Pastoral Psychology (2019) 68:331–343
https://doi.org/10.1007/s11089-018-0844-y

Occupational Distress and Health among a Sample of Christian Clergy

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Published online: 6 October 2018

Abstract

To examine the association between occupational distress, physical and mental health, and health behaviors *among clergy,* a convenience sample of full-time Christian clergy ($N = 221$) completed a questionnaire that included the Clergy Occupational Distress Index (CODI) as well as demographic, occupational, health, and behavioral variables. Descriptive statistics and regression analyses were used to analyze the data. Higher scores on the CODI were associated with high blood pressure, diabetes, chronic stress disorder, depression, anxiety, more hours spent sitting per day, and more hours worked per week. Although years in ministry was not associated with scores on the CODI, a covariate in the model (age) did exhibit an inverse relationship with scores on the CODI. The present study provides support for the potential of occupational distress to negatively influence the health of full-time Christian clergy, especially those who are younger. Further research is needed to examine the temporal relationships among occupational distress, health, and health behaviors among full-time clergy.

Keywords Clergy · Health · Stress · Occupational distress

Data from the U.S. Department of Labor (2017) indicate there are approximately 244,200 clergy employed in the United States. Among their many duties, clergy prepare and deliver sermons, lead worship services, officiate weddings and funerals, visit sick and homebound congregants, and provide counseling to congregants on a myriad of issues. It is clear that clergy are integral to the operation of faith-based organizations (FBOs). The need to fulfill so many duties within FBOs could lead to immense psychosocial stress for clergy.

Psychosocial stress can be defined as a perceived, nonphysical threat to an individual that results in a disruption to homeostasis (i.e., stable conditions in the body) (Selye 2013). This disruption is widely known as the stress response. The stress response is beneficial in preparing the body to deal with a real or perceived threat, but a stress response that persists and/or

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frequently occurs (i.e., chronic stress) can have harmful effects on physical and mental health. For example, chronic stress is associated with increased appetite, preference for comfort foods, and visceral fat accumulation, all of which increases the risk of developing obesity (Dallman 2010; Sominsky and Spencer 2014; Spencer and Tilbrook 2011). Chronic stress is also associated with an increased risk for cardiovascular disease (Kivimäki et al. 2012; Steptoe and Kivimäki 2013), high blood pressure (Rosenthal and Alter 2012; Spruill 2010), acute myocardial infarction (Rosengren et al. 2004), diabetes (Harris et al. 2017; Pouwer et al. 2010), depression (Schneiderman et al. 2005; Vinkers et al. 2014), and anxiety (Lupien et al. 2009).

Many studies have investigated psychosocial stress among clergy. In a seminal study by Mills and Koval (1971), a majority of the clergy they surveyed reported experiencing psychosocial stress throughout the entirety of their career. Subsequently, a clear trend has emerged in the research literature supporting the view that the clergy occupation is stressful (C. Lee and Iverson-Gilbert 2003; Lewis et al. 2007; Morris and Blanton 1994; omitted for blinding, 2016). Considering the potential for stress to negatively affect health, it is noteworthy that obesity and some chronic diseases are prevalent among Christian clergy (Halaas 2002; Proeschold-Bell and LeGrand 2010; Webb et al. 2013). Also of importance is an early finding that, compared to other occupations, clergy have among the highest specific-cause mortality rates for ischemic heart disease (Calvert et al. 1999). Both quantitative and qualitative research indicate that occupational distress may be responsible for much of the negative physical and mental health outcomes often seen among clergy (Ferguson et al. 2015; Webb et al. 2016; Wells 2013).

Lifestyle behaviors may help to protect clergy from the harmful effects of occupational distress on health. Participation in regular physical activity reduces the risk for cardiovascular and metabolic disease as well as mental health conditions such as anxiety and depression (Physical Activity Guidelines Advisory Committee 2008). Physical activity has also been shown to reduce sensitivity to psychosocial stress (Childs and de Wit 2014; von Haaren et al. 2015; Zschucke et al. 2015) and is proposed as an essential strategy for coping with chronic stress (Tsatsoulis and Fountoulakis 2006). A recent review of the literature examining the relationship between stress and physical activity reported that a majority of studies found an inverse association between stress and physical activity (Stults-Kolehmainen and Sinha 2014). Other studies have found that time spent in sedentary behavior (i.e., sitting) is positively associated with stress (Ng and Jeffery 2003; Vásquez et al. 2016), depression (Vallance et al. 2011), cardiovascular disease, diabetes, and mortality (Ford and Caspersen 2012; Kim et al. 2013; Matthews et al. 2012), with some studies reporting that the effects of sedentary behavior on health were independent of time spent in physical activity (Ford and Caspersen 2012; Kim et al. 2013; Matthews et al. 2012; Teychenne et al. 2010; Zhai et al. 2015). These findings indicate that physical activity and sedentary behavior are distinct behaviors, as has been suggested by others (Manini et al. 2015; Rosenberg et al. 2015), that may be independently associated with stress and other health-related outcomes.

The purpose of this study was to expand on the research literature regarding the health of clergy with the specific aim of examining the association between occupational distress, physical and mental health, physical activity, and sedentary behavior. Based on the results of previous research, it was hypothesized that occupational distress would be associated with a higher body mass index (BMI), presence of chronic disease (e.g., heart disease, diabetes), presence of mental health conditions (e.g., anxiety, depression), less physical activity, and more sedentary behavior.

Method

Participants

Data from the Association of Statisticians of American Religious Bodies (2010) were used to identify the largest denominations (i.e., number of congregations) in Illinois. An internet search was used to obtain the e-mail addresses for primary clergy (e.g., parish priest, lead pastor) representing the Roman Catholic, Methodist, Lutheran, and Baptist traditions. Clergy ($N = 1288$) were then sent an email inviting them to complete a web-based questionnaire regarding their perceptions of the clergy vocation and its impact on their health. E-mail reminders about completing the questionnaire were sent seven days and 14 days after the initial invitation. As an incentive, clergy who completed the questionnaire were entered into a lottery to win one of two $100 gift cards. To be included in the analyses, clergy had to be working full-time as a clergy member and could not be employed outside of the FBO (i.e., they could not be bivocational). The questionnaire was accessed and completed by 297 individuals. Seventy-six of the respondents did not meet eligibility criteria (final response rate = 17.2%). Informed consent was obtained from all individual clergy included in the study. This study was reviewed and approved by the Institutional Review Board at Southern Illinois University Edwardsville.

Measures

Demographics Clergy were asked to report their age (years), sex, race, education level, years in ministry, hours worked per week as a member of the clergy, employment status with their FBO (full-time/part-time/as needed), and whether they were also employed outside of the FBO (yes/no). They were also asked to report the religious tradition or denomination they were affiliated with. Employment status and whether they worked outside the FBO were used as exclusion criteria and were not included in the statistical analyses.

Health-related Clergy were presented with a list of chronic diseases and asked to indicate the diseases they had been diagnosed with or were being treated for. Responses were dichotomized as 0 = not present, 1 = present. Clergy were asked to report their height (inches) and weight (pounds), and then their BMI was calculated using the standard equation (weight (pounds)/height (inches)$^2 \times 703$).

Physical activity and sedentary behavior The International Physical Activity Questionnaire—Short Version (IPAQ-S) was used to collect data on participants' time spent in physical activity and sedentary behavior in the last seven days. For physical activity, participants are provided with examples of moderate physical activity and then asked to report the frequency (days per week) and duration (total hours and minutes usually spent on one of those days) spent in moderate physical activity. They are then presented with examples of vigorous physical activities and asked to report the frequency and duration spent in vigorous physical activity. In accordance with guidelines for scoring the IPAQ-S (International Physical Activity Questionnaire Group 2005), physical activity was calculated as total metabolic equivalent (MET) minutes per week spent in moderate to vigorous physical activity. Sedentary behavior is measured by a single question that asks, "During the last 7 days, how much time [hours and minutes] in total did you usually spend sitting on a week day?" Sedentary behavior is

calculated as hours per day spent sitting. The IPAQ-S demonstrated acceptable test-retest reliability (rho = 0.8) and criterion-related validity when compared with accelerometers (rho = 0.3) in a 12-country study that included the United States (Craig et al. 2003).

Occupational distress The Clergy Occupational Distress Index (CODI) is a five-item index that asks clergy to indicate how often they have experienced a stressful situation with their congregants over the past year. It includes items such as, "Over the past year, how often have you experienced stress because of the challenges you have in this congregation?" Response choices range from 1 = never to 4 = very often. Possible scores range from 5 to 20, with higher scores indicative of greater occupational distress. The CODI has demonstrated good internal consistency ($\alpha = 0.77–0.82$) and construct validity ($p < .0001$) (Frenk et al. 2013).

Statistical analysis

Analyses were conducted using IBM SPSS Statistics software (Version 22). Descriptive statistics were calculated for all variables in the study. Linear regression models were used for years in ministry and hours worked per week as continuous independent variables, with scores on the CODI as the dependent variable. Covariates included in these analyses were age and gender.

Binary logistic regression models were used for all analyses involving chronic disease as dichotomous dependent variables (not present/present), with scores on the CODI being the independent variable. Following the example of Antwi and colleagues (Antwi et al. 2017), prior to conducting the binary logistic regression analysis we conducted independent *t*-tests for continuous variables (age, BMI, physical activity, sedentary behavior, and hours worked per week) and Chi-square tests for a categorical variable (gender) to determine their association with each chronic disease. Variables that were found to be associated with the chronic disease ($p \leq 0.20$) were entered into the logistic regression model as covariates. Rare events (stroke, lung disease, chronic stress, and cancer) were excluded from the analyses but are reported with the description of the sample (see Table 1).

Finally, linear regression models were used for BMI, physical activity, and sedentary behavior as continuous dependent variables, with scores on the CODI as the independent variable. Covariates included in these analyses were age and gender. Race and education level were excluded from all analyses due to the lack of variance in these variables (i.e., the sample was nearly 100% White and nearly 100% held a master's degree or higher). Significance was set at $p < .05$ for all analyses.

Results

A full description of the sample can be found in Table 1. Clergy ($n = 221$) were primarily middle-aged, male, and White and held a master's degree or higher. Clergy reported working in the ministry for an average of 18.7 years ($SD = 13.2$) and working an average of 46.1 h/week ($SD = 16.1$) in their ministry role. Clergy reported their church was affiliated with the Methodist ($n = 97$), Lutheran ($n = 91$), Roman Catholic ($n = 26$), or Baptist ($n = 7$) tradition. The most commonly reported chronic diseases were high blood pressure (33.5%), high cholesterol (29.0%), arthritis (15.4%), depression (14.9%), and anxiety (12.7%). Fifty-two

Table 1 Characteristics of the sample ($N = 221$)

Characteristic	Mean (SD)	*n* (%)
Age	51.9 (12.1)	
Gender, % male		164 (74.2)
Race, % White		210 (95.0)
Attained a master's degree or higher		206 (93.1)
Years in ministry	18.7 (13.2)	
Hours worked per week	46.1 (16.1)	
Denominational affiliation		
Methodist		97 (44.0)
Lutheran		91 (41.1)
Roman Catholic		26 (11.7)
Baptist		7 (3.2)
Self-reported chronic diseases		
High blood pressure		74 (33.5)
High cholesterol		64 (29.0)
Type 2 diabetes		23 (10.4)
Heart disease		15 (6.8)
Stroke		1 (0.5)
Lung disease		5 (2.3)
Arthritis		34 (15.4)
Chronic stress disorder		1 (0.5)
Depression		33 (14.9)
Anxiety		28 (12.7)
Cancer (any type)		8 (3.6)
Body mass index	31.0 (6.61)	
Physical activity (MET min/week)	959 (345–2206)[a]	
Sedentary behavior (hours/day sitting)	6.00 (4.00–8.33)[a]	
Clergy occupational distress index	11.5 (3.41)[b]	

MET, metabolic equivalent

[a] median (interquartile range)

[b] scores range from 5 to 20, with higher scores indicative of greater perceived stress

percent of clergy were classified as obese (BMI ≥ 30.0). Clergy reported a median of 959 MET minutes/week (*IQR* = 345–2206) of total physical activity and reported spending a median of 6.00 h/day (*IQR* = 4.00–8.33) sitting. The average score on the CODI was 11.5 (*SD* = 3.41).

A simple linear regression model was used to test whether years in ministry significantly predicted scores on the CODI. After controlling for age and gender, years in ministry was not a significant predictor of scores on the CODI ($\beta = .012$, $t(219) = .541$, $p = .60$). However, we did note that the covariate of age was a significant predictor of scores on the CODI ($\beta = -.10$, $t(219) = -4.12$, $p < .01$). Another simple linear regression model was used to test if hours worked per week significantly predicted scores on the CODI. After controlling for age and gender, hours worked per week was a significant predictor of scores on the CODI ($\beta = .27$, $t(219) = 4.27$, $p < .01$). Hours worked per week explained a significant proportion of the variance in scores on the CODI ($R^2 = .07$, $F(1,220) = 18.22$, $p < .01$).

A binary logistic regression was performed to determine the effects of age, sex, BMI, physical activity, and occupational distress on the likelihood that participants have high blood pressure (see Table 2). The logistic regression model was not statistically significant, $\chi 2(8) = 14.782$, $p = .064$. The model explained 35.0% (Nagelkerke R^2) of the variance in high blood pressure and correctly classified 57.0% of cases. Increasing age, BMI, and occupational distress were associated with an increased likelihood of reporting a diagnosis high blood pressure.

Table 2 Logistic regression predicting likelihood of reporting a diagnosis of high blood pressure

	B	SE	Wald	*df*	*p*	Odds ratio	95% CI for odds ratio	
							Lower	Upper
Age	.10	.02	27.09	1	.000	1.10	1.06	1.14
Sex	.83	.42	3.82	1	.051	2.29	1.00	5.27
Body mass index	.13	.03	21.36	1	.000	1.14	1.08	1.21
Physical activity	.00	.00	.59	1	.442	1.00	1.00	1.00
Occupational distress	.13	.05	5.54	1	.019	1.14	1.02	1.27
Constant	−12.14	1.94	39.14	1	.000	.00		

Sex = males versus females

A binary logistic regression was performed to determine the effects of age, sex, BMI, physical activity, and occupational distress on the likelihood that participants have high cholesterol (see Table 3). The logistic regression model was not statistically significant, $\chi 2(8) = 10.128$, $p = .256$. The model explained 26.0% (Nagelkerke R^2) of the variance in high cholesterol and correctly classified 25% of cases. Males were more likely to report having high cholesterol than females. Increasing age and BMI were associated with an increased likelihood of reporting a diagnosis of high cholesterol.

A binary logistic regression was performed to determine the effects of age, BMI, physical activity, and occupational distress on the likelihood that participants have type 2 diabetes (see Table 4). The logistic regression model was not statistically significant, $\chi 2(8) = 3.934$, $p = .863$. The model explained 36.0% (Nagelkerke R^2) of the variance in type 2 diabetes and correctly classified 17.0% of cases. Increasing age, BMI, and occupational distress were associated with an increased likelihood of reporting a diagnosis of type 2 diabetes.

A binary logistic regression was performed to determine the effects of age, sex, BMI, physical activity, and occupational distress on the likelihood that participants have heart disease (see Table 5). The logistic regression model was not statistically significant, $\chi 2(8) = 7.118$, $p = .524$. The model explained 25.0% (Nagelkerke R^2) of the variance in heart disease and correctly classified 13.0% of cases. Increasing age was associated with an increased likelihood of reporting a diagnosis of heart disease.

A binary logistic regression was performed to determine the effects of age, BMI, physical activity, and occupational distress on the likelihood that participants have arthritis (see Table 6). The logistic regression model was not statistically significant, $\chi 2(8) = 3.513$, $p = .898$. The model explained 18.0% (Nagelkerke R^2) of the variance in arthritis and correctly

Table 3 Logistic regression predicting likelihood of reporting a diagnosis of high cholesterol

	B	SE	Wald	*df*	*p*	Odds ratio	95% CI for odds ratio	
							Lower	Upper
Age	.07	.02	17.10	1	.000	1.07	1.04	1.11
Sex	1.38	.45	9.27	1	.002	3.97	1.63	9.63
Body mass index	.07	.03	6.58	1	.010	1.07	1.02	1.12
Physical activity	.00	.00	.31	1	.580	1.00	1.00	1.00
Occupational distress	.05	.05	1.12	1	.290	1.06	.96	1.17
Constant	−8.34	1.66	25.34	1	.000	.00		

Sex = males versus females

Table 4 Logistic regression predicting likelihood of reporting a diagnosis of type 2 diabetes

	B	SE	Wald	*df*	*p*	Odds ratio	95% CI for odds ratio	
							Lower	Upper
Age	.09	.03	11.10	1	.001	1.10	1.04	1.16
Body mass index	.18	.04	16.72	1	.000	1.19	1.10	1.30
Physical activity	.00	.00	.54	1	.464	1.00	1.00	1.00
Occupational distress	.23	.08	8.50	1	.004	1.25	1.08	1.46
Constant	−15.77	2.98	28.08	1	.000	.00		

classified 13.0% of cases. Increasing age and occupational distress were associated with an increased likelihood of reporting a diagnosis of arthritis.

A binary logistic regression was performed to determine the effects of age, sex, BMI, physical activity, and occupational distress on the likelihood that participants have depression (see Table 7). The logistic regression model was statistically significant, $\chi 2(8) = 19.096$, $p = .014$. The model explained 24.0% (Nagelkerke R^2) of the variance in depression and correctly classified 15.0% of cases. Males were less likely to report having depression than females. Increasing occupational distress was associated with an increased likelihood of reporting a diagnosis of depression.

A binary logistic regression was performed to determine the effects of age, sex, BMI, physical activity, and occupational distress on the likelihood that participants have anxiety (see Table 8). The logistic regression model was not statistically significant, $\chi 2(8) = 11.715$, $p = .164$. The model explained 22.0% (Nagelkerke R^2) of the variance in anxiety and correctly classified 18.0% of cases. Males were less likely to report having anxiety than females. Increasing age and occupational distress were associated with an increased likelihood of reporting a diagnosis of anxiety.

Separate linear regression models were used to test whether scores on the CODI significantly predicted BMI, physical activity, and sedentary behavior. After controlling for age and gender in all three models, it was found that scores on the CODI did not predict BMI ($\beta = .00$, $t(217) = .04$, $p = .97$) or MET minutes/week of total physical activity ($\beta = 45.9$, $t(217) = .99$, $p = .32$). However, scores on the CODI significantly predicted time spent in sedentary behavior ($\beta = .16$, $t(217) = 2.33$, $p = .02$), but the model did not explain a significant proportion of the variance in time spent in sedentary behavior ($R^2 = .03$, $F(3,220) = 2.28$, $p = .08$).

Table 5 Logistic regression predicting likelihood of reporting a diagnosis of heart disease

	B	SE	Wald	*df*	*p*	Odds ratio	95% CI for odds ratio	
							Lower	Upper
Age	.10	.04	7.02	1	.008	1.10	1.03	1.18
Sex	1.56	1.09	2.07	1	.151	4.76	.57	39.89
Body mass index	−.02	.05	.10	1	.754	.98	.89	1.10
Physical activity	.00	.00	1.34	1	.247	1.00	1.00	1.00
Occupational distress	−.12	.11	1.22	1	.270	.89	.72	1.10
Constant	−7.93	3.32	5.71	1	.017	.00		

Sex = males versus females

Table 6 Logistic regression predicting likelihood of reporting a diagnosis of arthritis

	B	SE	Wald	*df*	*p*	Odds ratio	95% CI for odds ratio	
							Lower	Upper
Age	.09	.02	14.80	1	.000	1.09	1.04	1.14
Body mass index	.05	.03	2.89	1	.089	1.05	.99	1.12
Physical activity	.00	.00	.07	1	.788	1.00	1.00	1.00
Occupational distress	.15	.06	6.58	1	.010	1.17	1.04	1.31
Constant	−9.78	1.97	24.61	1	.000	.00		

Discussion

The primary purpose of this research study was to examine the association between occupational distress, physical health, mental health, physical activity, and sedentary behavior among a sample of Christian clergy. We hypothesized that occupational distress would be associated with greater BMI, presence of chronic disease, presence of mental health conditions, less physical activity, and more sedentary behavior. Our research supported some of these hypotheses, most notably in regard to mental health conditions. We also hypothesized that occupational distress would be associated with less time spent in physical activity, but this hypothesis was not supported. Additional findings of potential importance were that increasing age predicted less perceived occupational distress and working more hours per week predicted greater perceived occupational distress.

Several of our findings were consistent with previous research. Greater perceived occupational distress was associated with an increased likelihood of reporting a diagnosis of high blood pressure, supporting previous research that has found a positive association between stress and blood pressure (Rosenthal and Alter 2012; Spruill 2010). Greater perceived occupational distress was also associated with an increased likelihood of reporting a diagnosis of type 2 diabetes, which agrees with previous research indicating that psychosocial stress increases the risk for diabetes (Harris et al. 2017; Pouwer et al. 2010). Also, greater perceived occupational distress was associated with an increased likelihood of reporting a diagnosis of depression and/or anxiety. The risk for these mental health conditions is increased with repeated exposure to psychosocial stress (Lupien et al. 2009; Schneiderman et al. 2005; Vinkers et al. 2014). Greater perceived occupational distress was also associated with an

Table 7 Logistic regression predicting likelihood of reporting a diagnosis of depression

	B	SE	Wald	*df*	*p*	Odds ratio	95% CI for odds ratio	
							Lower	Upper
Age	−.01	.02	.14	1	.713	.99	.96	1.03
Sex	−1.08	.42	6.61	1	.010	.34	.15	.77
Body mass index	.03	.03	.83	1	.364	1.03	.97	1.09
Physical activity	.00	.00	4.50	1	.034	1.00	.99	1.00
Occupational distress	.21	.06	11.3	1	.001	1.24	1.09	1.40
Constant	−3.72	1.61	5.36	1	.021	.02		

Sex = males versus females

Table 8 Logistic regression predicting likelihood of reporting a diagnosis of anxiety

	B	SE	Wald	*df*	*p*	Odds ratio	95% CI for odds ratio	
							Lower	Upper
Age	−.04	.02	4.80	1	.028	.96	.93	1.00
Sex	−1.41	.45	9.93	1	.002	.24	.10	.59
Body mass index	.01	.03	.21	1	.644	1.01	.96	1.08
Physical activity	.00	.00	.76	1	.385	1.00	1.00	1.00
Occupational distress	.15	.07	5.13	1	.024	1.16	1.02	1.32
Constant	−1.49	1.60	.86	1	.354	.23		

Sex = males versus females

increased likelihood of spending time in sedentary behavior, which is in line with previous research demonstrating a positive association between stress and sedentary behavior (Ng and Jeffery 2003; Vásquez et al. 2016). These findings highlight the need for comprehensive health programs attentive to both the physical and mental health needs of clergy.

A few of our findings were inconsistent with previous research. Although previous research indicates stress is associated with an increased risk for obesity (Dallman 2010; Ferguson et al. 2015; Sominsky and Spencer 2014; Spencer and Tilbrook 2011), we did not find an association between occupational distress and BMI—an indicator of weight status—in our sample. In addition to the potential for clergy to overestimate how much physical activity they do, other lifestyle-related factors (e.g., dietary habits) may have played a more important role in preventing weight gain among clergy in our sample. It is also possible that some clergy had only recently become physically active in an effort to lose weight and/or improve their health. Future research examining the health and behaviors of clergy should consider collecting data on dietary habits. Researchers should also consider adopting measures such as the Physical Activity Stages of Change Questionnaire (Marcus and Forsyth 2009, p. 21), to help classify participants according to how long they have been physically active.

The research literature is replete with studies demonstrating a positive association between stress, work-related or otherwise, and cardiovascular disease (e.g., Kivimäki and Kawachi 2015; Kivimäki et al. 2012; Rosengren et al. 2004; Steptoe and Kivimäki 2013). Although our study found an association between occupational distress and risk factors for heart disease, we did not find an association between occupational distress and self-reported heart disease. The possible explanations for the lack of association found in our study are numerous. It is difficult to imagine that clergy in our study hoped to gain anything from falsely reporting a diagnosis of heart disease. A more optimistic explanation is that many of the clergy in our study with heart disease learned to better manage their stress. The likeliest of explanations may be that older clergy, regardless of occupational distress, were more likely to report a diagnosis of heart disease. Our analysis supports this explanation; in the regression model for heart disease, only age was a significant predictor of reporting a diagnosis of heart disease. Future research investigating occupational distress among clergy will need to utilize a prospective design to determine whether occupational distress influences heart disease risk among clergy.

In our study, occupational distress was not associated with time spent in physical activity. This contradicts findings from a recent review of the literature in which the majority of studies demonstrated an inverse association between stress and physical activity (Stults-Kolehmainen and Sinha 2014). It is possible that physical activity behavior was truly unaffected by stress in our study or vice versa. As previously mentioned, it is also possible that the self-report nature

of the physical activity measure we used led some clergy to overestimate the amount of time they spent being active. Previous research has demonstrated that self-reported physical activity can be substantially higher than objectively measured (e.g., using an accelerometer) physical activity (Troiano et al. 2008; Tucker et al. 2011). We should point out that our findings regarding physical activity and sedentary behavior support the argument that they should be considered distinct behaviors (Manini et al. 2015; Rosenberg et al. 2015). If not cost-prohibitive, future research should include an objective measure of physical activity to get a more accurate estimate of time spent in physical activity as well as sedentary behavior.

There were additional findings of potential importance in our study. Years working in the ministry did not predict perceived occupational distress; however, the covariate of age was a significant predictor of occupational distress in the model; regardless of how many years they had been in ministry, older clergy reported less occupational distress. Similar to our findings, Randall (2007) also found that regardless of years in ministry, older clergy are less likely to report occupational burnout, a state of physical and emotional exhaustion resulting from the stressfulness of an occupation (Freudenberger 1974). Similarly, Doolittle (2010) found that younger clergy in his study were more likely to meet the criteria for burnout. Our findings are further supported by a review of the literature regarding stress vulnerability in old age that found that older adults develop more adaptive responses to daily stressors than their younger counterparts (Schilling and Diehl 2015). This indicates that FBOs have before them three options: (1) only hire older clergy, (2) better prepare younger clergy for the demands of the occupation, or (3) implement policies to minimize exposure to occupational distress. Options two and three seem the most ethical and reasonable to pursue for administrators of FBOs as well as for researchers interested in the health and behaviors of clergy.

Finally, the number of hours worked per week was a significant predictor of greater perceived occupational distress. The positive association between number of hours worked per week and stress has been supported in other populations (Härmä 2006; Lee et al. 2017; Luther et al. 2017). It appears that as the number of hours worked per week increases for clergy, so too does the risk of experiencing stress and, potentially, stress-related health issues. Common sense dictates that the more clergy work, the less time they will have for family and for self-care, which would likely aggravate the stressfulness of their occupation. Future research should collect additional information about the characteristics of clergy and their workplace that might influence perceptions of occupational distress.

There are some important limitations related to the interpretation of our results. First, this study used a cross-sectional design, which does not provide sufficient evidence to examine causal relationships between variables. For example, it is impossible to determine whether the clergy in this study entered the ministry with a chronic disease or developed it after repeated exposure to occupational stressors. Future studies would need to use a longitudinal design to examine the temporal relationship between occupational distress, health, and health behaviors. Second, although not uncommon for web-based survey research, the response rate to our questionnaire was low. Third, our sample did include a large percentage of female clergy, but it lacked diversity in regard to race, denominational affiliation, and geographic location. Our results may not generalize to clergy from different racial/ethnic groups, denominational backgrounds, or different regions of the United States. Finally, this study relied on self-report measures of stress, health, and health behaviors. In particular, it is possible that the stress measure used in our study does not adequately tap into the different characteristics of occupational distress. An extensively studied model of occupational distress is the job strain model (Karasek et al. 1981); it proposes that the demands of the job and the degree of control

an individual feels they have over their work interact to determine the amount of job strain the individual experiences. The CODI assesses perceptions of job demands but does not ask respondents about whether they feel they have control in their work environment. The CODI also does not assess whether clergy perceive that the effort they put into meeting the demands of their occupation is or would be rewarded, which could also help protect them from some of the health risks associated with stress (Steptoe et al. 2004). Future research should consider the use of more comprehensive and, when possible, objective measures of stress, health, and behavioral variables.

In conclusion, occupational distress has the potential to negatively influence the health and behaviors of clergy. In particular, clergy with greater perceptions of occupational distress may be at greater risk for high blood pressure, diabetes, depression, and anxiety. They may also spend more time in sedentary behavior, itself associated with numerous health risks. Exposure to occupational distress may be inescapable for clergy, and therefore we propose that seminaries and other theological schools consider developing curricula to educate clergy in training on various self-care activities such as living an active lifestyle and managing stress. Administrators of FBOs could complement this education with annual workshops and retreats that promote self-care among clergy. Researchers should continue to assist FBOs in better understanding occupational distress and health among clergy as well as in the development of evidence-based strategies to positively influence the health and behaviors of clergy.

Acknowledgements This research was funded by Seed Grants for Transitional and Exploratory Projects, made available by Southern Illinois University Edwardsville. All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards.

Funding This research was funded by Seed Grants for Transitional and Exploratory Projects, made available by Southern Illinois University Edwardsville.

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