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Alone in a Crowd: Perceived Social Relationships and Health Outcomes for Clergy

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Alone in a Crowd: Perceived Social Relationships
and Health Outcomes for Clergy

by

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Bachelor of Arts

Master of Divinity

THESIS

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Alone in a Crowd: Perceived Social Relationships and Health Outcomes for Clergy

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ABSTRACT

The purpose of this study was to understand more about the relative contributions of different measures of social relationships to mental and physical health. This was done through secondary analysis of a clergy health intervention ($n = 616$), a population with unique professional and personal relationship characteristics. Hierarchical multiple regression was used in three steps to control for demographics, measures of perceived social relationships (e.g., social support, social engagement, social isolation, and relationship satisfaction), and whether or not clergy worked alone or with clergy colleagues. The results demonstrated that the relationship variables entered together, after controlling for demographics, were particularly important for explaining the variance of the four mental health outcomes including depression, positive mental health/flourishing, life satisfaction, and ministry satisfaction. Whether clergy worked alone or with clergy colleagues generally failed to explain additional variance after controlling for demographics and social relationships. The measures of social engagement and social isolation were both related to each of the four mental health outcomes. Item-level analysis of the social engagement measure suggested the unique importance of one item inquiring about support given to friends and family members. Several implications of this study include the importance of measuring multiple kinds of social relationships, a need for better measurement of reciprocity within social relationships, and possible behavioral interventions for clergy and other helping professionals that could target social relationships apart from professional obligations.

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Alone in a Crowd: Perceived Social Relationships and
Health Outcomes for Clergy

“Water, water everywhere, / nor any drop to drink”
-Samuel Taylor Coleridge, *The Rime of the Ancient Mariner*

Relationships matter for health. Interpersonal relationships have an impact on a wide variety of physical and mental health outcomes (Holt-Lunstad, Smith, & Layton, 2010; Uchino, Bowen, Carlisle, & Birmingham, 2013). As inextricably social beings, our mental and physical well-being is necessarily affected by those around us (Baumeister & Leary, 1995; Bowlby, 1969; Durkheim, 1951). Interpersonal relationships take on many forms, however, and can be measured in a variety of ways. Friends, professional colleagues, and partners each play unique and sometimes overlapping roles in our lives. Although it is possible to quantify an individual’s relationships and map their social network, it is the person’s own perception of these relationships that is more predictive of their physical and mental health (Lakey & Orehek, 2011). Even those who are surrounded by others and have frequent social interactions may find themselves feeling that they are ‘alone in a crowd’ (Hawkley & Cacioppo, 2010). For this reason, it is important to closely examine various measures of perceived social relationships in order to understand how best to use them in predicting health outcomes.

Social Support

The term ‘social support’ first appeared in the psychological research literature in the mid-1970s. Cobb’s (1976) review, *Social Support as a Moderator of Life Stress*, surveyed a number of diverse studies to conclude that social support was a protective

factor across the lifespan. He defined social support broadly as “information leading the subject to believe that he [*sic*] is cared for and loved, esteemed, and a member of a network of mutual obligations”(Cobb, 1976, p. 300). Social support was later differentiated into different kinds of resources (e.g., instrumental, informational, and emotional) that were theorized to help individuals cope with stressful conditions (Sheldon Cohen, 2004; House & Kahn, 1985).

In addition to this differentiation of types of resources, social support can also be divided into perceived and received support (Uchino et al., 2013). Perceived support is the perception of the support that would be available if needed, whereas received support refers to the instrumental, informational, and emotional support actually provided to a person during a time of need (Uchino et al., 2013). Research consistently finds that a higher perception of social support, compared to support actually received, predicts better health outcomes (Turner & Brown, 2009). For example, perceived social support is correlated with a reduction in mortality from both cancer and heart disease (Barth, Schneider, & von Känel, 2010; Pinquart & Duberstein, 2010). There is also evidence that perceived social support is correlated with better mental health outcomes including less depression (Russell & Cutrona, 1991). One reason given for the difference in outcomes between perceived and received support is that support actually received may include unwanted or burdensome support. Paradoxically, while perceived support is correlated with positive health outcomes, the support actually received is more often correlated with negative outcomes (Maisel & Gable, 2009). For this reason, it is important to focus on the perception of available support when predicting health outcomes.

Social Engagement

Perceived social support assesses the availability of help but does not capture the degree to which an individual is engaged with others in their daily lives. Holt-Lunstad et al. (2010) define social engagement as the existence and interconnections among differing social ties and roles. Like social support, social engagement can be measured in different ways. One way to measure social engagement is to map and quantify a person's social network. Another way to capture engagement is to ask for a person's perception of their day to day relationships. As with perceived social support, measures of perceived engagement prove to be a stronger predictor of health outcomes than studies that only consider network size (Holt-Lunstad et al., 2010). One way to name this quality of perceived engagement is by using the term 'friendship'. The perceived quality of friendships is a unique predictor of health outcomes. For instance, cardiac functioning improved as a result of having supportive friendships versus ambivalent friendships (e.g., overbearing mother, competitive friend; Holt-Lunstad, Uchino, Smith, & Hicks, 2007).

Measuring the perceived quality of friendships, as opposed to counting the number of connections that people have, is especially important because the kinds of relationships that matter most to people change over time. The number and types of friendships that are valued are partially a function of differing developmental stages (Carmichael, Reis, & Duberstein, 2015). In brief, as people age their total number of friends shrink, but the quality of those few close relationships become more important. For this reason, the perception of social engagement can yield more developmentally appropriate information.

Perceived social engagement is also different from social support in the context of when the support occurs. Where 'social support' involves social interactions in the

context of stress, measures of social engagement frame these interactions in the more quotidian context of friendship. For instance, Relational Regulation Theory predicts that the ordinary quality of relationships may be helpful to explain consistent findings of the positive effect that perceived social support has at any time and not just in the context of stress (Lakey & Orehek, 2011). While perceived support in stressful situations is correlated with healthier outcomes, this kind of measure does not assess the value of relationships across all situations. Perceived social engagement measures this overlapping but distinct construct.

Perceived Social Isolation

Perceived social isolation, also known as loneliness, is a uniquely important social variable. Research indicates that loneliness exists as a conceptually distinct construct from both perceived social support and social engagement (Cloutier-Fisher, Kobayashi, & Smith, 2011). Loneliness is also a unique predictor of health outcomes. Numerous studies have found that being lonely is detrimental to both mental and physical health. Those who perceive themselves to be socially isolated are more likely to have an increased risk of cardiovascular disease, increased risk of mortality, as well as higher levels of depression and Alzheimer's (Cacioppo, Hughes, Waite, Hawkley, & Thisted, 2006; Hawkley & Cacioppo, 2010).

It is worth emphasizing that the construct of loneliness, measured by perceived social isolation, is independent of an individual's actual number of social connections and even the frequency of social interaction and actual time spent with other people. An individual may have very few social resources and therefore be structurally socially isolated but not feel lonely, while an individual may possess a large network of social

resources but perceive herself to be alone (e.g., solitude versus loneliness, Hawkley & Cacioppo, 2010).

Marriage and Significant Others

Marriage occupies a unique place in the relationship and health literature as it exists at a crossroads of many different kinds of support (Holt-Lunstad et al., 2010). For many, marriage represents a significant and primary source of social connection. Studies of married couples consistently find that married people lead healthier and longer lives (Wood, Goesling, & Avellar, 2009). This is due, in part, to the connection between married individuals generally having less risky behaviors and more access to health care. Evidence also suggests that marriage reduces depression. According to one review, people who marry, and stay married, are less depressed than their single counterparts and those who divorce (Koball, Moiduddin, Henderson, Goesling, & Besculides, 2010).

There are broadly two explanations for these findings: marriage protection and marriage selection. Stated differently, do people have better health outcomes because of marriage, or do those with better health outcomes tend to become and stay married? When controlling for a number of factors, studies have found that marriage itself seems to confer physical and mental health benefits (Robles et al., 2014). One of the theoretical reasons given for this marriage benefit is formally called the “structural symbolic interactionism perspective” (Dush, 2005). This view posits that the *commitment* of marriage reshapes the perspective of the individuals in the relationship. Those who commit to each other, and stay committed, tend to take better care of themselves than they might otherwise.

Marriage *status*, however, is not as robust an indicator of health compared to the

perceived quality of the married relationship. Like all relationships, marriages vary in their perceived level of quality. Nevertheless, higher quality of married relationships do generally predict better physical and psychological health (Dush, 2005; Robles et al., 2014). Thus, it is important to consider and assess the perceived quality of a marital relationship to understand its relationship with health.

Social Relationships and Health

As demonstrated thus far, the perception of relationships, measured in a variety of ways, is strongly associated with physical and mental health outcomes. An important finding of Holt-Lunstad et al.'s (2010) meta-analysis was the association between relationship quality and mortality rates. Better social relationships made a difference in mortality rates comparable to quitting smoking and were a better predictor of health than common risk factors including obesity. Taken as a whole, psychological research finds a strong and consistent relationship between how people perceive their relationships, and their physical and emotional health (Dush, 2005).

What is not fully understood, however, is the reason for this strong association between relationships and health (Lakey & Orehek, 2011; Uchino et al., 2013). There are two main theories that attempt to explain the pathways for social relationship impact on health. The most cited theoretical framework is the Stress-Buffering Model (Sheldon Cohen & Wills, 1985). In this model, social support acts as a moderator to reduce (buffer) the negative effects of stress on health outcomes. The competing explanation is the Main Effects Model. As described by Holt-Lunstad et al. (2010), the Main Effects Model refers to cognitive, emotional, behavioral, and biological influences that may be directly predicted by perceived social relationships rather than considered as a moderating

influence in the context of stress. These daily social influences and resources may serve to directly reduce the likelihood of stress and distress occurring in the first place and have beneficial effects on health even during times when there is little or no stress (Graham & Barnow, 2013). Social engagement and perceived social isolation fit particularly well within the Main Effects Model because they capture effects that occur on a daily basis rather than only during times of stress.

Despite a wealth of studies on constructs related to social relationships, there is little agreement on how best to measure perceptions of relationships in order to predict health outcomes. Few studies make use of multiple measures of perceived relationships, instead including a single item or type of measure. Focusing on the relative contribution of different perceptions of relationships on a variety of mental and physical health outcomes could help to clarify the relative utility of these measures.

Social Relationships and Clergy

One way to make progress in understanding how relationships impact health is to investigate relationships in different contexts. A lack of attention to the unique contextual factors for individuals has contributed to the conflation of terms and conceptual confusion about how best to measure relationships and their health impacts (Berkman et al., 2000). As an occupational group, clergy provide a unique window into the importance of perceived social relationships. The professional leaders of religious communities, clergy inhabit an intensely social occupation. They may also be a prime example of those who feel alone in the crowd of their relationships. Thus, studying clergy may not only provide insight into their own health and lives, but also provide a greater understanding of how important perceived social relationships may be in the midst of

many social ties and frequent social interactions.

Clergy, as a group, are particularly vulnerable to social stressors because of their unique occupational setting. There is a job that is both intensely inter-personal and susceptible to four essential relational stressors: personal criticism, boundary ambiguity, presumptive expectations, and family criticism (Lee & Iverson-Gilbert, 2003). These stressors reflect the 'fishbowl' nature of the clergy occupation. They are expected to share the most personal times in their congregation members' lives: birth, marriage, and death. And yet, clergy are also 'set apart'. They are given responsibility for standing between a congregation and the divine. This combination of professional responsibilities, of being with people and being set apart from them, make clergy members a unique population in which to learn more about how different domains of perceived social relationships contribute to health outcomes.

Despite these multi-faceted stressors, clergy report much higher job satisfaction than many other professions (Bloom, 2013). At the same time, clergy may in many ways be unhealthier than the population at large. A recent study of Protestant clergy in North Carolina revealed clergy to be more depressed and more obese than the state average (Proeschold-Bell, Swift, et al., 2013). Given this unique context involving a profession that requires frequent social contact and interaction and also sets pastors apart from their congregation, how do perceived social relationships impact clergy health?

Research has demonstrated that perceived social support matters for clergy health. Consistent with the broader literature, the perception of social support by family, friends, and other clergy is related to improved mental and physical health of clergy members (Meek et al., 2003; Morris & Blanton, 1998). Despite the numerous people that clergy are

in contact with because of their professional obligations, feelings of isolation and loneliness are also common. One recent survey of rural pastors indicated that isolation was a significant factor in poor clergy health and professional outcomes including burnout (Scott & Lovell, 2014). Bloom suggests three reasons for this prevalence of loneliness: lack of close friendships with other pastors, not feeling like a ‘member’ of the community of pastors, and isolation from the members in the local church they lead (Bloom, 2013).

The significance of the community of other pastors is an important qualifier. Other clergy, themselves set apart from a congregation, can be a valuable source of relationship. The presence of other clergy helps to encourage these religious leaders to be more authentic and real about their personal struggles and failings (Scott & Lovell, 2014). Working alone, without the support of those who share the same position, can be a unique source of stress. There is evidence from other professions that working with peers as opposed to working alone is correlated with better health outcomes. Research on perceived social support in dentistry has demonstrated that dentists in group practices experience more perceived support and better health outcomes than their counterparts in solo practice (Berthelsen, Hjalmer, & Söderfeldt, 2008). Similarly, lower stress levels were observed amongst physicians working in group practices (Linzer et al., 2002).

There are several occupational health theories that inform the impact of social relationships on health in work populations generally, and a clergy population specifically. One theory is Effort-Reward imbalance. This theory supposes that the combination of high effort with low reward leads to poor physical and mental health outcomes (Siegrist, 1996). Both high expectations from congregants as well as the ‘fish

bowl' nature of the job create the conditions for a mismatch between the effort put forth by clergy and the rewards that they receive. These external demands from the congregation combine with the intrinsic demands of clergy who often have a strong sense of personal mission and identification with their work. These demands may include a sense of being 'alone in the crowd' due to the way that clergy are often viewed to be 'set apart' to be exemplary leaders and people. This 'effort' may not be offset by the occupational rewards which include lower income compared to those with similar education levels and status which can vary depending on the community in which clergy live (Proeschold-Bell, Miles, et al., 2013). It is hypothesized that such an imbalance between effort expended and reward received contributes to poor health outcomes.

Another theory that may help to explain clergy relational stress involves the idea of Emotional Labor which is the amount of effort that people put into managing their emotional responses in the context of work (Hochschild, 1983). For example, there is evidence that the emotional labor involved in showing positive and suppressing negative emotions in the context of other people may lead to both mental and physical health problems (Grandey & Gabriel, 2014). As leaders who feel called to be exemplars of the Christian faith and lifestyle, clergy may feel excessive pressure to show positive emotions and suppress negative emotions. This is a situation analogous to many helping professions although it may be a particular challenge for clergy who face cultural expectations about their role as spiritual confidants. Clergy are likely to mask their true emotions while taking on the difficult emotions of others in trying to be role models and exemplars of the faith.

Effort-reward imbalance and emotional labor theories are particularly fitting

models for clergy given that one of the key professional tasks for clergy is to serve as sources of spiritual support and guidance. Such a position creates an imbalance in the relationship between the congregation and the clergy member. As a result, clergy members are assumed to need less support and are also not provided with opportunities to be authentic with those whom they serve as a pastor (Proeschold-Bell, Miles, et al., 2013). Like the mariner surrounded by water and dying of thirst, the pastor may feel that they are alone in a crowd, surrounded by people but with no one to connect with and rely on for friendship and support.

Current Study

The focus of the current study is United Methodist Church (UMC) clergy in North Carolina. Most research to date, including the current study, has been completed on Christian clergy, although many of these same contextual factors apply to other faith traditions (Proeschold-Bell & McDevitt, 2012). The participants will be clergy members who had taken part in a longitudinal study, conducted by the Duke Clergy Health Initiative, that examined the effectiveness of an intervention designed to improve clergy health. The primary study provided a wealth of data about clergy mental and physical health. For this study, secondary analysis of the original data will attempt to understand more about the relative contributions of perceived social relationships to clergy mental and physical well-being.

Aims

Specific Aim 1: The first aim is to examine the relationship between several different perceived measures of social relationships and health outcomes in the clergy sample. This will be done by considering four perceived social variables (social support,

social engagement, social isolation, and relationship satisfaction) on five health outcomes (Body-Mass Index, Depression, Positive Mental Health [i.e. Flourishing], Life Satisfaction, and Ministry Satisfaction). Hypothesis 1.a: Social support, social engagement, and relationship satisfaction will be positively correlated with better health on each of the outcome measures while social isolation will be negatively correlated with better health outcomes. Hypothesis 1.b: All of the social relationship measures together will account for significant incremental variance in each of the health outcomes after controlling for demographics. The demographic variables that will be controlled for will include age, gender, race, education, income, and community size.

Specific Aim 2: The second aim is to investigate differences in outcomes based on group membership of those clergy who work alone versus those who work with one or more clergy members. Hypothesis 2.a: After controlling for demographics and social variables, there will be significantly better health outcomes for clergy who work with clergy colleagues compared to clergy who work alone. Hypothesis 2b: The poorer health outcomes for clergy who work alone will be reduced for those with better perceived social relationships including better social support, greater social engagement, higher relationship satisfaction, and lower social isolation.

Methods

Participants

Study participants included 616 United Methodist clergy members working in North Carolina. They were recruited to participate in a two-year intervention called ‘Spirited Life’ that was aimed at helping United Methodist clergy to improve their health, primarily through weight loss and stress reduction. Recruitment was conducted using a randomized multiple baseline design (Proeschold-Bell et al., 2013). The median age range of the sample was 50-54 years old 91.1% Caucasian, 31.7% female, and 90.6% married or having a significant other. This study was approved by the Duke University Institutional Review Board with a Data Transfer Agreement signed between Duke University and the University of New Mexico to secure permission for the use of the data for secondary analysis.

Measures

Demographics. Demographic information from the surveys includes age, gender, ethnicity, income, education, community size, and relationship status. As part of the data transfer agreement with Duke University, demographic information has been pooled into categories to help ensure participant confidentiality.

Perceived Social Relationship Variables:

Social Support (MOS Social Support Survey; Sherbourne & Stewart, 1991). The full MOS Social support survey is a 20-item measure that includes questions about emotional and informational support, tangible support, positive interactions, and affection. The current study used the eight items of the scale pertaining to perceived emotional and informational support. All response options are ordered categorically using

a Likert-type scale ranging from 1 (“None of the time”) to 5 (“All of the time”).

Sherbourne and Stewart’s original study of the full MOS scale achieved a Cronbach’s alpha of .91 and high discriminant validity.

Social Engagement (Quality of Life Enjoyment and Satisfaction Scale Abbreviated Version, Q-LES-Q; Ritsner, Kurs, Gibel, Ratner, & Endicott, 2005). This brief questionnaire was adapted from the Q-LES-Q which has been used since 1993 to assess quality of life in populations of people with severe mental illness. The 18 item shortened version includes five items from the domain of social relationships inquiring about social interactions during the previous week (ex. “During the past week, how often have you joked or laughed with other people?”). All response options are ordered categorically using a Likert-type scale ranging from 1 (“Never”) to 5 (“Very Frequently”). This domain measuring social engagement achieved a Cronbach’s alpha of .76 in previous validation studies of the measure.

Relationship Satisfaction (Quality of Relationship Index; Norton, 1983). This five item questionnaire attempts to measure an individual’s satisfaction with their primary romantic relationship (ex. “Everything considered, how happy are you in your relationship?”). All response options are ordered categorically using a Likert-type scale ranging from 1 (“Not at all true”) to 5 (“Very True”). Norton’s original study proposing the six item measure achieved good psychometric properties including a Cronbach’s alpha of .96. The Duke Clergy Health team changed the original language from “marriage” to “relationship” to be inclusive of same-sex couples.

Social Isolation This is a one item measure, (i.e. “How socially isolated do you feel?”) with a response ranging on a Likert-type scale from 1 (“Not at all socially

isolated”) to 5 (“Extremely socially isolated”). The item was developed by the Clergy Health Initiative team at Duke University, pilot tested for face validity, and has been used in North Carolina statewide clergy surveys since 2008.

Health Outcome Variables:

Body-Mass Index (BMI; Keys, Fidanza, Karvonen, Kimura, & Taylor, 1972). This ratio of an individual’s weight and height (weight in pounds divided by height in inches squared multiplied by a conversion factor of 703) is the most common metric for determining obesity and the associated risk for negative health outcomes. According to guidelines from the World Health Organization, a BMI of 18.5 to 24.9 is considered to be a normal/healthy weight, 25 to 29.9 is overweight, and 30 or greater is obese. BMI has been found to be most useful in the prediction of mortality and adverse health outcomes for individuals with more extreme BMI rates as compared to those in the overweight and mildly obese categories (Romero-Corral et al., 2008).

Depression (Patient Health Questionnaire-8; Kroenke et al., 2009). This eight-item measure assesses the frequency of depression symptoms in the past two weeks. Severity scores range from zero to 24. A score of five to nine represents mild depression, 10 to 14 moderate depression, 15 to 19 moderately severe and 20 to 24 severe. The PHQ-8 is identical to the PHQ-9 with the removal of a question on suicide ideation as the survey is not being used to diagnose for treatment. In a large national sample, the PHQ-8 yielded 100% sensitivity and 95% specificity for classifying scores above 10 with a diagnosis of Major Depressive Disorder (Kroenke et al., 2009).

Flourishing (Mental Health Continuum Short Form; Keyes, 2002). This 14-item measure of emotional, psychological, and social well-being was adapted from the 40 item

long form measure. Three items (happy, interested in life, and satisfied) measure emotional well-being, six items measure psychological well-being (one item from each of the six dimensions of Ryff's model of psychological well-being; Ryff, 1989), and five items measure social well-being (one item from each of the five dimensions of Keyes' model of social well-being; Keyes, 1998). The short form has high estimates of internal consistency ($>.80$), test-retest reliability of .68 and a confirmed three factor structure (emotional, psychological, and social well-being) in a diverse set of populations as measured by Keyes.

Life Satisfaction (Diener, Emmons, et al. 1985). This five item measure of global life satisfaction uses a seven point Likert-type scale with responses ranging from 1 ("Strongly disagree") to 7 ("Strongly agree"). The measure demonstrated good psychometric properties in Diener et al.'s original study including test-retest reliability of .82 and a Cronbach's alpha of .87.

Ministry Satisfaction (Carroll & McMillan, 2006). This one item measure assessing satisfaction with current ministry uses a four point Likert-type scale with responses ranging from 1 ("very satisfied") to 4 ("very dissatisfied"). The item was adapted for the Spirited Life intervention survey from Carroll's (2006) national survey of clergy.

Proposed Analyses

All of the analyses were conducted using SPSS version 23, and $p < .05$ was the alpha level for statistical significance. Hierarchical multiple regression was used to examine three different groups or steps of variables, and the relationship of each step to the health outcomes of interest. Step 1 only included demographic variables as predictors

in order to control for the variance explained by demographics alone. Step 2 added four predictor variables of relationship domains in order to assess the relative importance of each after accounting for demographics: perceived social support, perceived social engagement, perceived social isolation, and relationship satisfaction. Step 3 included the variable assessing whether or not the clergy person is working alone (solo/nonsolo) and the interactions between this variable and each of the four social relationship variables.

Aim 1: The first aim examines the relationship between different perceived measures of relationship. For hypothesis 1.a, zero-order correlation coefficients are used to determine whether each of the independent and dependent variables are significantly related to each other in the predicted directions. For hypothesis 1.b, the total variance explained by Group 2 in the hierarchal multiple regression is used to determine whether the four social variables together account for significant incremental variance in each health outcome after controlling for demographic variables in Group 1. The beta weights of the social relationship variables are also examined to understand the relative importance of each variable while controlling for the other predictors.

Aim 2: For hypothesis 2.a, the beta weights of the solo/non solo variable, controlling for the variables in Group 1 and Group 2, are used to determine whether there are significant differences in each health outcome between clergy who work alone versus those who work at churches with multiple clergy on staff. Finally, for hypothesis 2.b, the beta weights for the interactions between the solo/non solo variable and each of the social relationship variables are used to determine whether any poorer health found in the solo group is reduced for those with better social relationships.

Results

Demographics

The descriptive statistics for the sample are shown in Table 1. The sample ranged from 20 years old to over 65, with the median age range being 50-54 years old. More than half of the sample (57.3%) were between the ages of 50 and 64. The majority of the sample was male (68.3%) and the vast majority of the sample was White (91.1%) compared to Non-White as a group. Participant income ranged from under \$30,000 to more than \$90,000, with the median income range between \$30,000 and \$60,000. A supermajority of participants had a Masters degree or more (89%). Nearly half of the participants (49.7%) lived in a town with less than ten thousand people and over ninety percent (90.6%) of the sample was married or had a significant other.

Correlations

The relationship between the demographic, predictor, and the outcome variables are displayed in Table 2. The zero order correlations of the demographic variables show that income was the variable most consistently and strongly correlated with other demographic variables such that having a higher income was related to being white, male, having more education, and serving in a larger setting. Larger settings were also significantly correlated with being female, non-white, higher income, and more education.

Of the six demographic variables, age was the only variable consistently related to the other study variables. Age has a consistent positive relationship with the predictor and outcome variables with higher ages correlated with better health as well as with better social relationships. The two largest demographic correlations were between being a solo

pastor and being in a smaller community setting and between being a solo pastor and having less income.

The correlations of the physical and mental health outcome variables show a predictably negative relationship of depression with positive mental health measures of flourishing, life satisfaction, and ministry satisfaction. Flourishing was also significantly related to both life satisfaction and ministry satisfaction. The correlations between the outcome variables and the social variables are described below in the results of the specific aims. Finally, the social relationship variables were all significantly correlated with each other with the strongest being a negative correlation between social engagement and social isolation.

Aim 1

The first aim examined the relationship between different measures of social relationships and health. The first part of the initial hypothesis (hypothesis 1.a) was that social support, social engagement, and relationship satisfaction would be positively correlated with better health on each of the outcome measures while social isolation would be negatively correlated with better health outcomes. This hypothesis was generally supported. Social support, social engagement, and relationship satisfaction were significantly related to lower depression scores and higher flourishing, life satisfaction, and ministry satisfaction scores. Similarly, social isolation was significantly related to higher depression and lower flourishing, life satisfaction, and ministry satisfaction scores. However, contrary to this hypothesis, BMI was not significantly correlated with any of the social variables.

The second part of the initial hypothesis (Hypothesis 1.b) was that the four social relationship measures together would account for significant variance in the health measures when controlling for demographic variables. A hierarchical multiple regression was conducted with the demographic variables included in the first step and the social variables included in the second step. The results of these analyses are shown in Table 5. The hypothesis was generally supported in that the social relationship measures accounted for a significant amount of variance when controlling for the demographics in four out of five of the health measures. The social relationship measures accounted for the largest amount of additional variance in flourishing (47.8%) followed by life satisfaction (41.4%), depression (33.7%), and ministry satisfaction (14.7%). However, contrary to the hypothesis, the social relationships measures together did not significantly account for any additional variance in BMI.

In addition to the analysis of the step variance explained by the social variables considered together, the beta weights of each social variable were examined to determine the unique variance accounted for by each predictor when holding the other predictors constant (see Table 5). None of the beta weights of the social relationships measures were related to BMI. Both social engagement and social isolation were significantly related in the expected directions to depression, flourishing, life satisfaction, and ministry satisfaction. Social support was significantly related in the expected directions to depression, life satisfaction, and flourishing but not to ministry satisfaction. Relationship satisfaction was a significant predictor of flourishing and life satisfaction but not depression or ministry satisfaction. When comparing the size of the beta weights across the four outcomes that at least one of the social relationships measures significantly

predicted, the mean beta weights were largest for social engagement (.264) and social isolation (.227) and somewhat smaller for relationship satisfaction (.144) and social support (.143). Social isolation was the strongest predictor of depression and ministry satisfaction, social engagement was the strongest predictor of flourishing, and relationship satisfaction was the strongest predictor of life satisfaction.

In the three cases where both social support and social engagement were unique predictors, social engagement had the largest beta weight for each outcome. Since the social engagement scale (Q-LES-Q Social Subscale) is a relatively new measure and the individual items appear to assess different aspects of social interactions, the items were examined separately in place of the overall scale to examine potential differences in how much they predicted the mental health measures. Table 7 shows the beta weights for each of these items predicting the mental health outcomes controlling for demographics and the other social relationships measures. Each of the items still predicted each of the mental health outcomes except that item A (looked forward to getting together with friends or relatives) did not predict ministry satisfaction. When averaging across all four mental health measures, the mean item beta was largest for item E (met needs) at .232 followed by item B (enjoyed talking) at .201 with the other three items between .159 and .177.

In order to reduce the multicollinearity that might result when controlling for each of the five items simultaneously, subscales were created by combining the other four items in the measure. Table 8 shows the beta weights for each of the individual items predicting the mental health outcomes while not only controlling for demographics and the other social relationships measures but also for the other four social engagement

items combined into a four item scale. The variance inflation factor for all of the items was never above 2.8 which addresses concerns about multicollinearity in the regression (O'Brien, 2007). Item E (met needs) was still related to depression, flourishing, and life satisfaction, Item B (enjoyed talking) was still related to flourishing and ministry satisfaction, Item C (felt affection) was still related to flourishing, Item A was now negatively related to ministry satisfaction, and Item D (joked) was not related to any of the mental health measures. The mean beta weight was again largest for Item E (met needs) at .148 and followed by Item B (enjoyed talking) at .086 with the other three items between .013 and .058. Item E (met needs) was the only item with a larger mean beta weight relative to the other four items (.148 vs. .145) with each of the other items having mean beta weights no more than 44% the size of the beta for the other four items (while still controlling for all demographic and social relationship variables).

Finally, given the ability to also consider relationship satisfaction and the fact that the large majority of participants were in relationships, the initial focus in presenting the regression results has been on those married or in relationships with significant others. However, we also reran the regressions with the 9% of the sample who was unmarried and did not have a significant other and excluded the relationship satisfaction variable (Table 6). A comparison of these results (see Tables 5 and 6), revealed only minor differences in the beta weights for the other social variables and for the social relationship step variance explained. The only changes in what were significant predictors was in the third step, with solo clergy now related to greater BMI, and less ministry satisfaction, and no longer significantly related to flourishing. However, the step variance explained

actually decreased .1% for BMI and only increased .3% for ministry satisfaction between the two analyses.

Aim 2

The second aim examined the differences in the health measures based on whether clergy worked by themselves or whether they worked with clergy colleagues. To test these hypotheses a third step in the multiple regression was added for group membership as either solo or non-solo clergy. The first part of the second hypothesis (Hypothesis 2.a) predicted there would still be significant differences in health outcomes between these two groups when controlling both for demographic and social variables. As shown in table 5 this hypothesis was generally not supported because the F test for the third step of the multiple regression was only significant for flourishing ($F=2.417$ $p<.05$)

The other part of the second hypothesis (Hypothesis 2.b) was that the effects of better social relationships would be more important for clergy who work alone. Of the 20 possible interactions between the four social relationships measures and the solo/non-solo variable predicting the five health measures, only three were significant and only one of them was consistent with this hypothesis. Figure 1 shows the nature of this interaction where relationship between social isolation and ministry satisfaction depended on whether the clergy were solo or non-solo. While ministry satisfaction was about the same for the solo and non-solo clergy if they were not socially isolated, ministry satisfaction for the solo clergy was lower than it was for the non-solo clergy who were social isolated.

The other two interactions are shown in Figures 2 and 3. While these interactions are not consistent with the hypothesis, they provided an interesting contrast between

social support and social engagement in the non-solo group with regard to BMI. While BMI in the solo group did not appear to depend on social engagement or social support, BMI was higher in the non-solo group if they had greater vs. less social support (Figure 2) and was lower in the non-solo group if they had greater vs. less social engagement (Figure 3). To better understand this finding, we tested for a three-way interaction between solo/non-solo, social support, and social engagement which failed to find either a significant two-way interaction between social support and social engagement, or a significant three-way interaction.

Discussion

The purpose of this study was to understand more about the relative contributions of different measures of social relationships to mental and physical health. This was tested using the unique occupational context of clergy who, by virtue of their profession, cannot avoid intensely interpersonal settings. Several measures of social relationships, including social support, were examined to understand more about their combined and relative contribution to different measures of health in this group. In order to understand how occupational arrangements might differentially impact health outcomes, there was also a distinction made between clergy who work alone versus those who work with clergy colleagues.

The study had two aims. The first aim, focusing on social variables, had two hypotheses. The first, that social support, social engagement, and relationship satisfaction would be related to better health while social isolation would be related to worse health on each outcome was generally supported. The second, that the social relationship measures taken together would account for a significant amount of variance after controlling for demographics, was also generally supported. The second aim, examining occupational context, also had two hypotheses. The first hypothesis, which predicted that there would be significant differences in health outcomes based on whether clergy worked by themselves or with clergy colleagues, was not supported. The second hypothesis of the second aim, that the effects of social relationships would be stronger for the solo versus the non-solo clergy group, was also not supported. In addition to these hypotheses, follow-up analysis of the individual items of the social engagement scale was performed to understand more about this understudied construct.

Social Relationships and Clergy Mental Health

The first aim of the study examined the correlation between measures of social relationships and clergy health outcomes. The first hypothesis was largely confirmed in demonstrating relationships in the expected direction between each social variable, and each measure of mental health. However, none of the correlations between BMI and the social variables were significant. The most important finding related to this hypothesis was establishing the expected relationships between measures of mental health and a variety of social relationship measures.

The second hypothesis of the first aim examined the relative contribution of these perceptions of social relationships after controlling for demographics and was also largely supported. Taken as a group, the four measures of social relationships explained a significant amount of unique variance for each measure of mental health but not for BMI. Most important, there was a relatively large amount of step variance explained by the social variables taken together after controlling for demographics, ranging from 14.7% in ministry satisfaction to 47.8% in flourishing. Compared to demographic variables that accounted for a relatively small amount of variance, measures of social relationships may be critical to understanding what contributes to mental health outcomes in clergy.

The beta weights of each measure of social relationship were also examined to determine which measures remained significant predictors when controlling for all the other relationship measures and demographics at the same time. The most important finding was the unique and significant contribution of each measure of social relationship, even when controlling for the other variables. In the case of the mental health outcomes of flourishing and life satisfaction, all four social variables remained

significant predictors independently. Three of the relationship measures were independently significant for depression and two of the four relationship measures were significant in the case of ministry satisfaction. The unique contributions of these different measures of perceived relationships when controlling for each other, underscores the need to include multiple measures of relationship perception (Holt-Lunstad et al., 2010). These social variables measures were not completely overlapping and could not simply be substituted for one another. Although the traditional measure of social support is an important predictor of mental health in the current study, failing to include other types of social relationship measures would represent a failure to explain significantly more variance in these important outcome measures.

Relationship satisfaction had the largest beta weight as a predictor of life satisfaction and was also related to flourishing. This finding corresponds in part with other research that connects relationship satisfaction with better mental health outcomes (Robles et al., 2014). However, entered alongside multiple predictors of social relationships, relationship satisfaction failed to predict depression or ministry satisfaction. Although relationship quality has been found to be related to better health outcomes, few studies make use of multiple measures of social relationships which is helpful to understand the relative contribution of each (Holt-Lunstad et al., 2010).

The most surprising finding of the current study was the importance of the five-item measure of social engagement for predicting mental health outcomes. Previous research had already identified social isolation as a particularly important predictor of mental health outcomes in clergy populations, a finding which was replicated in the current analysis (Proeschold-Bell et al., 2015). However, the measure of social

engagement also was a significant predictor of all four mental health outcomes and has not been examined as an important independent variable in this population. Follow-up analyses were performed on the social engagement scale to understand more about the relative importance of individual items. Social engagement differs from the traditional measures of social support in assessing the strength of relationships in everyday contexts rather than only in times of stress. Interestingly, when social support and social engagement both had significant beta weights with depression, flourishing and life satisfaction, social engagement explained more of the variance in each case.

Item-level analysis of social engagement was revealing in demonstrating the particular strength of the final item “During the past week, how often have you felt you met the needs of friends or relatives?” That one item had the largest mean beta weight of any of the five items for all outcomes, having the strongest relationship with depression. Ministry satisfaction was the sole outcome that this item was not related to. Why might this item be especially important in a clergy population? Of all the items assessing social relationships in this study, this was the only one that asked about providing social support to others. The traditional measures of social support, as exemplified by the MOS survey used in this dataset, inquire about various kind of support that could be provided to an individual, particularly in a time of need. Relationship satisfaction focuses on the happiness of the individual in the dyad. The social isolation measure focuses on the feeling of isolation of the individual. The social engagement scale differs in limiting the scope of inquiry to the previous week, although four of the items are also focused on whether the respondent’s needs are being met. The importance of the fifth item, an inquiry about meeting the needs of others, may be that it is the only question in the social

relationship scales that looks outward to see if one is socially supporting others as opposed to being socially supported.

This direction of support may be particularly important in a clergy context. Central to their job description, clergy are expected to meet the needs of their congregants. In cases of burnout and severe social isolation, this interpersonal obligation may come at the expense of having something left to give to friends and family, who are not required to be helped out of professional obligation. The final item of the social engagement scale also presumes that a clergy person has and maintains friendships which itself may be associated with better mental health. Being able to meet the needs of friends and family would also suggest a clergy person who is able to balance their professional and personal roles. Perhaps, rather than being overly fused with their professional identity, clergy who can provide for friends and family may well have a more sustainable work-life balance and a greater sense of identity apart from their professional role. Such factors may influence the differences in correlations found with individual items of social engagement. However, follow-up studies that include more items or measures to better distinguish giving and receiving in relationships will be needed to tease apart these differences.

Interestingly, ministry satisfaction was the lone outcome not significantly predicted by the question about meeting friend and family need. This finding is consistent with the prediction that job satisfaction may come at the expense of life satisfaction, as well as the problem that too much focus on job performance may be detrimental to well being over the long term. Although clergy are 'set apart' in being ordained for a leadership role in the church, their mental health may well depend on being able to bridge

that divide through cultivating and maintaining mutually supportive friendships (Jones & Armstrong, 2006). Thus this measure of an ability to socially support others, especially family members and close friends, may be an important area of further investigation.

Solo Clergy and Mental Health

Comprising more than half the sample, solo clergy were the emphasis of the second aim of the study. Another step was added to the multiple regression hierarchy to account for the potential health impacts of belonging to this group which works without other clergy colleagues. The first hypothesis of the second aim predicted that after having controlled for demographics and social relationships, the group affiliation of being a solo clergy member would explain even more variance. This did not prove to be the case. The addition of the third step of group membership only accounted for a small amount of additional variance for the flourishing outcome. The most important finding of this hypothesis was the failure to explain additional variance based on group membership alone for the majority of the health measures of interest. Controlling for measures of social relationships explained differences between solo and non-solo clergy that would be found without accounting for such relationships. This finding suggests that social support, social engagement, social isolation, and relationship satisfaction may help to explain why the situation of being a solo pastor may be related to mental health.

The second hypothesis examined the interactions between the social relationship variables and the solo group membership. For the mental health variables, only the solo by social isolation interaction proved to be significant for ministry satisfaction in the hypothesized direction. The interaction is consistent with the notion that being a solo pastor may exacerbate the negative impact of social isolation's impact on ministry

satisfaction. However, only finding one significant interaction in the predicted direction out of 20 possible interactions decreases the confidence of this finding not being a product of chance.

Failing to confirm these two hypotheses provides important information to the decision makers with the United Methodist church who make the assignments of which churches clergy serve. Being assigned to serve in a small church without clergy colleagues does not appear to be a risk factor in and of itself for worse health outcomes. Rather, the ability to maintain robust social connections predicts these outcomes to a far larger degree than the context of ministry alone. Although clergy are ultimately assigned to the settings in which they serve, it is worth noting that they provide feedback on preferences on where they want to serve along with their congregations. This feedback and mutual decision-making may mitigate the risk of working without colleagues with some clergy preferring the autonomy to be the sole decision maker while others prefer to collaborate and share leadership roles. It is also worth noting that having multiple clergy on staff indicates that a church has a larger congregation, can support the salaries of multiple clergy, and is most likely situated in a larger urban setting. The assignment of clergy is not done so randomly, and there is a large degree of self-selection for either more rural or more urban settings that can influence the relative health of a clergy person beyond the presence or absence of colleagues alone (United Methodist Church, 2012). Given this context, assigning clergy to serve in solo ministries should be considered alongside any risk factors they might exhibit for having difficulties maintaining strong ties to friends and relatives and opportunities for them to receive professional and personal support from other clergy.

Implications for Helping Professions

Although the current study focused on the impact of social relationships on health outcomes in clergy members, the results may well generalize to other occupational settings, particularly those that share similar inter-personal emphases. ‘Helping professions’ which include mental health professionals (e.g., counselors, social workers, clinical psychologists), teachers, and public safety officers, face similar professional dynamics to those in professional church leadership in demanding a high degree of interpersonal relationships and a self-selection for those who may be more altruistic and who value helping others (Adams, Hough, Proeschold-Bell, Yao, & Kolkin, 2016). At the same time, clergy may be in a somewhat unique situation where their professional lives may be hard to distinguish from their personal lives, as many of friends may also be those they serve and they are often presumed to maintain exemplary conduct and to ‘practice what they preach’.

However, as with clergy, all helping professionals’ job requirements may negatively impact their health, expose them to the risk of burnout, and exacerbate work-life balance issues that are endemic in contemporary American culture. A greater understanding of the similarities between these helping professions, especially the impact of social relationships apart from professional identity, could provide a greater ability to understand who might be at risk, and help in designing interventions that both prevent and redress poor health outcomes related to occupational roles.

Limitations

There are several important limitations to the current study. The use of cross-sectional data makes it impossible to examine the temporal relationship between the

variables of interest. Although this does provide some sense of what relationship measures are related to mental and physical health outcomes, causal statements are not possible in the absence of longitudinal data. However, the current study drew upon data from the first follow-up of the intervention study in which all participants had taken part in the active intervention and which also made use of a scale of social engagement. Subsequent follow-ups that made use of the same social variables could be analyzed to determine how both social relationships and mental health change over time. Examining changes of clergy who move from solo to non-solo settings and vice-versa could also complement the current analysis to better understand the interactions between work environment and social relationships.

Another limitation was the use of one-item measures of both social isolation and ministry satisfaction. Both of these measures benefit from being face valid although adding more items for each of these constructs would help improve the stability of the measure. Given the importance of the measure of social isolation for variance explained in the regression model, additional items from well-validated measures (e.g. the UCLA Loneliness scale; Russell, 1996) would aid in understanding more about the particular facets of social isolation that are predictive of mental health outcomes. In addition, a measure of work-life balance would make it possible to determine whether it may help to explain why social engagement and providing support to others may be important.

Finally, the current study was limited in the use of Body Mass Index (BMI) as a proxy measure for physical health. As reviewed in the results of the hypotheses, measures of social relationship were unrelated to BMI at a zero-order correlation, and did not explain significant variance in the multiple regression models. Concerns about the utility

of BMI as a proxy measure for health have been raised in multiple research domains (Andres, 1999). BMI is most accurate as a marker of worse health outcomes at the extremes of the distribution. For the current sample, the mean BMI of 30.0 is considered the cut-off point for obesity, and the standard deviation of 6.8 puts most of the sample between the high end of healthy weight and the low end of the second tier of obesity, below the cut off for extreme obesity. This fairly narrow distribution constricts the amount that social relationships might be related to. In the context of measuring relationships, another confound may be related to the finding that individuals tend to have similar BMIs to that of their peer and support networks (Cohen-Cole & Fletcher, 2008). Thus someone could have a larger BMI and also have a robust sense of perceived relationships, making it difficult to determine the trade off between the risk from a higher BMI with the protective factor of better social relationships.

Future Directions

The richness of the data set used in the present analysis provides fertile ground for both additional longitudinal analyses as well as future data collection. Further testing of different measures of social engagement are warranted, particularly the intriguing finding of the importance of a single item related to meeting the needs of friends and family. Additional items could be tested and validated related to this under-examined aspect of social relationships specifically in helping to understand more about the nature of how providing support to others, helps to increase the perception of support that is available. Measures of social relationship, including the social engagement scale, can also be examined at multiple time points to determine directionality between mental health outcomes and changes in social relationships. Finally, more physiologically-oriented

measures of physical health can be analyzed to understand the relationship between social relationships and physical health.

If the findings from the present study are born out in longitudinal analyses, there are several implications for possible interventions. The promise of a social engagement measure, particularly an item about giving support to others, may be in providing a behavioral target for intervention. Although social isolation is an important predictor of negative mental health outcomes, changing a perception of loneliness can be a difficult target for cognitive interventions alone. With a social engagement measure as a place to begin, however, clergy can be encouraged to balance their professional obligations with continuing to meet the needs of friends and family. As with a Behavioral Activation intervention for depression (Lewinson, Biglan, & Zeiss, 1976), clergy at risk for, or struggling with mental health concerns, could be encouraged to start providing support for friends and family outside of their professional context, even if they do not yet feel supported. This proactive engagement may help to generate reciprocal support and also reduce social isolation. More sophisticated measures of social relationships could help to further refine targets for behavioral interventions. Given the very strong connection between social relationship measures and mental health, working to enhance those mutually supportive relationships for at-risk clergy is a critical need.

Conclusion

This study of perceived social relationships of clergy yielded important information about this population. Various measures of social relationships, considered together, and individually, were especially important for mental health outcomes. One item from the social engagement measure, a question about meeting the needs of friends

and family, proved to be particularly important. As traditionally measured, social support assumes that others will be available to meet your needs. This perspective of seeing what one can get from others is the default in assessing social relationships. However, measuring what one can give, in the form of support to others, may be just as important in understanding the reciprocal nature of human relationships. In the context of Christian clergy, who are guided in part by the notion that “it is more blessed to give than to receive” (Acts 20:35, New Revised Standard Version), this outward looking view of social relationships may be particularly important. Although clergy, like many other helping professions, may be surrounded by the “crowd” of people they serve, they may be “alone” when they lack social engagement outside of their work settings. To provide for others’ needs outside of professional roles and obligations may be one particularly important way to reestablish and strengthen these connections that are critical to health.

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Table 1*Demographic Information*

	Category	Frequency	Percent
Age	20-34	45	7.3
	35-39	38	6.2
	40-44	57	9.3
	45-49	94	15.3
	50-54	124	20.1
	55-59	147	23.9
	60-64	82	13.3
	65+	29	4.7
	Total	616	100.0
Gender	Male	421	68.3
	Female	195	31.7
	Total	616	100.0
Race/Ethnicity	White	561	91.1
	Non-White	54	8.0
	Missing	1	0.2
	Total	616	100.0
Income	0-29,999	85	13.8
	30,000-59,999	324	52.6
	60,000-89,999	150	24.4
	90,000+	45	7.3
	Missing	12	1.9
	Total	616	100.0
Education	College Degree or Less	68	11.0
	Master's Degree or More	548	89.0
	Total	616	100.0

Table 1 (continued)*Demographic Information*

	Category	Frequency	Percent
Setting	Town of 10,000 or Less	306	49.7
	City of 10,000-249,000	196	31.8
	City of more than 250,000	75	12.2
	Missing	39	6.3
	Total	616	100.0
Married or Significant Other	Yes	558	90.6
	No	58	9.4
	Total	616	100.0

Table 2*Zero-Order Correlations of Demographic Variables with All Study Variables*

	Age	Gender	White	Income	Education	Setting
Age						
Gender	-.089*					
White	.091*	.073				
Income	.019	-.210**	-.153**			
Education	-.128**	.028	-.055	.337**		
Setting	-.084	.105*	.107*	.307**	.164**	
Social Support	.036	.066	-.018	.039	-.064	.072
Social Engagement	.179**	.087*	.008	.006	-.111**	.022
Social Isolation	-.248**	.028	-.010	-.031	.109**	-.086*
Relationship Sat	.141**	-.075	-.020	-.018	-.038	-.006
Solo Pastor	.047	.041	.078	-.409**	-.120**	-.416**
BMI	.061	-.021	.045	-.101*	-.094*	-.137**
Depression	-.188**	.012	-.076	-.037	.041	-.086*
Flourishing	.253**	.075	.037	-.013	-.133	.039
Life Sat	.141**	-.034	-.046	.032	-.066	.064
Ministry Sat	.146**	-.007	.027	.056	-.100*	.047

Note. Sat = Satisfaction. *p < .05 **p < .01

Table 3*Correlation of Outcome Variables with Outcomes and Social Variables*

	BMI	Depression	Flourishing	Life Sat	Ministry Sat
BMI					
Depression	.147**				
Flourishing	-.050	-.600**			
Life Sat	-.099*	-.523**	.643**		
Ministry Sat	.004	-.392**	.471**	.427**	
Social Support	-.078	-.375**	.522**	.425**	.250**
Social Engagement	.000	-.488**	.639**	.499**	.337**
Social Isolation	.029	.527**	-.532**	-.434**	-.382**
Relationship Sat	.028	-.259**	.372**	.494**	.177**
Solo Pastor	.130**	.044	-.078	-.091*	-.106*

Note. Sat = Satisfaction. *p < .05 **p < .01

Table 4*Correlation of Social Variables*

	Social Support	Social Engagement	Social Isolation	Relationship Sat
Social Support				
Social Engagement	.453**			
Social Isolation	-.416**	-.507**		
Relationship Sat	.316**	.272**	-.253**	
Solo Pastor	-.048	-.023	.120**	.013

Note. Sat = Satisfaction. *p < .05 **p < .01

Table 5

Hierarchical Multiple Regressions for the Demographic Variables, Social Variables, and Solo Pastor Variable Predicting Health Outcomes (n = 558).

	BMI	Depression	Flourishing	Life Sat	Ministry Sat
Step 1					
Age	.038	-.183**	.244**	.134**	.112*
Gender	-.069	.007	.071	-.027	.014
White	.020	-.033	.005	-.064	.038
Income	-.062	-.027	.012	-.011	.075
Education	-.063	.040	-.117**	-.062	-.104*
Setting	-.121**	-.099*	.058	.093*	.044
Step Variance	4.0%	4.7%	8.1%	3.1%	3.0%
F	3.783**	4.564**	8.100**	2.892**	2.879**
Step 2					
Social Support	-.083	-.129**	.244**	.153**	.045
Social Engagement	.031	-.249**	.373**	.281**	.156**
Social Isolation	.029	.328**	-.188**	-.145**	-.247**
Relationship Sat	.040	-.061	.132**	.328**	.054
Step Variance	.6%	33.7%	47.8%	41.4%	14.7%
F	.958	74.796**	148.225**	102.220**	24.327**
Step 3					
Solo Pastor	.068	-.029	-.104**	-.097**	-.059
Solo X Social Support	-.193*	-.036	.072	.008	-.034
Solo X Social Engage	.182*	.052	-.050	-.056	-.049
Solo X Social Isolation	.040	-.046	-.037	-.025	-.209**
Solo X Relationship Sat	.039	-.086	-.036	.001	.000
Step Variance	1.7%	.5%	1.0%	.8%	1.3%
F	1.915	.836	2.417*	1.483	1.796
Total Variance	6.3%	38.9%	56.9%	45.3%	19.0%

Note. Analysis only includes those in relationships. Sat = Satisfaction. *p < .05 **p < .01.

Table 6

Hierarchical Multiple Regressions for the Demographic Variables, Social Variables (excluding Relationship Satisfaction), and Solo Pastor Variable Predicting Health Outcomes (n = 616).

	BMI	Depression	Flourishing	Life Sat	Ministry Sat
Step 1					
Age	.041	-.185**	.251**	.144**	.126**
Gender	-.019	.002	.099*	-.021	.018
White	.044	-.052	-.002	-.059	.014
Income	-.049	-.026	.025	.011	.080
Education	-.053	.037	-.121*	-.069	-.113**
Setting	-.108*	-.092*	.060	.091*	.048
Step Variance	2.9%	4.9%	8.9%	3.5%	3.5%
F	3.019**	5.224**	9.927**	3.649**	3.670**
Step 2					
Social Support	-.080	-.120**	.254**	.211**	.059
Social Engagement	.037	-.264**	.399**	.316**	.165**
Social Isolation	.023	.329**	-.190**	-.172**	-.245**
Step Variance	.6%	31.5%	43.9%	29.9%	14.0%
F	1.286	100.213**	188.082**	90.661**	34.189**
Step 3					
Solo Pastor	.050	-.025	-.082*	-.070	-.054
Solo X Social Support	-.203**	-.050	.048	.010	-.037
Solo X Social Engage	.175	.035	-.028	-.021	-.033
Solo X Social Isolation	-.009	-.023	-.056	-.031	-.226**
Step Variance	1.6%	.1%	.7%	.4%	1.6%
F	2.599*	.336	2.247	.888	3.007*
Total Variance	5.1%	36.6%	53.5%	33.8%	19.1%

Note. Analysis includes all participants. Sat = Satisfaction. *p < .05 **p < .01

Table 7

Beta weights for the individual social engagement items, entered separately, predicting the mental health outcomes, while controlling for demographics and the other social relationship measures.

	Depression	Flourishing	Life Sat	Ministry Sat	Mean Item Beta
Social Engagement Full Scale	-.249**	.373**	.281**	.156**	.265
Item A-Looked forward to getting together with friends or relatives?	-.155**	.250**	.202**	.029	.159
Item B-Enjoyed talking with co-workers or neighbors?	-.166**	.274**	.183**	.181**	.201
Item C-Felt affection toward one or more people?	-.122**	.261**	.178**	.123**	.171
Item D-Joked or laughed with other people?	-.154**	.243**	.205**	.107*	.177
Item E-Felt you met the needs of friends or relatives?	-.266**	.303**	.238**	.122*	.232

Note. Sat = Satisfaction. *p < .05 **p < .01.

Table 8

Beta weights for the individual social engagement items predicting the mental health outcomes controlling for demographics and the other four items together.

	Depression	Flourishing	Life Sat	Ministry Sat	Mean Item Beta
Social Engagement Full Scale	-.249**	.373**	.281**	.156**	.265
Item A-Looked Forward	-.029	.066	.076	-.119*	.013
All Items Except A	-.223**	.325**	.222**	.262**	.258
Item B-Enjoyed Talking	-.040	.099*	.024	.181**	.086
All Items Except B	-.212**	.295**	.267**	.001	.194
Item C-Felt Affection	.014	.105*	.046	.068	.058
All Items Except C	-.257**	.296**	.250**	.102	.226
Item D-Joked	-.005	.020	.059	.021	.026
All Items Except D	-.240**	.360**	.234**	.138*	.211
Item E-Met Needs	-.235**	.160**	.137**	.059	.148
All Items Except E	-.052	.246**	.173**	.107	.145

Note. Sat = Satisfaction. *p < .05 **p < .01.

Figure 1

The Interaction of Solo Clergy and Social Isolation in Predicting Ministry Satisfaction

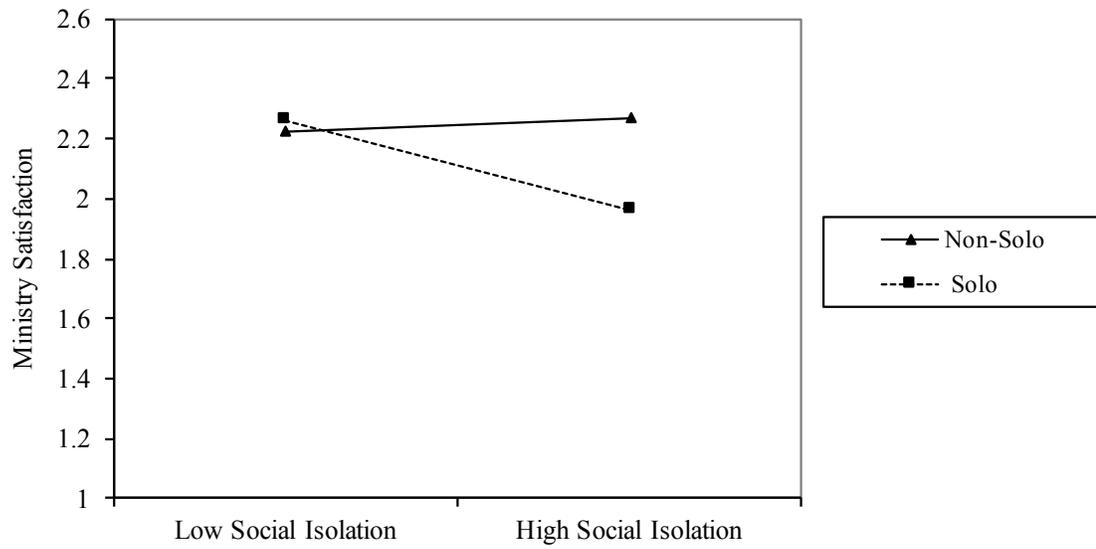


Figure 2

The Interaction of Non-Solo Clergy with Social Support in Predicting BMI

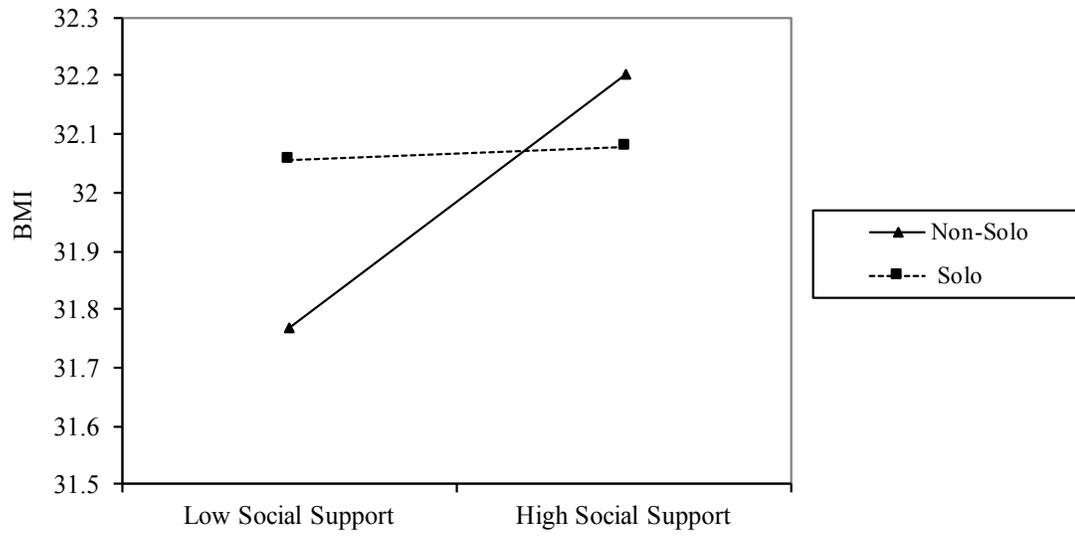
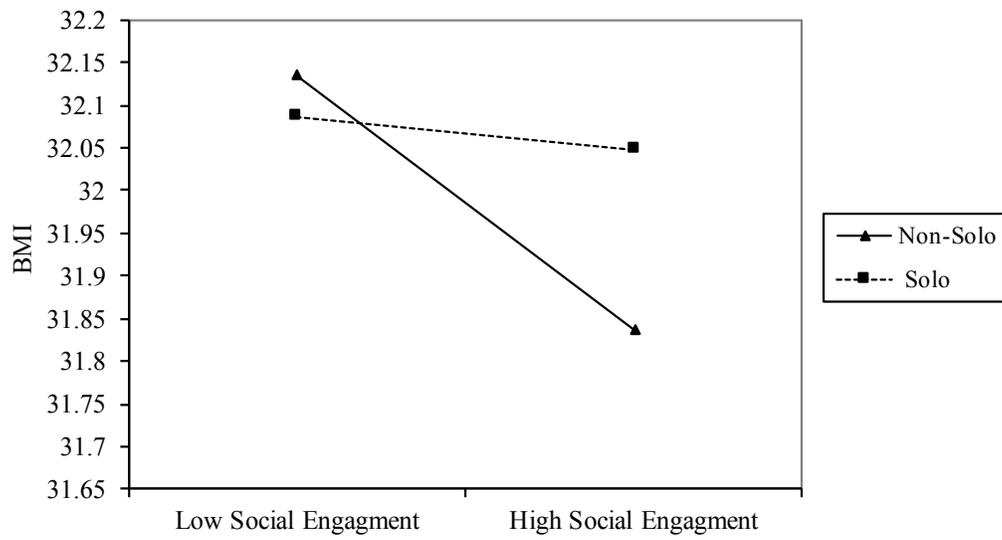


Figure 3

The Interaction of Non-Solo Clergy with Social Engagement in Predicting BMI



Appendix A: Social Relationship and Mental Health Measures

Social Support (MOS Social Support Survey)

The next 8 items ask about kinds of support you may have available to you.

E-1. People sometimes look to others (partners, friends, relatives) for companionship, assistance, or other types of support. If you need it, would you say there is:

	None of the time	A Little of the time	Some of the time	Most of the time	All of the time
a. Someone you can count on to listen to you when you need to talk	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
b. Someone to give you information to help you understand a situation	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
c. Someone to give you good advice about a crisis.....	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
d. Someone to confide in or talk to about yourself or your problems	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
e. Someone whose advice you really want.....	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
f. Someone to share your most private worries and fears with.....	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
g. Someone to turn to for suggestions about how to deal with a personal problem	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
h. Someone who understands your problems	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>

Social Engagement (Q-LES-Q Social Relationships Subscale)

C2-3.					
	Never	Infrequently	Sometimes	Often	Very frequently
During the past week, how often have you:					
a. Looked forward to getting together with friends or relatives?	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
b. Enjoyed talking with co-workers or neighbors?	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
c. Felt affection toward one or more people?	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
d. Joked or laughed with other people?	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
e. Felt you met the needs of friends or relatives?	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>

Social Isolation**A-8. How socially isolated do you feel?**

Not at all socially isolated	1
Slightly socially isolated.....	2
Moderately socially isolated.....	3
Very socially isolated.....	4
Extremely socially isolated	5

Relationship Satisfaction (Quality of Relationship Index)

The next statements refer to your thoughts and feelings about your relationships with your spouse or significant other. Please indicate how much each statement is true about your relationship with your spouse or significant other. Remember that all of your answers are separated from your name and are strictly confidential.

E-3. Please indicate how much each statement is true about your relationship with your spouse or significant other.

	Not at all true	A little true	Somewh at true	Mostly true	Very true
a. You have a good relationship	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
b. Your relationship with your spouse is very stable	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
c. Your relationship is strong	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
d. Your relationship with your spouse makes you happy	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>

E-4. Everything considered, how happy are you in your relationship?

- Very unhappy 1
- Somewhat unhappy..... 2
- Neither unhappy nor happy 3
- Somewhat happy 4
- Very happy 5

Depression (PHQ-8)

The next several questions ask about problems that may have been bothering you recently. Please remember that your name will be separated from your answers and we are bound never to release an individual's responses to anyone.

A-5. Over the last 2 weeks, how often have you been bothered by any of the following problems?

	Not at all	Several days	More than half the days	Nearly everyday
a. Little interest or pleasure in doing things.....	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>
b. Feeling down, depressed, or hopeless.....	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>
c. Trouble falling asleep, staying asleep, or sleeping too much.....	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>
d. Feeling tired or having little energy	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>
e. Poor appetite or overeating.....	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>
f. Feeling bad about yourself, feeling that you are a failure, or feeling that you have let yourself or your family down.....	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>
g. Trouble concentrating on things such as reading the newspaper or watching television	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>
h. Moving or speaking so slowly that other people could have noticed. Or being so fidgety or restless that you have been moving around a lot more than usual.....	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>

Flourishing (MHC-SF)

E-6. Please select the box that represents your feelings and experiences during the past month.

During the <u>past month</u> , how often did you feel the following ways ...?	Never	Once or twice	About once a week	Two or three times a week	Almost every day	Every day
a. Happy	0 <input type="checkbox"/>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
b. Content	0 <input type="checkbox"/>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
c. Joyful	0 <input type="checkbox"/>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
d. Interested in life	0 <input type="checkbox"/>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
e. Satisfied with life	0 <input type="checkbox"/>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
f. That you had something important to contribute to society	0 <input type="checkbox"/>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
g. That you belonged to a community (like a social group, faith community, church, school, neighborhood, etc.)	0 <input type="checkbox"/>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
h. That our society is a good place, or is becoming a better place, for all people	0 <input type="checkbox"/>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
i. That people are basically good	0 <input type="checkbox"/>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
j. That the way our society works makes sense to you	0 <input type="checkbox"/>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
k. That you liked most parts of your personality	0 <input type="checkbox"/>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
l. Good at managing the responsibilities of your daily life	0 <input type="checkbox"/>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
m. That you had warm and trusting relationships with others	0 <input type="checkbox"/>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
n. That you had experiences that challenged you to grow and become a better person	0 <input type="checkbox"/>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>

Flourishing (MHC-SF; Continued)

During the <u>past month</u> , how often did you feel the following ways ...?	Never	Once or twice	About once a week	Two or three times a week	Almost every day	Every day
o. Confident to think or express your own ideas or opinions	0 <input type="checkbox"/>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
p. That your life has a sense of direction or meaning to it	0 <input type="checkbox"/>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>

Life Satisfaction (Satisfaction with Life Scale)

Next are five statements with which you may agree or disagree. Using the response options, you can indicate your level of agreement or disagreement with each statement. Please be open and honest in your responding.

D-1. Please indicate your level of agreement or disagreement with each statement.

	Strongly disagree	Disagree	Slightly disagree	Neither agree nor disagree	Slightly agree	Agree	Strongly agree
a. In most ways my life is close to my ideal.....	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>	6 <input type="checkbox"/>	7 <input type="checkbox"/>
b. The conditions of my life are excellent	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>	6 <input type="checkbox"/>	<input type="checkbox"/>
c. I am satisfied with my life	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>	6 <input type="checkbox"/>	<input type="checkbox"/>
d. So far I have gotten the important things I want in life.....	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>	6 <input type="checkbox"/>	<input type="checkbox"/>
e. If I could live my life over, I would change almost nothing.....	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>	6 <input type="checkbox"/>	<input type="checkbox"/>

Ministry Satisfaction

D-2. At the present, what is your level of satisfaction with your current ministry position?

- Very satisfied..... 1
- Somewhat satisfied 2
- Somewhat dissatisfied..... 3
- Very dissatisfied 4