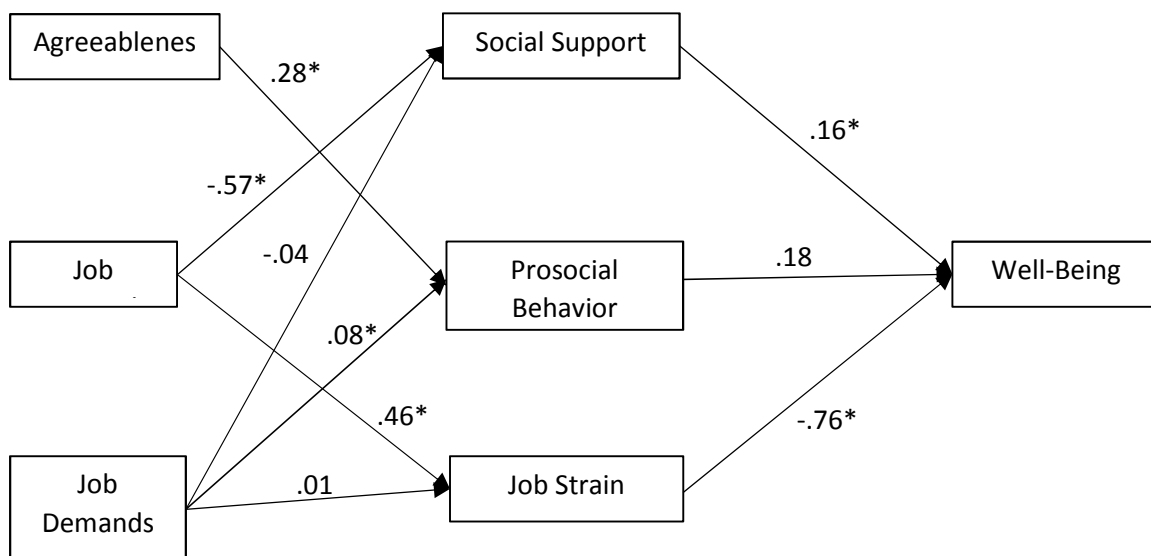
Note: Paths significant at the .05 alpha level; significant paths are marked with asterisks.

Discussion

The purpose of the present study was to investigate potential relationships among cooperativeness/pro-social behavior, social support, and job strain, in order to predict well-being. This study was conducted because employee strain and well-being are important to both the employees and their loved ones, but also to organizations. Prolonged job strain can lead to a variety of unhealthy habits and coping mechanisms creating health issues, which can affect an individual's ability to function, both mentally and physically (Richardson, et al.; Anshel, 2000; Holton, et al., 2016; Donald, et al., 2005). Certainly, employee well-being is inherently important to the employees themselves. It is also important to organizations as low levels of well-being can lead to expensive issues such as lower performance, employee satisfaction, and customer satisfaction as well as high turnover, absenteeism, counterproductive work behaviors

(Harter, et al., 2003; Spector, 1997; Keyes, Hysom & Lupo, 2000; Kahn & Byosiere, 1992).

Proposed Model

The test of the proposed model was not supported, with the only significant hypothesized relationship being between job strain and well-being. However, agreeableness did significantly predict pro-social behavior, suggesting that pro-social behavior may simply be the manifestation of higher levels of agreeableness.

Well-Being and Job Strain The relationship between well-being and job strain has had mixed support, with some finding a negative correlation (Padkapayeva, Gilbert-Ouimet, Bielecky, Ibrahim, & Mustard, 2018; Johnson, et al., 1989; Kono, et al., 2015; Schaufeli and Bakker, 2004), and others finding little to no support for it (Van der Doef & Maes, 1999). However, this could be attributed to poor study design and sampling issues (De Lange, et al., 2003). The present study found that job strain was a significant predictor of well-being, such that when job strain increased, well-being decreased, which supports hypothesis 1 in the proposed model. The prominent theories on why high job strain predicts lower well-being is that prolonged stress has a physiological effect on the body (such as raising blood pressure, and causing musculoskeletal and cardiovascular issues; Johnson, et al., 1989; Kono, Uji, & Matsushima, 2015), and it causes employees to engage in unhealthy behaviors (unhealthy eating, failure to exercise, smoking, drinking, and more; Kahn & Byosiere, 1992), and is related to mental health issues (depression, bipolar disorder, bulimia nervosa and others; Kono, et al., 2015). The primary theoretical implication of finding a significant relationship here is that it provides

further support for the theory that job strain does predict well-being. This also provides a strong impetus, giving a clear purpose to researching job strain to find other constructs that can impact this relationship and mitigate job strain for employees.

Pro-Social Behavior, Job Strain, and Social Support It was found that pro-social behavior (cooperativeness) did not predict job strain or social support. Thus, hypothesis H2a and H2b of the proposed model were not supported. This suggests that perhaps the more pro-social behaviors a person engages in, the more stressed they are because they are adding more tasks to their list of responsibilities (see positive correlation in Table 1 above). Additionally, if an individual is engaging in pro-social behaviors often, but is not receiving the same treatment from others, they may perceive this as less social support. Likewise, individuals that exhibit pro-social support often, or are agreeable, are not guaranteed to be surrounded by similar people workplace, and this may also leave them feeling less socially supported.

Social Support and Job Strain Social support was not found to be a predictor of job strain, which failed to support Hypothesis 2c of the proposed model. This was undoubtedly disappointing, as it was hoped that the results would shed light on comparing the iso-strain model versus the buffer hypothesis (Van der Doef and Maes, 1999). However, as previously mentioned, this finding has mixed support in the literature (De Lange, et al., 2003). Van der Doef and Maes (1999) propose that this is because there are two approaches to adding social support to the model: iso-strain hypothesis and the strain hypothesis (see Social Support section above for further discussion). Researchers have been unable thus far to identify which model works better, partially because the

studies have used inconsistent samples and weaker designs (cross-sectional; De Lange, et al., 2003). The theoretical implication of not finding the relationship in the present study adds support for one of two thoughts: either there truly is no relationship between social support and job strain, or researchers have yet to fully understand how the relationship works.

An alternative explanation can be found when viewing social support from a sociological perspective. As previously discussed, social relationships are based around norms, reputations and relations/connections among people (Simpson & Willer, 2015). When a breakdown of this system occurs (such as a pandemic forcing employees to work from home instead of together in person), then social dynamics may shift. It is possible that perceptions of social support were altered during the administration of the survey. This would mean limited theoretical implications for the model as it relates to job strain. However, it could also imply support for the theories around social order.

Exploratory Model

In addition to testing the proposed model, an exploratory model was tested based on the intercorrelations between the variables. The exploratory model included the variables of job strain, social support, well-being, jobs demands, job control, pro-social behavior, and agreeableness (see Figure 3). The test of the exploratory model showed better fit indices than the proposed model, with significant relationships between agreeableness and pro-social behavior; job demands and pro-social behavior; job control and job strain; job control and social support; social support and well-being; and job strain and well-being.

Agreeableness and Pro-Social Behavior The positive relationship between pro-social behavior and agreeableness is well supported by literature (Hinde & Groebel, 1991; Simpson & Willer, 2015). This suggests that those who are higher in the agreeableness trait may engage in pro-social behavior more often. This makes sense as agreeableness represents the exhibited characteristics of cooperativeness, sympathetic, considerate, and warmness (Thompson, 2008). So it follows that research has found that agreeableness predicts cooperation (Hilbig, Glöckner, & Zettler, 2014), which is similar to pro-social behavior and in line with the nature of this study. However, it was unclear what pro-social behavior would be with agreeableness controlled for in the model. Does this simply refer to less agreeable individuals who engage in helping behaviors for reasons unrelated to altruism, such as an interest in reciprocity? Further research could investigate this to better understand the relationship between agreeableness and pro-social behavior. However, it is clear that there is a casual relationship between agreeableness and pro-social behavior.

Job Demands and Pro-Social Behavior The analysis also showed a weak positive relationship between pro-social behavior and job demands. A metanalysis in 2013 reported that social support and job demands have a negative relationship (Luchman and González-Morales, 2013). And as pro-social behavior is inherently social, it was thought that these two constructs would behave similarly with job demands. But perhaps they are behaving similarly in a way. When employees see their coworkers dealing with a higher workload, they may be more likely to engage in helping behaviors (Luchman and González-Morales, 2013), demonstrating the positive relationship between job demands and pro-social behavior. This increase in pro-social behaviors could translate to an

increase in perceived social support (the two are positively correlated, see Table 1) and

theoretically, begin to decrease job demands. However, this idea is largely unconfirmed,

but would be an interesting direction for future study.

Job Control and Job Strain Analysis revealed a positive relationship between

job constraints and job strain, meaning that as more organizational constraints are placed

on the employee, their level of job strain would increase. This supports Spector and Jex

(1998). Job control is understood as the work autonomy and level of decision authority

over one's work environment and tasks (Luchman and González-Morales, 2013). It's

important to note that constraints is expected to be the negative interpretation of job

control, meaning that as an employee experiences more constraints, they are experiencing

a lower amount of control (or, autonomy/decision latitude, as it were). The finding that

increased organizational constraints increases job strain contributes to the large body of

literature that looks at the constructs contributing to job strain (Spector & Jex,1998;

Luchman & González-Morales, 2013).

Job Control and Social Support Additionally, a negative relationship between

job constraints and social support was found, indicating that as constraints increased,

social support decreased. This makes sense, as some constraints can be the social in

nature, as seen in the four items of the organizational constraints measure (Spector & Jex,

1998), that assess how constraining "other employees," "inadequate help from others,"

"your supervisor," and "interruptions from other people." This would mean that as

participants rated that social components of work were constraining them from their

work, the less socially supported they would feel by the coworkers/supervisors at work

constraining them. Keeping in mind that increased job constraints is related to decreased job control, this finding is consistent with literature, as Luchman and González-Morales (2013) found that increased job control was related to increased social support, for both supervisor support and coworker support.

Social Support and Well-Being The present study found a positive relationship between well-being and social support. This supports a majority of the literature, which has found that the presence of strong social support can increase well-being (Cole, et al., 1987; Street, et al., 2004; Holton, et al., 2016). It remains unclear if social support is a part of well-being, as many definitions of high well-being include a social component (Topp, et al., 2014; Naci & Ioannidis, 2015). Alternatively, as the relationship found in the present study was not very strong, perhaps social support could simply be a separate construct, acting as a predictor of well-being. Further research is necessary to clarify the nature of the relationship between well-being and social support.

Job Strain and Well-Being Likewise, the negative relationship between well-being and job strain supports Hypothesis 1 of the proposed model and is well supported by the literature (Kahn & Byosiere, 1992; Fila, et al., 2013; Luchman and González-Morales, 2013). As previously discussed, this relationship is likely because individuals who experience prolonged high levels of job strain are more likely to experience health issues. Huang and colleagues found that this effect is stronger for women (Huang, Xu, Hua, Zhu, Liu, Hu, Liu, and Xu, 2015). The Canadian Institute for Health found that women perceive lower levels of control at work and experience higher levels of mental

health risks, while men experience higher levels of physical risks, such as cardiovascular issues (Padkapayeva, Gilbert-Ouimet, Bielecky, Ibrahim, & Mustard, 2018).

Job Demands and Job Strain The present study did not find a significant relationship between job demands and job strain, even though Spector and Jex found the relationship between job demands and job strain to be moderately strong (1998; $r = .26$). However, this is not unheard of as other studies have found mixed results on this relationship (Luchman and González-Morales, 2013). Additionally, while the data of the present study showed a negative relationship between job demands and social support, often supported by literature (Luchman and González-Morales, 2013), in the present study the relationship was nonsignificant.

Job Demands and Social Support Additionally, the present study did not find a relationship between job demands and social support, even though this relationship is typically present in other literature, as demonstrated in the metanalysis by Luchman and González-Morales (2013). There are two theories for the negative relationship. The first revolves around social support providing a new source of resources for the employee experiencing high demands, while the other refers to the supportive supervisor who helps or delays deadlines for the overloaded employee. Unfortunately, as the present study did not find a significant relationship, it fails to provide more light in determining which theory is more correct, although some researcher suspect it is a combination of both (Luchman & González-Morales, 2013).

Well-Being and Pro-Social Behavior While well-being and pro-social behavior showed a significant correlation, the path analysis did not show a signification causal

relationship. However, it could be that it is not the actual act of helping that increases well-being, but rather the indirect benefits of helping (such as increased social support) that affected well-being. However, other literature has reported a positive relationship between the two constructs (Martela & Ryan, 2016), as well as between well-being and constructs similar to pro-social behavior, like occupational citizenship behaviors (Davila & Finkelstein, 2013). Perhaps the lack of significance in the present study could be due to the indirect effects of pro-social behavior, or due to study limitations.

Theoretical Implications

There are several theoretical implications for the findings of the proposed model. In general, the proposed model was not well supported, but it did support the relationship between well-being and job strain. The exploratory model was better fitted, supporting the relationships between pro-social behavior and agreeableness, pro-social behavior and job demands; job control and job strain, job control and social support; and well-being and social support and well-being and job strain. The two models both confirmed the relationship between well-being and job strain. This finding both supports previous research (Johnson, et al., 1989; Kahn & Byosiere, 1992; Schaufeli & Bakker, 2004; Fila, et al., 2013; Luchman & González-Morales, 2013; Kono, et al., 2015), and provides an impetus for further research on job strain, as it is demonstrated to affect the lives and well-being of employees. The present study also demonstrated the relationship between social support and well-being and posed the question of whether social support is a predictor or a part of well-being and recommends this for future research. The present study also demonstrated that future research on job strain should reference the

relationships reflected in the exploratory model, rather than those of the proposed model, as many of them were found to be significant.

Practical Implications

Among the strongest relationships found in the exploratory model were between job constraints and social support, between job constraints to job strain, and between job strain and well-being. Armed with this data, organizations should seek to design jobs in a way that limits organizational constraints and maximizes employee control, allowing employees to tailor aspects of their work environment or tasks as possible, to be able to perform best on their jobs, as the JDCS model suggests (Karasek, 1979). Additionally, as demonstrated in the Exploratory Model, social support in the workplace is important for employee well-being. Advocating for employee wellness begins with the support of leadership to recognize the impact of employee well-being on the organization, and to sponsor programs that foster healthy workplace relationships (Medland, Howard-Ruben, &Whitaker, 2004). Organizations cannot simply hope employees will automatically support one another in order to fix job strain, because social support and strain are not necessarily related to one another.

Addressing job strain begins with leadership's recognition of the importance of lowering employee job strain and supporting changes that address sources of employee strain. As discussed in Luchman & González-Morales (2013), employee well-being is most likely to be at its best in an environment that allows for high job control, low job demands, and high social support. As argued by Taylor (2008), the solution is two-fold: the organization should reinforce factors that lead to higher social support and higher

levels of employee job control, and seek to decrease the factors that increase strain, or for unavoidable strain, train employees how to cope with the strain in healthy ways.

Limitations

This study shares limitations common to cross-sectional designs, such as providing a limited view of the relationships among the constructs revealing only the direction of a relationship (De Lange, et al., 2003). This type of design fails to assess the order the variables are occurring in, which is one of the three necessary steps for a strong design to show a true causal relationship (Shaddish, Cook & Campbell, 2002). It also fails to account for potential reverse and/or reciprocal relationships (De Lange, et al., 2003). Longitudinal designs are recommended to better understand the causal relationships found in the present study (De Lange, et al., 2003; Shaddish, Cook & Campbell, 2002). In addition, as this study relies on self-reporting, the data is subject to self-report biases (Shaddish, Cook & Campbell, 2002). Another structural limitation to this study is the use of a sample size less than the recommended 200 participants (Hoe, 2008). This could lead to a sample that is less representative of the population, as well as decreasing statistical power, create bias in the estimates of the parameters and affect the overall solution propriety (Wolf, Harrington, Clark & Miller, 2013).

Another limitation of this study is the homogeneity of the subject pool. Because the survey was shared via social media and word of mouth, the subject pool tended to be mostly Caucasian, with 71% having a bachelor's degree or higher. Thus, the sample was one of convenience not representativeness. Future research should seek a more diverse and generalizable sample. Additionally, for the items measuring agreeableness and pro-

social behavior, respondents may have attempted to report more socially desirable responses, rather than completely honest ratings (Krumpal, 2013).

COVID-19 It is important to note that data was gathered from March-May 2020, during the peak of the lockdown in the United States due to global coronavirus pandemic. It seems that the participants were very aware of this when filling out the survey. When asked "What do you think is the purpose of this survey?" twenty-one participants mentioned they suspect the study is on the effects of COVID-19. Additionally, healthcare professionals may have been more likely to respond to a survey on strain, as they represented one of the three highest response rates from any industry. Another potential impact of COVID-19 on this study is that participants may have been experiencing increased job strain from the process of adjusting to working from home, where most people may find themselves more distracted, frustrated with technology, etc. Another important consideration is that because this study was conducted at the height of social isolation due to the coronavirus, the sample participants may not have been feeling as socially supported as they may feel on a normal basis. This could impact the levels of perceived social support and the frequency pro-social behaviors, thus potentially impacting the relationships of social support with the other variables.

However, with most of the population at home, gathering participants may have been a little easier than under normal circumstances. Additionally, as more of the population may have been feeling more stressed due to the threat and fallout from COVID-19, they may have been more inclined to take a survey about strain to share about it, and more interested in the results.

Future Directions

As mentioned by (Fila, et al., 2013; Kain & Jex, 2010), future research is needed to further investigate potential predictors of job strain, in order to better inform organizations on how to prevent strain and protect the well-being of their employees. Research that seeks to understand pro-social behavior, agreeableness, and cooperativeness as they relate to job strain should seek to have a larger, more diverse sample than the present study to more accurately represent the workforce. Additionally, further research may be necessary to determine if social support is a part of well-being or simply a predictor. Finally, research would also be interesting to investigate if and/or how the coronavirus global pandemic affects employee job strain and well-being. It is recommended that the study be replicated under normal conditions.

Conclusions

In all, the potential relationships between pro-social behavior/cooperativeness, job strain, and social support may be very complicated. However, from the present study, it is clear that workplace social support and job strain affect employee well-being. It is important for organizations to align their policies and practices to normalize and bolster social support, as well as to identify causes of strain in order to reduce them. Training with the focus of encouraging supportive behaviors and teaching employees how to use healthy coping mechanisms for job strain is vital to supporting employees and strengthening the organization.

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Appendices

Appendix A: Prosocialness Scale for Adults

Instructions: The following statements describe a large number of common situations. There are no 'right' or 'wrong' answers; the best answer is the immediate, spontaneous one. Read carefully each phrase and mark the answer that reflects your first reaction.

1. I am pleased to help my friends/colleagues in their activities.

2. I share the things that I have with my friends.

3. I try to help others.

4. I am available for volunteer activities to help those who are in need.

5. I am empathetic with those who are in need.

6. I help immediately those who are in need.

7. I do what I can to help others avoid getting into trouble.

8. I intensely feel what others feel.

9. I am willing to make my knowledge and abilities available to others.

10. I try to console those who are sad.

11. I easily lend money or other things.

12. I easily put myself in the shoes of those who are in discomfort.

13. I try to be close to and take care of those who are in need.

14. I easily share with friends any good opportunity that comes to me.

15. I spend time with those friends who feel lonely.

16. I immediately sense my friends' discomfort even when it is not directly communicated to me.

Source: Caprara, G. V., Steca, P., Zelli, A., & Capanna, C. (2005). A new scale for measuring adults' pro-socialness. *European Journal of psychological assessment*, *21*(2), 77-89.

Appendix B: Copenhagen Psychosocial Questionnaire (COPSOQ)

COPSOQ – Items on Stress

Instructions: The following questions are about how you have been during the last 4 weeks. Rate the following on a scale of All the time (5), Often (4), Part of the time (3), A small part of the time (2), Not at all (1).

1. How often have you had problems relaxing?

2. How often have you been irritable?

3. How often have you been tense?

4. How often have you had a stomach ache?

5. How often have you had a headache?

6. How often have you had palpitations?

7. How often have you had tension in various muscles?

8. How often have you had problems concentrating?

9. How often have you found it difficult to think clearly?

10. How often have you had difficulty in making decisions?

Source: Pejtersen, J. H., Kristensen, T. S., Borg, V., & Bjorner, J. B. (2010). The second version of the Copenhagen Psychosocial Questionnaire. *Scandinavian journal of public health*, *38*(3_suppl), 8-24.

COPSOQ Items on Social Support

Instructions: The following questions are about how you have been during the last 4 weeks. Rate the following on a scale of Always (5), Often (4), Sometimes (3), Seldom (2), Never/Hardly (1), I do not have colleagues (0).

1. How often is your immediate supervisor willing to listen to your problems at work, if needed?

2. How often do you get help and support from your immediate superior, if needed?

3. How often does your immediate superior talk with you about how well you carry out your work?

4. How often do you get help and support from your colleagues, if needed?

5. How often are your colleagues willing to listen to your problems at work, if needed?

6. How often do your colleagues talk with you about how well you carry out your work?

Source: Pejtersen, J. H., Kristensen, T. S., Borg, V., & Bjorner, J. B. (2010). The second version of the Copenhagen Psychosocial Questionnaire. *Scandinavian journal of public health*, *38*(3_suppl), 8-24.

COPSOQ - Core Items (Required to Add to survey to use COPSOQ)

1. How often do you not have time to complete all your work tasks?

2. Do you get behind with your work?

3. Do you work very fast?

4. Do you work at a high pace throughout the day?

5. Do you have to deal with other people's personal problems as a part of your work?

6. Is your work emotionally demanding?

7. Do you have a large degree of influence on the decisions concerning your work?

8. Do you have the possibility of learning new things through your work?

9. Can you use your skills or expertise in your work?

10. Is your work meaningful?

11. At your place of work, are you informed well in advance concerning things such as important decisions, changes, or plans for the future?

12. Do you receive all the information you need in order to do your work well?

13. Is your work recognized and appreciated by the management?

14. Does your work have clear objectives?

15. Are contradictory demands placed on you at work?

16. Do you sometimes have to do things which ought to have been done in a different way?

17. To what extent would you say that your immediate supervisor is good at work planning?

18. To what extent would you say that your immediate supervisor is good at solving conflicts?

19. Is there a good atmosphere between you and your colleagues?

20. Are you worried about becoming unemployed?

21. Are you worried about it being difficult for you to find new job if you became unemployed?

22. Are you worried about being transferred to another job against your will?

23. Regarding your work in general, how pleased are you with your job as a whole, everything taken into consideration?

24. Do you feel that your work drains so much of your energy that it has a negative effect on your private life?

25. Do you feel that your work takes so much of your time that it has a negative effect on your life outside work?

26. Does the management trust the employees to do their work well?

27. Can the employee trust the information that comes from the management?

28. Can the employee trust the information that comes from the management?

29. Can the employee trust the information that comes from the management?

30. In general, would you say that your health is: Excellent, Very good, Good, Fair, Poor.

Source: Pejtersen, J. H., Kristensen, T. S., Borg, V., & Bjorner, J. B. (2010). The second version of the Copenhagen Psychosocial Questionnaire. *Scandinavian journal of public health*, *38*(3_suppl), 8-24.

Appendix C: WHO-5 Well-Being Index

Instructions: Please indicate for each of the 5 statements which is closet to how you have been feeling over the past 2 weeks. Rate the following on a scale from: At no time, Some of the time, Less than half of the time, More than half of the time, Most of the time, All of the time.

1. Over the past 2 weeks, I have felt cheerful and in good spirits

2. Over the past 2 weeks, I have felt calm and relaxed

3. Over the past 2 weeks, I have felt active and vigorous

4. Over the past 2 weeks, I woke up feeling fresh and rested

5. Over the past 2 weeks, my daily life has been filled with things that interest me

Source: Topp, C. W., Ostergaard, S. D., Sondergaard, S., & Bech, P. (2014) The WHO-5 well-being index: A systematic review of the literature. *Psychotherapy and Psychosomatics*, 84, 167-176.

Appendix D: Quantitative Workload Inventory

Instructions: Please rate the following on a scale from: Less than once per month or never, once or twice per month, once or twice per week, several times per day.

1. How often does your job require you to work very fast?

2. How often does your job require you to work very hard?

3. How often does your job leave you with little time to get things done?

4. How often is there a great deal to be done?

5. How often do you have to do more work than you can do well?

Source**:** Spector, P. E., & Jex, S. M. (1998). Development of four self-report measures of job stressors and strain: interpersonal conflict at work scale, organizational constraints scale, quantitative workload inventory, and physical symptoms inventory. *Journal of occupational health psychology*, *3*(4), 356.

Appendix E: Organizational Constraints Inventory

Instructions: How often do you find it difficult or impossible to do your job because of the following on a scale from: Less than once per month or never, once or twice per month, once or twice per week, several times per day.

1. Poor equipment or supplies.

2. Organizational rules and procedures.

3. Other employees.

4. Your supervisor.

5. Lack of equipment or supplies.

6. Inadequate training.

7. Interruptions by other people.

8. Lack of necessary information about what to do or how to do it.

9. Conflicting job demands.

10. Inadequate help from others.

11. Incorrect instructions.

Source: Spector, P. E., & Jex, S. M. (1998). Development of four self-report measures of job stressors and strain: interpersonal conflict at work scale, organizational constraints scale, quantitative workload inventory, and physical symptoms inventory. *Journal of occupational health psychology*, *3*(4), 356.

Appendix F: 8 - Item Agreeableness Scale

Instructions: Please use this list of common human traits to describe yourself as accurately as possible. Describe how you see yourself at the present time, not as you wish to be in the future. Describe yourself as you are generally or typically, as compared to other persons you know of the same sex and roughly your same age. Rate the following on a scale from: Extremely Inaccurate, Very Inaccurate, Moderately Inaccurate, Slightly inaccurate, neither accurate nor inaccurate, slightly accurate, moderately accurate, very accurate.

1. Sympathetic

2. Warm

3. Kind

4. Cooperative

5. Cold*

6. Unsympathetic*

7. Rude*

8. Harsh*

*Items marked with an asterisk are reverse coded for analysis.

Source: Saucier, G. (1994). Mini-Markers: A brief version of Goldberg's unipolar Big-Five markers. *Journal of personality assessment*, 63(3), 506-516.

Appendix F: Quality Assurance Items

Did you take this study seriously, or did you click through the responses?

○ Just clicked through

○ Took the study seriously

Is there any reason why we should **NOT** use your data?

○ My data should **NOT** be included in your analyses

○ My data should be included in your analyses

Why should we **NOT** include your data in our analyses?

○ I wasn't really paying attention

○ I just clicked randomly

○ I didn't understand the task/questions

○ I didn't really know what I was doing

○ I just skimmed through the questions

○ Other

Appendix G: Informed Consent Form

Informed Consent Form
Protocol ID: 20-1140
Approval Date: 4/2/2020
Expiration Date: 8/31/2021
The following information is provided to inform you about the research project and your participation in it.
Please read this form carefully and feel free to email any questions you may have about this study and
the information given below to Meredith Russell at mr7r@mtmail.mtsu.edu. Your participation in this
research study is voluntary. You are also free to withdraw from this study at any time.

Purpose of the study:
The purpose of this study is to further understand how job strain, prosocial behavior, agreeableness, and
social support impact well-being.

Description of procedures to be followed and approximate duration of the study:
You will be asked to complete measures assessing job strain, prosocial behavior, social support,
agreeableness, and well-being. In addition, you will be asked to answer some demographic questions.
The study should take approximately 25 minutes to complete.

Expected costs:
There are no costs for participating in this study.

Description of the discomforts, inconveniences, and/or risks that can be reasonably expected as a
result of participation in this study:
There are no known risks associated with participating in this study. Questions will be asked regarding
current stress levels at work. If the survey is in any way is distressing, please refrain from finishing the
survey and contact a stress hotline (below) if you feel appropriate. The helplines will include the
following: Crisis Hotline: 740.369.3316 or 419.947.2520 or 1-800-684-2324. HelpLine specialists are
trained in the 'art of listening' and have over 4,000 community resources at their fingertips to help you
through your situation.

Anticipated benefits from this study:
The potential benefits include improvements in understanding job strain, prosocial behavior,
agreeableness, social support and well-being.

Compensation for participation:
There is no compensation for your participation. Participation in this study is on a volunteer basis.

Circumstances under which the Principal Investigator may withdraw you from study participation:
This study is restricted to native speakers of American English. If your native language (i.e. the language
you learned from birth) is not American English, we kindly ask that you do not participate in this study. In
order to participate in this study, you must be at least 18 years old and currently employed working 30 or
more hours per week.

What happens if you choose to withdraw from study participation:
You may refuse to participate or quit at any time without penalty.

Contact Information:
If you should have any questions about this research study or possible injury, please feel free to
contact Meredith Russell via email at mr7r@mtmail.mtsu.edu. For additional information about giving
consent or your rights as a participant in this study, please feel free to contact the MTSU Office of
Compliance at (615) 494-8918.

Confidentiality:
Your information will be kept confidential. Although your rights and privacy will be maintained, the
Secretary of the Department of Health and Human Services, the MTSU IRB, and personnel particular to
this research have access to the study records. Your responses, informed consent document, and records
will be kept completely confidential according to current legal requirements. They will not be revealed
unless required by law, or as noted above.

Please do not use the "Back" button on your internet browser while completing this survey.

By continuing with this survey, you are also acknowledging that you have read and understand this
consent form, and willingly agree to participate in this study under the terms described.

○ I have read and understand this consent form and willingly agree to participate in this study under the
terms described.

○ I do NOT consent to participate in this study.

***Shown before survey. Participant must select "I have read and understand this
consent form and willingly agree to participate in this study under the terms
described." to take survey.**

Appendix H: Debriefing Message

Thank you for your participation. If you have any questions concerning the research study, please contact Meredith Russell at mr7r@mtmail.mtsu.edu. Alternatively, you may contact Dr. Alexander T. Jackson, Assistant Professor, Psychology Department at alexander.jackson@mtsu.edu. If you have any questions about your rights as a participant, you may contact the MTSU IRB Compliance Officer at (615) 898-2400.

Please do not share any of this information with anybody as it may limit our ability to continue this study. Thank you.

Please click continue one more time to submit your responses for this study.

*Shown at end of survey.