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Working Against Loneliness:
Examining the Impact of Workplace Relationships on Loneliness in Young Adults

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ABSTRACT

While large bodies of literature exist on factors which combat loneliness, the impact of relationships stemming from the workplace has yet to be thoroughly examined, especially in the context of young adults. The present research endeavor draws on basic psychological needs theory and workplace literature to build and test a theoretical model of workplace peer relationships and loneliness to offer evidence that such relationships can help reduce feelings of loneliness in the lives of young adults outside of work. Specifically, the three types of work peers identified by Kram and Isabella (1985) were tested. With a sample of recent university graduates, results indicated that the presence of collegial and special peers significantly improved relatedness needs satisfaction at work, which in turn was related to lower levels of loneliness in life. Interestingly, the presence of information peers adversely impacted employees' level of relatedness needs satisfaction at work. Relatedness needs satisfaction outside of work was found to moderate the relatedness needs satisfaction at work - loneliness relationship, such that as needs satisfaction outside of work decreased, needs satisfaction at work had stronger relationships with feelings of loneliness. Implications of the results are discussed with respect to the value of fostering peer relationships in the workplace for organizations and the importance of differentiating types of relationships that may exist in the workplace for understanding their unique impact on employee wellbeing indicators such as loneliness.

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Chapter 1

Introduction

The year is 2021 and COVID-19 is not the only public health crisis the United States currently faces. During his tenure as the U.S. surgeon general under Barack Obama, Vivek H. Murthy stressed the importance of tackling what he called the "loneliness epidemic" (Murthy, 2020). Loneliness has been found to reduce life span in years similar to that caused by smoking 15 cigarettes a day, an effect even greater than the impact of obesity (Pomeroy, 2019). As the effects of socially-restricted life under coronavirus extend indefinitely, research on effective antidotes to loneliness becomes of the utmost importance.

Data across geographical regions and cultures suggest that the populations most vulnerable to loneliness are young adults. Findings from a 2019 study found that Millennials (born 1981 - 1996) report feeling lonely much more often than their Generation X (born 1965 – 1980) and Baby Boomer (1946 – 1980) counterparts (Ballard, 2019). While 30 percent of Millennials say they "always or often feel lonely," just 20 percent of Generation X respondents said the same. Even fewer Baby Boomers reported feelings of loneliness, at 15 percent. A 2018 analysis by Britain's Office for National Statistics echoed those results by finding that 10 percent of Britons aged 16 to 24 reported feeling lonely "often or always," the highest of any age group; additionally, they also had the highest share in any group that also felt lonely "some of the time" - 23 percent (Pyle & Evans, 2018). The youngest generations of adults, Millennials and Generation Z (born after 1997), have been dubbed as the loneliest generations (Hillard, 2019).

Murthy points to the workplace as one of the primary places where loneliness can be combated or exacerbated. Our social connections are largely influenced by the institutions and settings where we spend

the majority of our time (Murthy, 2020). Adults spend a significant amount of their waking hours working – often eight hours a day, but in many cases even more. Thus, the relationships we have with those at work represent a sizable portion of our total interactions. The quality of those interactions may exert significant influence on one's experiences with feelings of loneliness (Ozcelik & Barsade, 2018).

When Americans are asked about which places they have made friends, 76 percent of respondents indicated that they have met at least one friend through work (Ballard, 2019). This was the second highest out of any source, only placing below high school (87%). Interestingly, the workplace as a source of friendships ranked higher than college (70%) or local neighborhoods (61%). During the increasing amount of time we spend working, relationships with various coworkers are often developed. Most of these relationships tend to be work-focused, but sometimes deeper connections are formed between peers that resemble close friendships (Colbert, Bono, & Purvanova, 2016).

Being a key turning point in life, relationships formed at work may be especially important for young adults transitioning from school to the workplace (Fraley & Davis, 1997). Beginning a full-time role often requires a change in location and routine. This disruptive process often results in young adults finding themselves in need of new social networks due to distancing from past relationships caused by work-related relocations (Qualter et al., 2015). Colleagues may represent the most available source of social interaction for young adults who recently transitioned from school to work. Thus, relationship opportunities stemming from the workplace have the potential to influence their experiences with loneliness.

Previous research has demonstrated that the presence of high-quality relationships can have a significant impact at reducing loneliness (Ernst & Cacioppo, 1999). Scholars like Adamcyzk (2015) have demonstrated the differential impact that sources of relationships can have on loneliness. Specifically, relationships with friends, family members, and romantic partners are not equal in their impact on reducing feelings of loneliness. Recently, organizational scholars have also taken an interest in loneliness

and its effects on the workplace, specifically examining its effects on outcomes such as performance and engagement (Ozcelik & Barsade, 2018). However, the inverse has received much less attention. The impact of workplace relationships on experiences of loneliness outside the workplace is an area of scholarship that has yet to be explored.

Towards this end, the present study will examine the connection between workplace relationships and loneliness in the context of young adults. Building on Kram and Isabella's (1985) framework of workplace peer relationships and Ryan and Deci's (2000) basic psychological needs theory, this research endeavor contributes to previous literature by conceptualizing and testing a new theoretical model of workplace relationships and loneliness using quantitative methods. Results of a survey conducted with university graduates will be analyzed and their implications discussed. Furthermore, limitations of this study and suggestions for future research will be provided.

Chapter 2

Review of Literature

Defining Loneliness

Loneliness is typically defined as a distressing feeling that accompanies the perception that one's social needs are not being met by the quantity and/or the quality of one's social relationships (Hawkley & Cacioppo, 2010; Peplau & Perlman, 1982). Foundations in loneliness definition were developed by Peplau and Perlman (1982), who pioneered research in the field. Other scholars studying loneliness in academic literature have since reached consensus around this definition and built upon it. Rook (1984) defined loneliness as an unpleasant emotional condition where a person feels estranged from or rejected by others and feels deprived of secure and close relationships in their social environment. Young (1982) defined loneliness as "perceived absence of satisfying social relationships, accompanied by symptoms of psychological distress that are related to the perceived absence" (p. 380). Generally, across most definitions, loneliness consistently contains an emotional dimension and is always negatively imbued (Clore & Ortony, 2013). However, the traditional conception of loneliness as a form of depression, shyness or poor social skills is inaccurate (Cacioppo & Patrick, 2008).

Loneliness is typically conceptualized and measured as a unidimensional construct (Hawkley, Browne, & Cacioppo, 2005). Previously, scholars distinguished between emotional and social dimensions of loneliness. Early studies have provided some evidence for the possibility of partitioning loneliness into separate dimensions through factor analysis (Hawkley et al., 2005). However, these factors have been found to be highly correlated, and there is significant overlap in their antecedents and outcomes.

Traditionally, loneliness was thought to be a gnawing sensation or chronic distress without redeeming features (Weiss, 1973). More recently, loneliness research has made the distinction between transient and chronic forms of loneliness (Cacioppo & Hawkley, 2005). In its transient, fleeting fashion,

loneliness is a mild and temporary experience much like hunger, thirst, or pain (Cacioppo & Hawkley, 2005). In this state, loneliness is conceptualized as a biological construct, a state that acts as a signal to incite behavior, serving to motivate an individual to fulfill its biological needs (Cacioppo et al., 2006). In the case of loneliness, those needs are social, and the experience of loneliness can contribute to the maintenance or repair of meaningful social connections (Cacioppo & Hawkley, 2005). However, when desired meaningful social connections are perceived as cut off or non-existent, loneliness can evolve into a chronic state.

In this lasting state, chronic loneliness can have the opposite effect (Cacioppo & Hawkley, 2005). Chronic loneliness impedes the satisfaction of belongingness needs "through faulty or dysfunctional cognitions, emotions, and behaviors" (Heinrich & Gullone, 2006, p. 698). Once individuals believe that they are being excluded from social relationships and feel alone, they may experience an array of negative emotions such as depression and anger as responses. Subsequently, they may avoid social interaction and commitments, withdraw in social situations, and participate in activities which prevent them from engaging in social settings such as working long hours. This creates a destructive circle whereby loneliness is perpetuated, and its effects are amplified (Wright & Silard, 2020).

Social Isolation vs. Loneliness

Although related, loneliness is a distinct construct from social isolation, thus it is important to highlight their similarities and differences. A majority of scholarly definitions separate loneliness and social isolation through their subjective versus objective natures respectively. Social isolation represents an objective measure of social interactions and relationships, whereas loneliness represents a subjective perception of social isolation or outcast. Accordingly, loneliness is more closely associated with the quality rather than the quantity of one's relationships (Peplau & Perlman, 1982; Wheeler, Reis, & Nezlek, 1983). However, the two concepts are connected. Social isolation may lead to loneliness if the isolation is

undesired and/or prolonged (Ernst & Cacioppo, 1999). It must be also noted that social isolation does not always lead to loneliness. Socially isolated people are less likely to be lonely if they actually prefer to be alone, and others who have frequent social connections could still feel lonely if they find no satisfaction with their interactions (Zhong, Chen, & Conwell, 2016).

Loneliness in the Work Domain

The workplace is one domain where loneliness research is still in its infancy because studies have been few and far between. Early studies on loneliness at work examined the relationship between role type and hierarchy in the organization and experienced loneliness at a general level (Bell, Roloff, Van Camp, & Karol, 1990; Reinking, & Bell, 1991). A new wave of research in the last two decades conceptualized workplace loneliness as a construct separate from general loneliness (Wright, 2005; Ozcelik & Barsade, 2011). It is argued that workplace loneliness is the result of employees' subjective affective evaluations of, and feelings about, whether their affiliation needs are being met by the people they work with and the organization they work for. Thus, workplace loneliness has been defined as the psychological pain of perceived relational deficiencies in the workplace (Wright & Silard, 2020). Studies have examined the link between workplace loneliness and organizational outcomes such as performance and turnover as well as developed a theoretical model of how loneliness manifests in an organization (Lam & Lau, 2012; Ozcelik & Barsade, 2018; Wright & Silard, 2020).

The first studies of loneliness in the workplace examined the effect of work type and one's position in an organization. Gumpert and Boyd (1984) explored the assumption that small business owners are frequently lonely through qualitative interviews. The respondents who experienced the most loneliness were those who had recently transitioned from a corporate environment to a small business environment. On the whole, they experienced loneliness due to a general lack of colleagues with whom to share experiences, explore ideas and commiserate. A study by Bell and colleagues (1990) examined the

interaction between organizational status and loneliness. They found a small and negative correlation between organizational level and loneliness, indicating that loneliness is associated with those at the bottom of the hierarchy (Bell et al., 1990). This relationship remained even after communication competency, commitment, hours worked per week, job satisfaction, age, education, and family income were controlled for (Bell et al., 1990; Reinking, & Bell, 1991).

Another group of studies examined loneliness in school principals, a position at the top of their organization (Dussault & Barnett, 1996; Wright, 2012). Researchers working in the area of principal wellbeing argue that the conditions of the school working environment reduce the possibility for interaction with colleagues and peer principals and diminish the development of their informal networks (Dussault & Barnett, 1996). Allison (1997) found that in a sample of elementary school principals, approximately half of the respondents reported feeling alone in their position and feeling dissatisfied with their jobs as a result of the 'loneliness of command'. Similarly, with a sample of elementary school principals in New Zealand, Cubitt and Burt (2002) found loneliness to be a significant predictor of educator burnout, namely emotional exhaustion, depersonalization, and reduced personal accomplishment.

A majority of recent workplace loneliness research has focused on organizational outcomes. Wright (2005) was the first among modern scholars to explore the topic. In their doctoral dissertation, workplace loneliness was found to be negatively related to personality traits of extraversion and emotional stability, as well as perceived support from coworkers and supervisors. Significant relationships were also found with a variety of negative work attitudes such as greater intention to turnover, lower levels of perceived organizational fit, and lower job satisfaction and organizational commitment (Wright, 2005). A study using a Turkish sample reaffirmed Wright's initial findings, linking workplace loneliness with higher levels of turnover intention, however the relationship was found to be weak due to the sample having a low level of loneliness (Kaymaz, Eroglu, Sayilar, 2014).

A number of subsequent studies examined the influence of workplace loneliness on employee performance. Ozcelik and Barsade (2011) found both self-reported and coworker-rated measures of workplace loneliness to be related to increased surface acting, decreased affective commitment, task performance, team role performance, and relational performance. A follow-up study in 2018 found that workplace loneliness was also significantly negatively related to supervisor performance (Ozcelik & Barsade, 2018). In sum, their results indicated that an employee's work loneliness triggers emotional withdrawal from their organization and has a negative impact on performance. Lam and Lau (2012) employed the social exchange theory to examine the reasons behind why lonely employees tend to perform poorly at work. Their results indicated that leader-member relationship quality mediated the relationship between workplace loneliness and organizational citizenship behaviors; additionally, organization-member relationship quality was found to mediate the relationship between workplace loneliness and in-role performance (Lam & Lau, 2012).

Several studies examined the role that organizational structure and climate can have on inducing workplace loneliness. In three separate studies, Wright (2012) found managers were no more or less lonely than their nonmanager counterparts, suggesting that factors beyond seniority may be contributing to loneliness in organizational settings. The gender of managers also had no impact on their level of loneliness. In a qualitative study using semi-structured interviews, Zumaeta (2019) found that top-level executives are more prone to be lonely than middle managers due to the pressures and inherent conflicts associated with the role. It was also found that organizations with a high power distance culture could further increase the risk of loneliness at the top (Zumaeta, 2019).

Despite a growing interest in loneliness from scholars in fields of industrial/organizational psychology and organizational behavior, research thus far has been limited to examining ways the workplace may contribute to loneliness as isolated experiences at work. Studies have yet to examine the potential effects that functions of the workplace can have on loneliness outside of the work domain.

Pointedly, the impact of relationships formed at work on individuals outside of the workplace is an area of research that is underdeveloped. A review of workplace relationship literature will follow to outline the major bodies of research and some gaps which still remain.

Workplace Relationships

Workplace relationships were first brought to scholars' attention by Elton Mayo, who contended that the extent to which employees received social satisfaction in the workplace was the most powerful influence on productivity (Mayo, 1945). In addition, Mayo (1945) argued that the key determinant of job satisfaction was group interaction; the importance of satisfying personal relations in the workplace was also highlighted. A large body of organizational psychology research has also been inspired by Maslow's (1954) hierarchy of human needs. Opportunities to satisfy needs in the work context are still studied today, examples include: organizational commitment, job satisfaction, and tendency to leave (Morrison, 2005). Additionally, McClelland's (1961) Achievement-Motivation theory bolstered the conversation surrounding peer relationships. Central to their theory are the needs for achievement, power, and affiliation, with affiliation being closely related to social connection in the workplace (Morrison, 2005).

The structure of organizations can also influence the development of relationships at work with factors such as the grouping of departments and the proximity of colleagues (Riordan & Griffeth, 1995). Fine (1986) pioneered the argument that the work environment and the culture of an organization shapes and directs peer relationships. Specifically, positive cultural norms within the workplace can connect employees to the organization as a whole, producing a sense of belonging, and thus make personal ties within the company more likely (Wright, 2005). Alternatively, cultures that emphasize fear and self-interest may hinder workplace friendships or collegiality (Fine, 1986). As such, organizations which emphasize certain types of attitudes or behaviors, such as mutual respect for peers, may conceivably

influence the quality of interpersonal relationships at work, and consequently, personal and organizational well-being.

Contemporary workplace research distinguishes between different types of relationships that may exist in the workplace, with the most salient divide being between formal and informal relationships. Formal relationships within an organization are typically relationships pre-prescribed by the organization (Morrison, 2005). For example, the relationships between manager and subordinate, or mentor and mentee would be considered formal relationships. Informal relationships within an organization are voluntary in nature and can vary in purpose and level of connection (Morrison, 2005). Defined as relationships between individuals at the same hierarchical level who have no authority over each other (Sias, 2005), peer relationships would be considered a type of informal relationship. The following review will focus on the impact that peer relationships have on their organizations. It must be noted that there are inconsistencies in terminology used in workplace literature to describe this type of relationship. Some scholars have used the term coworker relationships (Chiaburu & Harrison, 2008), while others have described them as peer relationships (Morrison, 2005). Due to their similarity in definition and for purposes of continuity, the term peer relationships will be used to encompass other related terms in this literature review.

Peer relationships are argued to be important in the workplace because they serve three key functions within the organization (Myers & Johnson, 2004). First, they are essential to the organizational socialization process (Ostroff & Kozlowski, 1993). Peer relationships help new members to adapt to the organization more quickly and efficiently (Comer, 1991) and enable workers to move through the occupational role socialization process at a faster rate (Reichers, 1987). Second, peer relationships are often the preferred way through which organizational members engage in information seeking (Morrison, 1993), with research showing that peers are more likely to seek information from each other than from their supervisors (Teboul, 1994). Third, participation in peer relationships has been found to be associated

with numerous positive organizational outcomes such as job satisfaction (Winstead et al., 1995), job productivity (Jehn & Shah, 1997), and job involvement (Riordan & Griffeth, 1995).

In their seminal meta-analysis, Chiaburu and Harrison (2008) conducted tests based on 161 independent samples totaling over 77000 employees. Their results indicated that coworker social support, a key facet of peer relationships, had significant effects on outcomes of employee role perceptions, work attitudes, withdrawal, and effectiveness. These effects remained significant even after controlling for support from leaders. Cumulative effect sizes for coworker influences were found to be as large or in some cases even larger than leader influences on outcomes. Details of their findings are outlined below.

In general, the relationships with the strongest correlations from Chiaburu and Harrison's (2008) analysis were the positive associations between coworker social support and individual work attitudes. Through providing task-related help, information about the job, or affective support, coworkers can have a large influence on an employee's opinions and attitudes towards their role. Specifically, job satisfaction, job involvement, and organizational commitment were all positively related with coworker support.

In Chiaburu and Harrisons' (2008) analysis, the negative relationships between coworker social support and detrimental role perceptions were nearly as strong. Role perceptions are the set of behavioral expectations associated with given positions in an organization (Chiaburu & Harrison, 2008). By offering information and engaging in behavioral support for some activities while discouraging others, coworkers can help to shape a colleague's beliefs about what they should (not) do (Kram & Isabella, 1985). Specifically, coworker support was related to lower levels of role ambiguity, role conflict, and role overload.

With regard to the relationship between employee withdrawal and coworker social support, Chiaburu and Harrison (2008) found several significant relationships. Specifically, coworker support was found to have inverse relationships with intention to quit as well as actual turnover. Associations were also found with increased effort on the job and fewer absences from work. This reinforces the argument

that supportive and helpful coworkers can be a motivating factor for employees to be present at work (Iverson, Olekalns, & Erwin, 1998).

Finally, Chiaburu and Harrison's (2008) analysis revealed that social support from coworkers was associated with higher organizational effectiveness, although the effects were not as strong as with other organizational outcomes outlined above. Specifically, coworker social support was related to higher levels of organizational citizenship behavior, lower levels of counterproductive work behavior, and increased task performance (Chiaburu & Harrison, 2008). Support in the forms of information sharing and directly helping employees with their work tasks are examples of organizational citizenship behaviors that may likely have positive effects on task performance (Kogler Hill, Bahniuk, & Dobos, 1989; Ensher, Thomas, & Murphy, 2001).

Most recently, a meta-analysis conducted by Kleine and colleagues (2019) compared the impact of various antecedents to thriving at work, one of which is supportive coworker behavior, a function of peer relationships. Thriving at work refers to a positive psychological state characterized by a joint sense of vitality and learning (Kleine, Rudolph, & Zacher, 2019). In their analysis of 73 independent samples representing 21739 employees, Kleine and colleagues found moderate effect sizes for a majority of the antecedents examined, including supportive coworker behavior. The construct of supportive coworker behavior was operationalized through functions of task focused interpersonal citizenship behavior, employee helping behavior, sense of belonging, coworker support, and relational resources. Analyzed as an aggregate of its functions, supportive coworker behavior had a significant relationship with thriving at work (r_c = .42). The effects were of comparable strength to other organizational factors such as supportive leadership behavior (r_c = .44) and perceived organizational support (r_c = .63).

Simon and colleagues (2010) expanded on the knowledge of coworker relationships by linking peer satisfaction with not only job satisfaction but life satisfaction as well, underscoring the importance of coworkers beyond the workplace. Life satisfaction reflects "a global assessment of a person's quality of

life according to [their] chosen criteria" (Shin & Johnson, 1978; p. 478). Their results revealed that peer satisfaction was positively related to job and life satisfaction. Additional analyses found that daily variation in peer satisfaction was not due to error, as within-individual changes in peer satisfaction positively predicted changes in both job and life satisfaction. Furthermore, job satisfaction partially mediated the relationship between peer satisfaction and life satisfaction.

Overall, it is clear that peer relationships are an important aspect of the workplace. However, peer relationships have largely been examined as a unidimensional construct, and research on the impact of said relationships has largely been limited to organizational outcomes. Not all peer relationships are created equal, thus it is important to distinguish between different types of peer relationships that may exist in research because they may have differential impacts on outcomes for employees both in and out of the workplace. The specific focus of this study will be on the outcome of loneliness.

Chapter 3

The Present Study

The fundamental premise of this research is that peer relationships at work may be effective at reducing loneliness among young adults. Examining this relationship within the context of young adults may be especially valuable because young adults are in the process of shifting their marker for support and guidance away from parents and toward peer relationships (Fraley & Davis, 1997). The relatedness dimension of Self-Determination Theory (Ryan & Deci, 2000) will be utilized as the basis for the conceptualization of a theoretical model and hypotheses to be tested.

Context of Young Adults

Relational needs exist at every developmental stage in life; however, researchers have noted that late adolescence and young adulthood are the two life stages during which loneliness is arguably the most prevalent across an individual's lifespan (Qualter et al., 2015). It is often cited that a combination of the environmental changes between schooling levels and full-time employment as well as the developmental needs for increased social relationships may trigger strong desires in young adults to be with their peers (Qualter et al., 2015). This is largely due to the fact that the transitions often entail stepping away from long-standing intimate relationships in one's hometown or school. This physical separation could induce a discrepancy between desired and achieved social contact, a leading symptom of loneliness (Qualter et al., 2015).

Research on relationship-specific sources of social support and the life course perspective suggest that, as individuals transition across life stages, such as from adolescence to young adulthood, sources for both social support and stress may change (Qualter et al., 2015). The salience of one's relationships evolve over time; thus, the impact of support from those relationships on health outcomes such as

loneliness are dynamic as well (Umberson, Crosnoe, & Reczek, 2010). For instance, during adolescence, friends gradually replace parents as the main source of social support and intimacy (Frey & Rothlisberger 1996). As individuals transition to adulthood, romantic relationships become more common and important (Qualter et al., 2015). The importance of workplace relationships on health outcomes such as loneliness has yet to be examined in comparison with other sources of support for young adults, a gap in literature this study aims to address.

Peer Relationships at Work

Presently, the framework of peer relationships pioneered by Kram and Isabella (1985) will be used to distinguish between types of peer relationships at work. In their seminal work, Kram and Isabella (1985) distinguished between three different types of peer relationships at work: information peers, collegial peers, and special peers, each varying in their level of closeness and intimacy. Research on these three types of relationships have shown them to be empirically distinguishable and conceptually meaningful with no major differences across genders (Fritz, 1997; Myers & Johnson, 2004). Their contrasting characteristics are outlined below.

The relationship among information peers is characterized by low levels of self-disclosure and trust, little emotional support, and personal feedback. Its functions are to share information about the job, work-related tasks, and the organization. Information peer relationships are not friendships and relate most closely to acquaintance relationships. This type of relationship is usually the most common in organizations, as they have low demands but appear to offer a number of benefits (Kram & Isabella, 1985).

Collegial peer relationships are characterized by moderate levels of trust and self-disclosure. The individual roles within the relationship are more complex, and there are wider information boundaries.

Interactions between collegial peers go beyond information sharing to career strategizing, providing job-related feedback, and sharing of mutual work and family concerns. Communication at this level is more intimate than the information peer relationship, and friendship between coworkers begins to develop at this stage (Myers & Johnson, 2004). Individuals typically have a low number (2-4) of these relationships at work (Kram & Isabella, 1985).

The most intimate type of peer relationships are special peers. In special peer relationships, formal workplace roles are often undermined in favor of high levels of self-disclosure and self-expression. They are characterized by intimacy, stability, and continuity. Interactions between special peers involve social confirmation, revealing struggles in work and life, emotional support, and personal feedback (Myers & Johnson, 2004). Special peers often have a sense of bonding with each other, which can provide feelings of security, comfort, and belongingness (Kram & Isabella, 1985). Special peer relationships are relatively rare in organizations, with most individuals having a small number (1-3) or none at all (Kram & Isabella, 1985).

Kram and Isabella (1985) also outlined variations in perception of peer relationships depending on which stage an individual is in their career. They argue that while the primary functions of each type of peer relationship remain the same, the content of what is discussed and the process through which the content is shared differs depending on career stage. Those who are just beginning their careers, individuals in their 20s, are in the establishment stage. This is followed by the advancement stage where individuals are approximately in their 30s, middle career when individuals are in their 40s and 50s, and late-career when individuals are in their 60s and beyond. This review will focus on the establishment stage of one's career as it is most pertinent to the present study.

Individuals beginning their careers are said to have a unique set of challenges and hurdles which shape their different types of peer relationships. The desire to feel competent on the job as they learn the ropes and the concern to develop a professional identity generally characterize the needs of someone in

the establishment stage of their career (Kram & Isabella, 1985). Information peers at this stage are centered around the exchanging of information that is helpful for learning the requirements of the role and best ways of getting the job done. Collegial relationships are centered around conversations about career aspirations, job-related feedback, and discussing the challenges of new roles. The special peers at this stage typically provide each other with confirmation, emotional support, personal feedback, and friendship. Conversations between special peers are marked by intimate discussions about the ups and downs of making a career commitment, managing the stress of balancing work and family, and anxieties surrounding competence.

Theoretical Model and Hypotheses Development

Direct Effects

Peer relationships at work may be an important and additive source of social support for young adults. As boundaries between work and nonwork identities become blurred (Ramarajan & Reid, 2013), work relationships are not only sources of instrumental work-relevant support such as task assistance and career advice, they may also be sources of resources with implications beyond the work domain such as personal growth and friendship (Dutton & Heaphy, 2003; Niven, Holman, & Totterdell, 2012). Additionally, work is increasingly seen as a source of meaning, growth, and energy (Dutton & Ragins, 2007). There is evidence from loneliness research which indicate that social connection with just one companion may be sufficient to buffer feelings of loneliness for those at risk of social isolation. With the increasing presence of work in one's life, that one companion may very likely be introduced through the work domain (Ernst & Cacioppo, 1999).

Thus, it is hypothesized that the presence of peer relationships from work will be related to reduced levels of loneliness in life. Additionally, it is hypothesized that the quality of one's peer

relationships will have differential impacts on reducing feelings of loneliness, with special peers having the greatest effect, followed by collegial and information peers. This is premised by previous research which have found the quality of relationships to have a much greater impact on loneliness than the quantity of relationships (Jones, 1981).

> *H1: The presence of work peers will be negatively related to loneliness in life.*
>
> *H2: The negative relationship between the presence of peer relationships and loneliness will be strongest for special peers, followed by collegial and information peers.*

Theoretically, peer relationships are important because they have the potential to fulfill one's relational needs. According to Ryan and Deci's (2000) Self-Determination Theory (SDT), all human beings have a fundamental psychological need to experience relatedness through mutual caring and feeling non-contingent value for and from others. SDT states that relatedness is a basic need for individuals to thrive, and they suffer when relatedness needs cannot be met. They argue that this remains the case even within organizations or cultures which do not place importance on relatedness (Ryan, Bernstein, & Brown, 2010). Additionally, out of a need for relatedness, people will be motivated to seek out contact and belongingness with others (Ryan & Deci, 2000). The need to belong is often satisfied through meaningful connections with others (Baumeister & Leary, 1995). Importantly, work can often be a vehicle to satisfy those relational needs (Ferris et al., 2009).

Thus, it is hypothesized that the presence of peer relationships will be related to the satisfaction of relatedness needs at work. Much like the hypotheses above, it is also hypothesized that the quality of one's peer relationships will have differential impacts on needs satisfaction, with the presence of special peers having the greatest effect, followed by collegial and information peers.

H3: The presence of work peers will be related to the satisfaction of relatedness needs at work.

H4: The relationship between the presence of peer relationships and relatedness needs satisfaction at work will be strongest for special peers, followed by collegial and information peers.

There exists substantial evidence from academic research that links the satisfaction of relatedness needs with various outcomes. In a sample of US college students, basic psychological needs satisfaction, which included relatedness needs, explained 74% of variance in loneliness (Wei, Shaffer, Young, & Zakalik, 2005). A meta-analysis by Van den Broeck and colleagues (2016) also found a strong association between life satisfaction and relatedness needs satisfaction. Relatedness needs satisfaction in the work domain has not been explicitly examined with life outcomes; however, these previous findings engendered the hypothesis that the satisfaction of relatedness needs at work will be related to lower levels of loneliness in life.

H5: The level of satisfaction of relatedness needs at work will be negatively related to loneliness in life.

Moderators

Research has also shown that the buffering effect of positive relationships on loneliness may vary depending on its source. With a sample of US college students, support from friends, family, and romantic partners were all inversely related with loneliness, with friends having the strongest relationship and family the weakest (Lee & Goldstein, 2016). However, when stress was held constant, the association between social support and loneliness differed by the sources. Support from friends and romantic partners were negatively associated with loneliness, but no relationship between family support and loneliness was found. Additionally, for individuals with higher levels of support from friends, the magnitude of the relationship between stress and loneliness was less than those with lower friend support.

Given that the impact of one source of support may depend on the quality of support from other sources, an extrapolation is made that the impact of relatedness needs satisfaction on life outcomes such as loneliness may also depend on relatedness needs satisfaction in other domains. Specifically, relatedness needs satisfaction at work is hypothesized to be more impactful for reducing loneliness if one's relatedness needs satisfaction outside of the work is low, and vice versa.

H6a: The relationship between relatedness needs satisfaction at work and loneliness in life will be moderated by relatedness needs satisfaction outside of work.

One major factor influencing the impact of work-related factors on one's self-appraisal is work-centrality. Work centrality is defined as one's "individual beliefs regarding the degree of importance that work plays in their lives" (Walsh & Gordon, 2008, p. 46). In a study conducted by Van Hooff and Van Hooft (2016), work centrality moderated the association between daily work-related boredom and daily depressed mood at the end of the workday. Analysis of the simple slopes showed that for participants who reported high work centrality (one standard deviation above the mean), work-related boredom significantly contributed to depressed mood at the end of the workday. However, for participants who reported low work centrality (one standard deviation below the mean), no significant association was found. The authors concluded that the more important one's work is, the greater impact that work-related occurrences will have on one's self-appraisal (Van Hooff & Van Hooft, 2016).

It is hypothesized that that work centrality will moderate the relationship between relatedness needs fulfillment at work and loneliness. Such that, the inverse relationship between needs satisfaction at work and feelings of loneliness will be stronger for those who report higher work-centrality.

H6b: The relationship between relatedness needs satisfaction at work and loneliness in life will be moderated by work centrality.

Table 1. Table of Hypotheses

H1: The presence of work peers will be negatively related to loneliness in life.

H2: The negative relationships between the presence of peer relationships and loneliness will be strongest for special peers, followed by collegial and information peers.

H3: The presence of work peers will be related to the satisfaction of relatedness needs at work.

H4: The relationship between the presence of peer relationships and relatedness needs satisfaction at work will be strongest for special peers, followed by collegial and information peers.

H5: The level of satisfaction of relatedness needs at work will be negatively related to loneliness in life.

H6a: The relationship between relatedness needs satisfaction at work and loneliness in life will be moderated by relatedness needs satisfaction outside of work.

H6b: The relationship between relatedness needs satisfaction at work and loneliness in life will be moderated by work centrality.

Figure 1. Theoretical Model of Workplace Peer Relationships and Loneliness
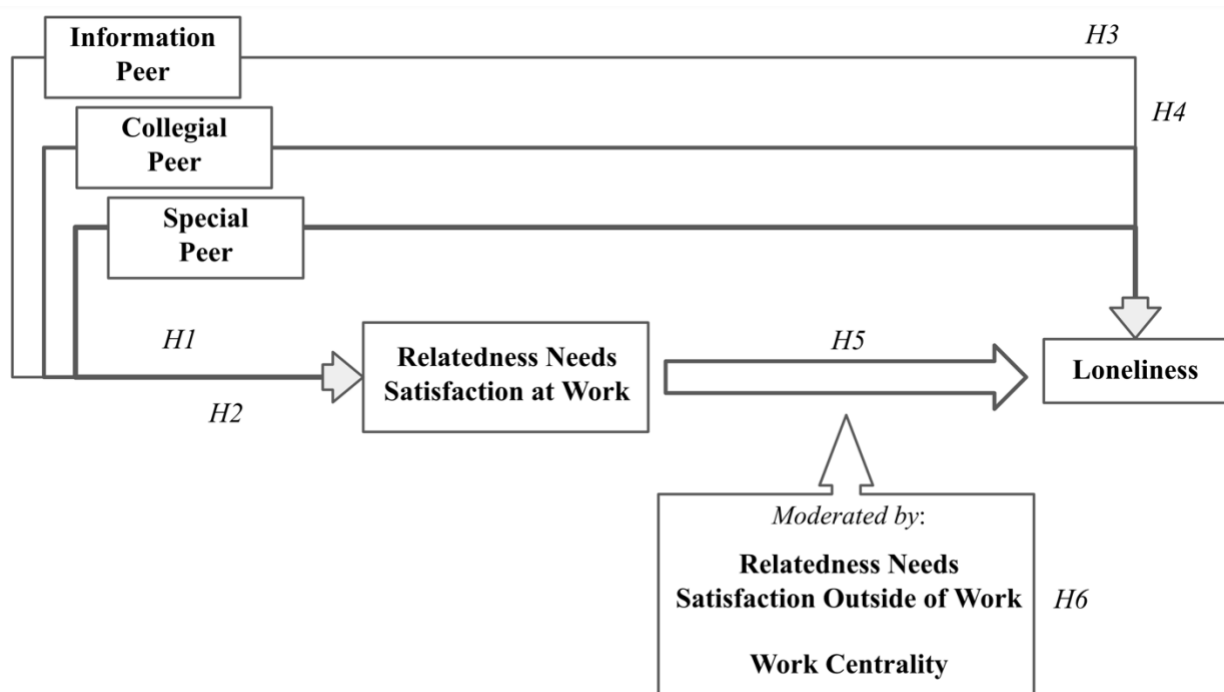
Chapter 4

Methods

Sample and Procedure

The sample for this study included 142 graduates of The Pennsylvania State University who are employed full-time. The average age of the respondents was 25.4 years old ($SD = 3.20$), with a range of 22 to 40 years old. The average organizational tenure of participants at the start of the study period was 1.75 years ($SD = 2.10$), with a range of less than one year to 20 years. Fifty-six percent of the respondents were female. Sixty percent of the respondents were White. Eighty-seven percent of respondents reported that they were working remotely at least some of the time ($SD = 0.30$).

The survey instrument was uploaded to *Qualtrics* and administered from January 5th to January 30th, 2021. Potential participants were identified using selection filters on the business and employment-oriented online service *LinkedIn*. Selection filters included school (Penn State University), location (urban areas such as Philadelphia, New York, and Washington D.C.), and job title keywords (entry-level job titles such as "associate", "analyst", and "coordinator"). A brief introduction the study and a link to complete the survey were sent to potential participants via private message. Descriptions of the study and survey were framed as part of a research project about individuals' relationships at work with no mention of experiences of loneliness to help eliminate selection bias.

Table 2. Demographic Profile of Respondents

Gender	Percentage	
Male	44%	
Female	56%	
Race/Ethnicity		
White	60%	
Asian/Pacific Islander	17%	
African American/Black	13%	
Hispanic/Latino	6%	
Other	4%	
Remote Work Status		
Fully Remote	13%	
Part-time Remote	11%	
In Person	76%	
	Mean	*SD*
Age	25.40	3.20
Tenure	1.75	2.10

Measures

Data were gathered cross-sectionally using a quantitative, self-report questionnaire administered online. The survey began with an introduction to the research topic and included an implied consent process; the research questions and hypotheses being investigated were not explicitly stated. The instruments and survey questions are as follows.

Each focal variable in this study was measured with a multi-item Likert scale, where the responses to the individual items were aggregated to form an overall scale. Unless otherwise noted,

respondents rated the extent to which they agreed with the various items using a five-point response scale with anchors ranging from 1 = strongly disagree to 5 = strongly agree. The full listing of scale items is presented in the Appendix.

Peers at Work. Participants were provided with representative descriptions of the three types of peer relationships (i.e., information, collegial, and special) identified by Kram and Isabella (1985). After reading each description, participants were asked to indicate the number of each type of peer they had at work. This method of determining the number of peers individuals have is consistent with prior research utilizing Kram and Isabella's framework (Sollitto, Johnson, & Myers, 2013).

Satisfaction of Relatedness Needs at Work. This study will utilize the six-item component assessing relatedness needs satisfaction in the Work-Related Basic Need Satisfaction measure developed by Van den Broeck and colleagues (2010). Unlike other widely used measures such as the Basic Need Satisfaction at Work scale, strong reliability of subscales and a tripartite factor structure have been validated (Van den Broeck et al., 2016). The Basic Need Satisfaction at Work scale also contained content validity issues, which were addressed in Van den Broeck and colleagues' (2010) design. The Work-Related Basic Need Satisfaction measure directly assesses satisfaction of relatedness needs rather than their antecedents or consequences. An example of a sample item is as follows: *At work, I feel part of a group* ($\alpha = .83$).

Satisfaction of Relatedness Needs Outside of Work. The three-item component assessing relatedness satisfaction in the Basic Psychological Need Satisfaction Scale – Relationship Domain (La Guardia, Ryan, Couchman, & Deci, 2000) was used to measure satisfaction of relatedness needs outside of work. This measure was designed to be modified to measure specific relationship domains in participants' lives. For the present study, the questions were modified to ask participants about their relationships outside of work. An example of a sample item is as follows: *When I am with them, I feel a lot of closeness and intimacy* ($\alpha = .77$).

Work Centrality. A three-item version of Hirschfeld and Feild's (2000) measure, developed and validated by Bal and Kooij (2011), was used to measure work centrality. An example of a sample item is as follows: *The major satisfaction in my life comes from my job* (α = .73).

Loneliness. Loneliness was measured using both indirect and direct measures. This follows the suggestions presented by the Office for National Statistics in the United Kingdom. The indirect measure used in the present study is the three-item variation of the UCLA Loneliness Scale (Russell, 1996). The UCLA scale is the most widely used measure of loneliness in literature and was designed to measure loneliness without explicit mention of the word "loneliness". An example of a sample item is as follows: *How often do you feel that you lack companionship?* The direct measure of loneliness asked participants the frequency with which they have felt lonely in the recent past, ranging from "never" to "almost always / always". In total, the instrument consisted of four items measuring feelings of loneliness (α = .84). This approach results in both responses on a scale that has been assessed as valid and reliable, as well as allowing the respondent to say for themselves whether they feel lonely, providing further insight into the subjective feeling of loneliness for different people.

Control Variables. Age, gender, race/ethnicity, organizational tenure, and hours worked per week were used as control variables as they have been used as control variables in previous loneliness research (Reinking, & Bell, 1991; Ozcelik & Barsade, 2018). Age and gender were both controlled for, because they have both been shown to related to loneliness (Schmitt & Kurdek, 1985). It has been argued that individuals in minority groups may experience greater levels of stress that adversely contribute to their quality of interactions in the workplace (Wright & Silard, 2020); thus, race/ethnicity was controlled for in this study. Since the amount of time spent working in an organization may influence affiliation with that organization and its members, tenure and hours worked per week were also controlled for (Meyer et al., 2002). Remote work status was also controlled for, with previous research suggesting its potential to increase feelings of loneliness (Mann & Holdsworth, 2003). Gender was coded 1 for male and 0 for

female. Race/Ethnicity was coded 1 for White and 0 for other racial and ethnic groups. Remote work status was coded 1 for at least part-time remote, and 0 for not remote.

Analytic Strategy

Two multiple regression analyses were computed in the open-source platform R to assess the influence of the independent variables on the dependent variables of relatedness needs satisfaction at work and loneliness separately. In the regression examining relatedness needs satisfaction at work as the criterion, independent variables were entered into the regression in two blocks, resulting in two models. Model 1 included the six control variables: age, race/ethnicity, gender, job tenure, hours worked per week, and remote work status. Model 2 included control variables and the addition of peer relationships. In the regression examining loneliness as the criterion, independent variables were entered into the regression in four blocks, resulting in four additional models. Model 1 included the same six control variables of age, race/ethnicity, gender, job tenure, hours worked per week, and remote work status. Model 2 included control variables and the addition of peer relationships. Model 3 included all variables from Model 2 and the addition of relatedness needs satisfaction at work. Model 4 included variables from previous models of loneliness and the interaction of relatedness needs satisfaction outside of work and work centrality on the relationship between relatedness needs satisfaction at work and loneliness.

Chapter 5

Results

Table 3 provides the descriptive statistics and correlations among the study variables. Table 4 presents results of both multiple regression analyses, predicting relatedness needs satisfaction at work and loneliness. The main entries in the regression tables are unstandardized regression coefficients (*b*). For models predicting relatedness needs satisfaction at work, the overall R^2 statistics were .09 and .30 for Models 1 and 2 respectively. The ΔR^2 of .21 from Model 1 to Model 2 was significant ($F\Delta = 13.41$, *p* < .001). For models predicting loneliness, the overall R^2 statistics were .14, .17, .31, and .33 for Models 1-4 respectively. The ΔR^2 of .03 from Model 1 to Model 2 was not significant ($F\Delta = 1.57$, *p* > .05), the ΔR^2 of .14 from Model 2 to Model 3 was significant ($F\Delta = 26.74$, *p* < .001), and the ΔR^2 of .02 from Model 3 to Model 4 was not significant ($F\Delta = 1.06$, *p* > .05).

Hypothesis 1, which proposed that the presence of work-related peers will be negatively related to loneliness in life, was not supported. The regression coefficients for information (*b* = -.01, *se* = .02, *p* > .05), collegial (*b* = -.03, *se* = .03, *p* > .05), and special peers (*b* = -.06, *se* = .04, *p* > .05) respectively in Loneliness Model 2 were all non-significant.

Hypothesis 2, which proposed that the negative relationships between the presence of peer relationships and loneliness will be strongest for special peers, followed by collegial and information peers, was not supported. Because all three relationships were statistically non-significant and thus had no impact on loneliness, there is also no difference in the strength of their relationships.

Hypothesis 3, which proposed that the presence of work-related peers will be related to the satisfaction of relatedness needs at work, was partially supported. Referring to Relatedness Satisfaction at Work Model 2, the regression coefficients for collegial (*b* = .10, *se* = .03, *p* < .001) and special peers (*b*

$= .11$, *se* $= .04$, $p < .01$) were significant; the regression coefficient for information peers ($b = -.06$, *se* $= .02$, $p < .01$) was significant but opposite to the direction hypothesized.

Hypothesis 4, which proposed that the relationship between the presence of peer relationships and relatedness needs satisfaction at work will be strongest for special peers, followed by collegial and information peers, was partially supported. Referring to Relatedness Satisfaction at Work Model 2, the confidence intervals of regression coefficients for collegial and special peers overlapped; however, they did not overlap with confidence intervals for information peers, which was significantly lower.

Hypothesis 5, which proposed that satisfaction of relatedness needs at work will be negatively related to loneliness in life, was supported. Relatedness needs satisfaction at work was significantly related to loneliness ($b = -.41$, *se* $= .08$, $p < .001$) in Loneliness Model 3.

Hypothesis 6a, which proposed that the relationship between relatedness needs satisfaction at work and loneliness in life will be moderated by relatedness needs satisfaction outside of work, was supported. The regression coefficient in Loneliness Model 4 suggests that the relationship between relatedness needs satisfaction at work and loneliness is stronger for those with lower relatedness needs satisfaction outside of work and weaker for those with higher relatedness needs satisfaction outside of work ($b = .18$, *se* $= .11$, $p < .05$). Figure 2 depicts this interaction.

Hypothesis 6b, which proposed that the relationship between relatedness needs satisfaction at work and loneliness in life will be moderated by work centrality, was not supported. The interaction of work centrality and relatedness needs satisfaction at work ($b = .01$, *se* $= .07$, $p > .05$) was not statistically significant in Loneliness Model 4.

Table 3. Descriptive Statistics and Correlations Among Primary Study Variables

	M	SD	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Age	25.40	3.20	-												
2. Gender	0.56	0.50	-.10	-											
3. Race/Ethnicity	0.60	1.11	.02	.01	-										
4. Hours Worked Per Week	44.68	8.09	.18*	-.30***	-.08	-									
5. Remote	0.87	0.30	-.04	.01	.02	.04	-								
6. Tenure	1.75	2.10	.47***	-.06	-.13	.18*	.09	-							
7. Information Peers	4.76	2.73	.12	-.09	-.10	-.08	.05	.06	-						
8. Collegial Peers	3.40	2.31	-.01	-.12	-.09	.14	.11	.18*	.04	-					
9. Special Peers	1.33	1.63	-.13	.03	-.10	.11	.12	.08	-.07	.47***	-				
10. Relatedness Satisfaction at Work	3.65	0.85	-.15	.08*	-.18*	.08	.08	.01	-.21**	.39***	.40***	(.83)			
11. Relatedness Satisfaction Outside of Work	4.37	0.73	-.06	.08	-.09	-.04	.07	.04	.04	.02	-.04	.19*	(.77)		
12. Work Centrality	2.56	0.91	.08	-.02	-.04	.10	.00	-.11	-.12	.00	.06	.16*	-.16*	(.73)	
13. Loneliness	2.65	0.77	-.27***	.07	.23**	-.13	.02	-.23**	-.08	-.17*	-.15*	-.39***	-.14	-.12	(.84)

Note: n = 142; significance levels for coefficients reflect one-tailed tests; * *p* < .05, ** *p* < .01, *** *p* < .001.

Table 4. Regression Analyses

	Relatedness Satisfaction at Work		Loneliness			
	Model 1	Model 2	Model 1	Model 2	Model 3	Model 4
	b (se)	*b (se)*	*b (se)*	*b (se)*	*b (se)*	*b (se)*
(Intercept)	4.03 (.74)***	3.59 (.67)***	4.11 (.65)***	4.41 (.67)***	5.88 (.67)***	9.05 (1.97)***
Age	-0.05 (.02)*	-0.02 (.02)	-0.05 (.02)**	-0.06 (.02)**	-0.07 (.02)***	-0.07 (.02)***
Race/Ethnicity	-0.28 (.15)*	-0.27 (.14)*	0.36 (.14)**	0.33 (.14)**	0.22 (.13)*	0.22 (.13)*
Gender	0.16 (.15)	0.15 (.13)	0.04 (.13)	0.03 (.13)	0.09 (.12)	0.07 (.12)
Job Tenure	0.02 (.04)	-0.02 (.03)	-0.03 (.03)	-0.02 (.03)	-0.03 (.03)	-0.03 (.03)
Hours Worked Per Week	0.01 (.01)	0.00 (.01)	0.00 (.01)	0.00 (.01)	0.00 (.01)	0.00 (.01)
Remote Status	0.34 (.25)	0.24 (.22)	-0.04 (.22)	0.01 (.22)	0.11 (.20)	0.15 (.21)
Information Peers		-0.06 (.02)**		-0.01 (.02)	-0.03 (.02)	-0.03 (.02)
Collegial Peers		0.10 (.03)***		-0.03 (.03)	0.02 (.03)	0.01 (.03)
Special Peers		0.11 (.04)**		-0.06 (.04)	-0.01 (.04)	-0.02 (.04)
RSAW					-0.41 (.08)***	-1.21 (.54)*
RSOW						-0.70 (.38)*
Work Centrality						-0.09 (.25)
RSAW x RSOW						0.18 (.11)*
RSAW x Work Centrality						0.01 (.07)
F (df1, df2)	2.14 (6, 135)	6.29 (9, 132)	3.57 (6, 135)	2.93 (9,132)	5.83 (10, 131)	4.47 (14, 127)
R^2	0.09	0.30	0.14	0.17	0.31	0.33
ΔR^2	-	0.21	-	0.03	0.14	0.02
$F\Delta$	-	13.41***	-	1.57	26.74***	1.06

Note: n = 142; significance levels for coefficients reflect one-tailed tests; * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.
Coding: Gender: 1 = female and 0 = male;
Race/Ethnicity: 1 = White and 0 = other; Remote Status: 1 = remote at least part-time, 0 = not remote;
RSAW = Relatedness Needs Satisfaction at Work; RSOW = Relatedness Needs Satisfaction Outside Work.

Figure 2. Moderation Effects of Relatedness Needs Satisfaction Outside of Work
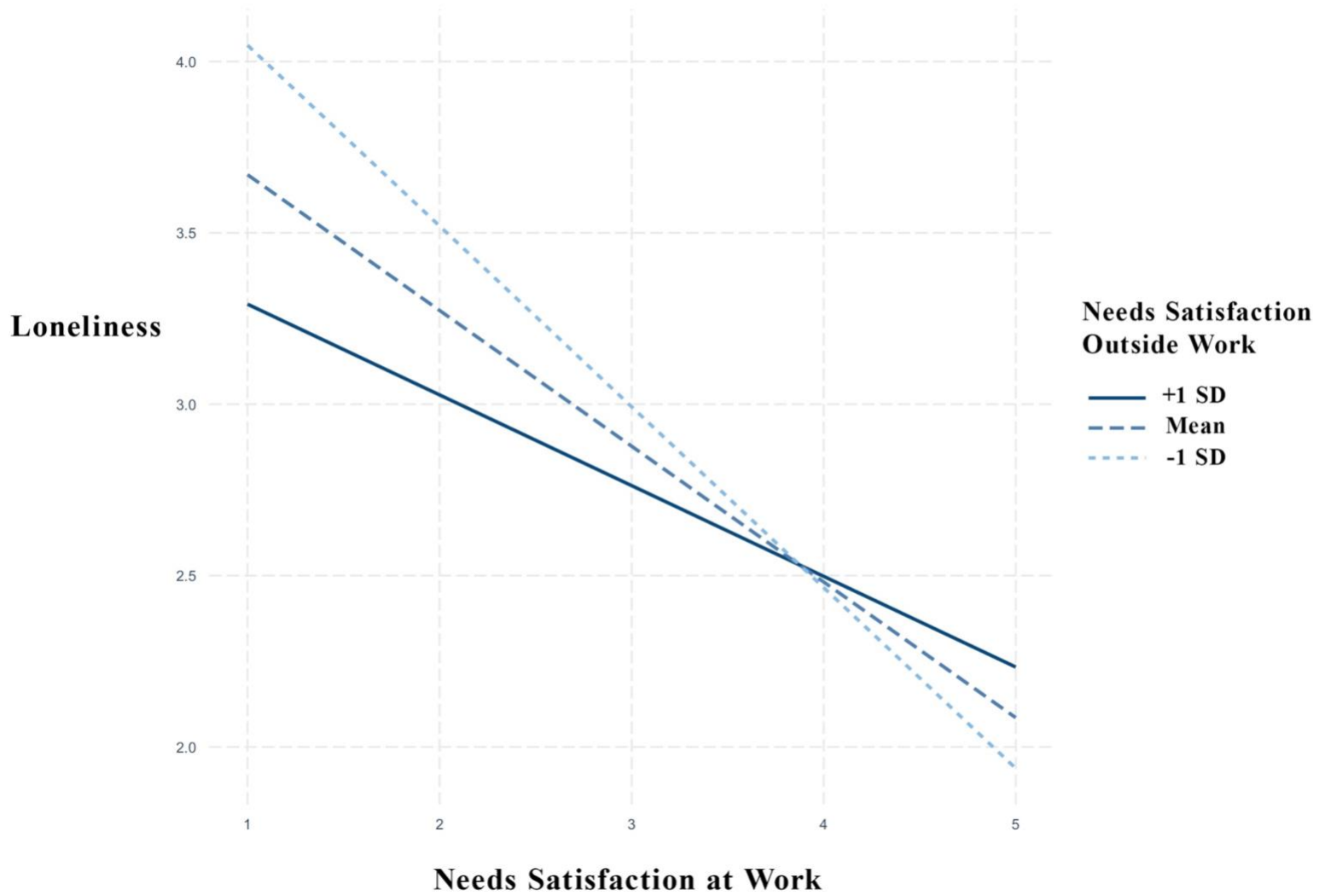
Chapter 6

Discussion

The pervasiveness of loneliness among young adults highlights the importance of research on its relievers. In general, high quality relationships have been found to be unequivocally effective for alleviating loneliness. However, previous research has largely focused on domains of friends, family, and romantic relationships (Adamcyzk, 2016). The present study breaks new ground in loneliness research by demonstrating that relationships stemming from the workplace can be another effective source of relief. A major contribution of this research is providing the first quantitative analysis of the three types of peers conceptualized by Kram and Isabella (1985) using aspects of Basic Psychological Needs theory (Ryan & Deci, 2000). Differential patterns were found among peer types, providing support for their distinction in future workplace research. Establishing the link between relatedness needs satisfaction in the work domain and loneliness is another novel contribution of this research; this relationship remained significant after controlling for other focal variables and was moderated by levels of relatedness needs satisfaction outside of work. Age and race/ethnicity were also found to have influences on feelings of loneliness; however, the direction of effects were not wholly consistent with previous theory and research.

Despite decades passing since its initial conceptualization, few studies have empirically examined the three types of peer relationships conceptualized by Kram and Isabella (1985). When examining the effect of workplace peers on loneliness, significant effects were found for collegial and special peers in bivariate correlations. However, no direct effects were found for all three types when control variables were included in the multiple regression analyses. When examining the effect of workplace peers on relatedness needs satisfaction at work, collegial and special peers were both found to be positively related with similar effect sizes. Contrary to their initial conceptualization by Kram and Isabella (1985), special

peers may not be more important than collegial peers for employee well-being. These findings are in line with some previous peer research conducted in organizational and educational contexts, where the impact that collegial and special peers had were indistinguishable (Sollitto et al., 2013; Sollitto & Myers, 2014). Interestingly, the presence of information peers was negatively related to relatedness needs satisfaction at work, such that the more information peers one had, the less related they felt. This may be because individuals at work desire to have more intimate relationships such as collegial and special peers rather than acquaintance-like relationships that are characteristic of information peers (Ferris et al., 2009). Thus, if there are discrepancies between one's desired and actual quality of relationships at work, such as having more information peers rather than collegial and special peers, they may not have their relatedness needs met.

Another important finding of this research is the significant inverse relationship between relatedness needs satisfaction at work and feelings of loneliness in life. In other words, employees who have their relatedness needs at work satisfied are less likely to be lonely in life. These findings extend beyond previous workplace research, which have demonstrated that relationships at work can have positive impacts on well-being indicators such as life satisfaction (Erdogan, Bauer, Truxillo, & Mansfield, 2012). Utilizing basic psychological needs theory to make the connection between workplace relationships and loneliness is a first in literature. Additionally, the effect size of the relatedness needs satisfaction at work - loneliness relationship was stronger than relatedness needs satisfaction outside of work - loneliness relationship. While this distinction can potentially be explained by a number of factors, it does confirm the importance of relatedness needs satisfaction at work for individuals' well-being outcomes. Furthermore, the relatedness needs satisfaction at work - loneliness relationship was moderated by one's level of relatedness needs satisfaction outside of work, increasing the strength of the relationship as needs satisfaction outside of work decreased, and vice versa. This finding is particularly intriguing, as it indicates the possibility that workplace peer relationships may play a key role in buffering feelings of

loneliness in individuals who do not have their relatedness needs outside of work met. Conversely, workplace relationships may not be as important for combating loneliness for individuals who have their relatedness needs met outside of work. These findings confirm aspects of Wright and Silard's (2020) conceptual model such that relational deficiencies at work may not necessarily be felt as distressing if the individual has supportive networks outside of work to which they can turn. However, work centrality was not found to have any influence on the relatedness needs satisfaction - loneliness relationship, offering evidence countering Wright and Silard's (2020) assertion that relational deficiencies experienced at work may be moderated by the rewards of meaningful work.

The relationship between age and loneliness has been thoroughly explored in various contexts, the findings of this study are consistent with the general body of literature. Several meta-analyses and cross-cultural studies have found adults aged under 30 and over 60 to be the loneliest groups (Nicolaisen, & Thorsen, 2014; Victor & Yang, 2012). In this study's sample of individuals aging between 22 - 40 years old, loneliness decreased as age increased and this relationship remained even after controlling for various focal variables of the model tested. Previous research on the association between race/ethnicity and loneliness reveal mixed results (Lee & Goldstein, 2016; Mahon et al., 2006). Curiously, analysis from the present study revealed significant relationships between race/ethnicity and both dependent variables, relatedness needs satisfaction at work and loneliness. White individuals were related to lower levels of relatedness needs satisfaction and higher levels of loneliness. The underlying explanations for these relationships are unclear, but their presence across all regression models provide incentives for further inquiry into the connection between race/ethnicity and loneliness.

Limitations of the Present Study

The results of this research should be interpreted in the context of its limitations. One limitation is that data was collected at one point in time. The cross-sectional nature of the data means that causality

and directionality cannot be definitively established. Future research where data on the independent and dependent variables are collected at different points of time would more firmly establish cause-and-effect relationships. A second limitation is the potential for selection bias during the sampling process. The sample of this study was limited to alumni of one large research university working primarily in professional settings. Research has found notable personality differences in students across universities and colleges in the US (Corker et al., 2015). Thus, it is logical to assume that the alumni of different universities may exhibit differences in traits as well. In this light, future research could replicate the present study with a more diverse sample in different employment contexts. A third limitation is that the respondents were employed only in urban areas of the U.S. While the results may likely generalize to employees in other countries, future research should examine the impact of employee relationships in other cultural contexts. Finally, another potential limitation is the modest sample size of this study. While the sample is in general large enough for the number of variables tested, a larger sample may have been able to detect effects in variables that were approaching significance.

Opportunities for Future Research

In addition to addressing the limitations above, several opportunities for future research would be valuable. One opportunity in a post-pandemic world would be to conduct the study in a non-remote work setting. Informal social interactions around the proverbial water cooler are an important pathway for the formation of positive workplace relationships (Fayard & Weeks, 2007), these are diminished in a work-from-home environment. The impact of workplace relationships on well-being outcomes such as loneliness will likely be even stronger when the relationships are experienced in-person and is a connection worth exploring further during non-covid times. Furthermore, a comparison between remote workers and in person employees would yield illuminating results on the impacts of remote work on employees. Past scholarship has made the comparison with organizational outcomes such as job

performance and turnover intentions (Golden, Veiga, & Dino, 2008), but connections with well-being outcomes such as loneliness have yet to be explored.

Despite the extensive research surrounding peer relationships, their specific functions have yet to be examined empirically beyond instrumental and emotional support (Jolly, Kong, & Kim, 2020), thus providing another opportunity for future research. Specifically, utilizing the Relationship Functions Inventory (RFI) developed by Colbert and colleagues (2016) would provide a more nuanced perspective on the impact of workplace relationships. The RFI is a comprehensive taxonomy of six distinct workplace relationship functions. The first of which is task assistance, which relates to help with work tasks through answering questions, providing feedback or assisting with a specific task. The second of which is career advancement, which relates to assistance with career development through providing advice or access to contacts and other career-related resources. The third of which is emotional support, which relates to help with the coping of stress through listening to problems and responding in a supportive way. The fourth of which is friendship, which simply relates to being a friend or companion. The fifth of which is personal growth, which relates to actions which help one grow and develop as a human being. Lastly, the sixth is giving to others, which relates to opportunities provided to assist, mentor, support, or care for others. The RFI represents a breakthrough in workplace literature as it presents a clarified and nuanced understanding of peer relationship functions beyond the traditionally studied dimensions of instrumental and emotional support (Colbert et al., 2016). The world of work has changed since initial conceptualizations of instrumental and emotional support, with boundaries between work and life have becoming increasingly porous; thus setting the stage for work relationships to serve a broader range of functions than the past (Colbert et al., 2016). With regards to the connection between workplace relationships and employee well-being, the RFI may be effective for elucidating specific functions that lead to improved well-being.

Practical Implications

This research has several implications for applied practice. A key finding of the present research applicable to employees and organizations is that relationships in the workplace can have impacts on individuals' experiences of loneliness in life. This impact is likely stronger for young adults who are in a transitory period from school to full-time work. For managers, it is important to note that previous scholars have shown links between loneliness and job performance, such that lonelier employees tend to perform worse on the job (Ozcelik & Barsade, 2018). By fostering high quality peer relationships among employees, they may be less lonely and in turn achieve higher levels of performance. One way that peer relationships can be fostered is through fun in the workplace. Fun events such as fun activities, fun job responsibilities, and coworker socializing, as well as manager support for fun and allowances of personal freedoms are some ways that fun can be promoted at work. A growing body of research on fun in the workplace has found both short term benefits including making new connections and long-term benefits including social support and constituent attachment (Michel, Tews, & Allen, 2019).

Another major finding from the present study with organizational implications is that not all workplace relationships are created equal. Relationships with higher intimacy such as special and collegial peers yield benefits that acquaintance-like relationships such as information peers do not. Organizations should seek to foster environments where personal connections can be made, which will likely lead to positive outcomes for both employees and the organization through the formation of higher quality peer relationships. For example, workplace schedules and office designs may impact the extent to which employees are able develop the types of peer relationships that accrue the benefits outlined here (Colbert et al., 2016). Additionally, organizations with reward structures that nurture cooperation rather than pit employees against one another may be more effective at fostering high quality relationships (Colbert et al., 2016).

For young adults beginning full-time roles or undergoing career transition, critical attention should be paid to the potential relationships that may be formed in the workplace. It is important for young adults to assess their ability to connect with employees of prospective employers as they may be an important source of social connection and thus have implications for one's own well-being.

Conclusion

Peer relationships at work have implications beyond the bottom line with impacts that blur the boundaries of work. While academia has traditionally examined the impact of peer relationships on organizational outcomes such as performance and turnover, the results of this study suggest that peers also play a crucial role in employees' well-being outside of work, a finding that may be especially pertinent to young adults. Additionally, although this research focused on peers' impact on experiences of loneliness, it is likely that relationships at work have implications for other key factors of well-being. It is hoped that the results from this research have shed light on the increasingly important role that work plays in individuals' lives and will stimulate further multidisciplinary scholarship.

APPENDIX A

Survey Scale Items for Focal Variables

*(R) indicates that the item is reverse-scored

Peers at Work
Definitions of Peer Types

Information Peer:
You do not know this person very well or feel very close to this person. You consider this person an acquaintance more than a friend.
You do interact with this person on a fairly regular basis but you would probably not continue this relationship if you did not work here.

Collegial Peer:
This person is a work buddy. You might not share every detail of your life with this person, but this person is more than merely an acquaintance.
You may consider this person a friend or a colleague and interact with this person fairly regularly.

Special Peer:
You consider this person a best friend. You would be friends with this person even if you didn't work together.
You consider this person much more than merely a co-worker and feel you know each other very well.

Kram & Isabella (1985)

Relatedness Needs Satisfaction at Work

Please respond to the following statements regarding your relationships with **people in your life that are work-related** (for example: work friends, colleagues, peers), answering the degree to which you agree or disagree.

1. I don't really feel connected with other people at my job (R)
2. At work, I feel part of a group
3. I don't really mix well with other people at my job (R)
4. At work, I can talk with people about the things that really matter to me
5. I often feel alone when I am with my colleagues (R)
6. Some people I work with are close friends of mine

Van den Broeck, Vansteenkiste, De Witte, Soenens, & Lens (2010)

Relatedness Needs Satisfaction Outside of Work

Please respond to each statement regarding your relationships with **people in your life that are non-work-related** (for example: friends, family, significant others) by answering the degree to which you agree or disagree.

1. When I am with them, I feel loved and cared about.

2. When I am with them, I often feel a lot of distance in our relationship. (R)
3. When I am with them, I feel a lot of closeness and intimacy.

La Guardia, Ryan, Couchman, & Deci (2000)

Work Centrality

How do you feel about the work that you do? Please respond to the following statements by answering the degree to which you agree or disagree.

1. The major satisfaction in my life comes from my job.
2. The most important things that happen to me involve my work.
3. I have other activities more important than my work. (R)

Bal & Kooij (2011)

Loneliness

How have you felt about life as of late? Please respond to the following questions about your feelings toward life overall.

1. How often do you feel that you lack companionship?
2. How often do you feel left out?
3. How often do you feel isolated from others?
4. How often do you feel lonely?

Russell (1996)

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ACADEMIC VITA

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EDUCATION:

The Pennsylvania State University - Schreyer Honors College   **University Park, PA**
- Bachelor of Philosophy in *Humans at Work, B PHIL*   Graduation 2021
- Individually tailored, interdisciplinary major, integrating business, psychology, and sociology
- Defended Honors Thesis: Working Against Loneliness

Maastricht University - Center for European Studies   **Maastricht, The Netherlands**
- Coursework: positive psychology, personality, cognition, Dutch art history   Spring 2020
- Research proposal on analysis of fun activities in the workplace

PROFESSIONAL EXPERIENCE:

People Trainee Program (HR Leadership Development) Intern, *Anheuser-Busch*   **Remote** Jun. 2020 - Aug. 2020
- Built proof of concept for a career pathing tool with potential to transform internal movement within Anheuser-Busch
- Worked with stakeholders within marketing and sales departments to develop qualitative surveys
- Developed data-driven metrics for job characterization
- Researched sustainable sourcing of ingredients in the adaptogen industry and presented findings to senior leaders

Research Assistant, *EAGER Lab, Dr. Susan Mohammed*   **Penn State University** Aug. 2019 - Dec. 2019
- Conducted literature reviews on interdisciplinary teams
- Collected archival data on National Science Foundation (NSF) funded interdisciplinary teams
- Organized, managed, and compiled archival data in Excel

Consumer Insights Manager, *Prime Marketing (Client: Unilever)*   **Penn State University** Jan. 2019 - May. 2019
- Developed and pitched a 360 marketing plan for Suave Deodorant to Unilever and Moxie executives
- Conducted focus groups and ethnographic observations to understand brand perceptions and target market
- Analyzed secondary studies and psychological literature to understand trends and consumer needs
- Interpreted and applied consumer insights to target market segments

Student Cafe Executive Officer Co-op (General Manager), *Saxbys Coffee*   **State College, PA** Jun. 2018 - Dec. 2018
- Led the opening of a 4000 sq ft cafe serving food and drinks, responsible for all cafe operations as only full-time employee
- Fostered and trained a team of more than 75 students with a retention rate of 95%+
- Conducted one-on-ones with team members to encourage personal and professional growth
- Organized community outreach initiatives such as open mic nights and career development services

ACTIVITIES:

Beyond the Frame Collective Founder, *btfcollective.com*   **Web-based** Oct. 2020 – Jan. 2021
- Organized international photography contest with 350+ entries from 100+ countries
- Partnered with FUJIFILM US to provide prizes valued at $1500+
- Enlisted eight critically acclaimed photographers to serve on jury panel

Work Exchange Volunteer, *Various Small Businesses*   **New Zealand** Jun. 2019 - Aug. 2019
- Self-organized 2-month long work exchange with various small businesses in New Zealand
- Operated a bottling plant, assisted in a race car workshop, and cultivated oyster and shiitake mushrooms

Podcast Host / Creator, *People of LinkedIn*   **Web-based** Mar. 2019 - Jul. 2019
- Interviewed ten guests on topics including entrepreneurship and social change
- Produced podcast episodes with an average length of 30 minutes

SKILLS:

Language: Native fluency in spoken Mandarin Chinese | Professional fluency in speaking and reading Spanish
Data Analysis: General Linear Model using R