

Chronic Financial Strain, Gratitude, and
Change in Depressive Symptoms Over Time

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ABSTRACT

Two hypotheses are evaluated in this study. The first predicts that feelings of gratitude will offset (i.e., mediate) the deleterious effects of chronic financial strain on depressive symptoms over time. The second hypothesis specifies that feelings of gratitude will be more stable over time for people who are more deeply involved in religion than for individuals who are less involved in religion. Data from a nationwide longitudinal study of older adults provide support for both hypotheses. The data suggest that the effects of ongoing economic difficulty on depressive symptoms are especially pronounced for older people who are relatively less grateful. But in contrast, persistent financial difficulties fail to exert a statistically significant effect on depressive symptoms over time for older individuals who are especially grateful. The results further reveal that more frequent church attendance helps sustain or maintain stronger feelings of gratitude over time.

INTRODUCTION

The purpose of this study is to see if feelings of gratitude help offset the deleterious effect of chronic financial strain on depressive symptoms in late life. In the process, an effort is made to determine if feelings of gratitude are influenced by greater involvement in religion. Working with the notion of gratitude is challenging because, as Emmons, McCullough, and Tsang (2003: 327) point out, gratitude is difficult to define, and it, "...defies easy classification. It has been conceptualized as an emotion, an attitude, a moral virtue, a habit, a personality trait, and a coping response." No attempt will be made to resolve these long-standing issues here. Instead, for the purposes of the current study, gratitude is viewed as a virtue or character strength that involves feelings of thankfulness that arise, "... in response to receiving a gift, whether the gift be a tangible benefit from a specific other or a moment of peaceful bliss evoked by natural beauty" (Peterson and Seligman 2004:554).

The theoretical rationale for this study is developed below in two sections. First, the social roots of gratitude are examined, with an emphasis on the potentially important influence of religion. Following this, a key function of gratitude is assessed. More specifically, the way in which gratitude may buffer or offset the deleterious effects of stress on depressive symptoms is explored in detail.

Religious Influences on Gratitude

As the definition that is provided by Peterson and Seligman (2004) reveals, feelings of gratitude may arise from a number of sources. For example, people may feel grateful to other individuals for things they have done. People may also feel grateful to

life in general or they may feel grateful for the beauty of nature. However, one potentially important source of gratitude is especially important for the current study. More specifically, a number of investigators argue that people who are more involved in religion tend to be more grateful than individuals who are less involved in religion (Schimmel 2004; Roberts 2004; Peterson and Seligman 2004). In fact, as Peterson and Seligman (2004) report, the virtue of gratitude is highly prized by the Christian, Jewish, Muslim, Buddhist, and Hindu faith traditions. Empirical support for the notion that gratitude is influenced by involvement in religion may be found, for example, in a study by Emmons and Kneezel (2005). Their work reveals that people who go to church more often and read the Bible more frequently tend to experience more grateful emotions than individuals who are less involved in these facets of religion. In the process of reviewing this research, it is important to point out that religiously-motivated feelings of gratitude are not necessarily restricted to God alone. Instead, as Roberts (2004) maintains, religiously-motivated feelings of gratitude may extend to other people, as well.

Exploring the Stress-Buffering Effects of Gratitude

Although research on gratitude is still in its infancy (Peterson and Seligman 2004), researchers are beginning to link a greater sense of gratitude with a wide range of constructs, including more frequent exercise (Emmons and Crumpler 2000), higher levels of enthusiasm and determination (Emmons, McCullough, and Tsang 2003), and a greater likelihood of helping others (McCullough, Emmons, and Tsang 2002). However, a small clusters of findings is especially important for the current study. This research suggests that people who are more grateful tend to have more positive emotions (Sheldon 2006) and fewer symptoms of depression and anxiety (McCullough et al. 2002).

Researchers have identified a number of mechanisms that may explain the relationship between gratitude and psychological well-being (Emmons 2000), but the potential stress-buffering properties of gratitude are especially intriguing. There are at least two ways in which feelings of gratitude may offset the pernicious effects of stress: one involves religion directly while the other is broader and encompasses secular influences, as well.

The religious explanation may be found in the work of Krause (2006). He argues that one of the core messages of the Christian faith involves trusting that God has a purpose and plan for each person's life, and even though this plan involves exposure to difficult experiences and adversities, the goal is to promote greater spiritual and personal development (Koenig 1994). If people believe that the problems they face are part of God's plan to strengthen them and help them grow, then they are more likely to feel grateful to God when adversity arises. Having linked adversity with gratitude, Krause (2006) goes on to suggest one way in which gratitude may, in turn, buffer the noxious effects of stress. When people are confronted with adverse situations, they often experience a flood of negative emotions. These negative feelings are captured succinctly by Pearlin and his colleagues in their discussion of the deleterious effects of persistent financial strain (Pearlin, Menaghan, Lieberman, and Mullin 1981). These investigators maintain that, "... persistent role strains can confront people with dogged evidence of their own failures - or lack of success - and with inescapable proof of their inability to alter the unwanted circumstances in their lives" (Pearlin et al. 1981:340). One way in which gratitude may buffer the effects of stress is by counterbalancing these negative emotions with positive feelings. And as Emmons and McCullough (2003) point out,

gratitude may serve this important function because people who are grateful tend to experience a greater sense of contentment, happiness, pride, and hope. As noted above, the focal stressor in the current study is chronic financial strain. As an extensive number of studies reveal, people who are exposed to ongoing financial difficulties are more likely to experience symptoms of depression than individuals who are not confronted by persistent economic challenges (e.g., Mendes de Leon, Rapp, and Kasl 1994). Perhaps the positive emotions that are fostered by religiously-based feelings of gratitude provide a powerful antidote to the feelings of depression that often accompany ongoing financial problems.

The second mechanism that may explain the potentially important stress-buffering effects of gratitude may be found by extending theoretical insights in the literature on chronic strain. By definition, chronic difficulties, such as financial strain, are persistent and ongoing, and as a result, there is often little that people can do to eliminate or avoid them. This is especially true with respect to chronic economic problems that arise in late life. Many older people live on fixed incomes and they often have fewer options than younger adults for improving their financial situation, such as re-entering the labor force. Under these circumstances, some researchers maintain that people try to cope with chronic stressors by investing their energies and efforts in other areas in their lives where they can exercise more control and where they can find greater satisfaction and meaning (Gottlieb 1997). More specifically, Gottlieb (1997:31) argues that, “..valued activities that seem to be unrelated to the primary difficulties of life, especially activities that are self-initiated, may in fact serve the indirect function of augmenting a sense of control, placing those difficulties in a broader perspective, and offsetting the distress occasioned

by them with positive experiences and emotional states.” To the extent that this type of compensatory coping strategy is successful, people are likely to feel grateful when they are able to find positive experiences in the face of adversity.

Two studies provide empirical support for the theoretical rationale that is developed in this section. The first, by Krause (2006), reveals that the deleterious effects of stressful life events on self-rated health are offset for older people with greater feelings of gratitude toward God. Although this study makes a contribution to the literature, it suffers from at least two limitations. First, the data are cross-sectional. As a result, strong assumptions must be made about the direction of causality between key study constructs, such as gratitude and health. Second, as the literature on stress has evolved, researchers quickly became aware that there are a number of different kinds of stressors, including stressful life events, daily hassles, and chronic strain (see Cohen, Kessler, and Underwood Gordon 1995, for a detailed discussion of these different stressors). And perhaps more important, some investigators maintain that some kinds of stressors have a greater effect on physical and mental health than other types of stressful experiences. More specifically, as Lepore (1995) argues, stressors that are persistent and ongoing (i.e., chronic strain) are more likely to exert an adverse effect on physical and mental health than either stressful life events or daily hassles. If chronic strain exerts a more deleterious effect than other stressors, then one way to assess the full potential of coping resources like gratitude is to see if it helps people deal more effectively with these especially difficult challenges.

The second study to assess the potential stress-buffering effects of gratitude was conducted by Wood, Joseph, and Linley (2007). These investigators examined the

interface between gratitude, stress, coping responses, and psychological well-being. The findings from this study suggest that people with a greater sense of gratitude are more likely to ask for social support from significant others, find growth in the face of adversity, and engage in positive coping responses, such as active problem solving. This study further reveals that greater feelings of gratitude are associated with greater life satisfaction, greater happiness, and fewer symptoms of depression. However, it was surprising to see that these coping responses do not explain the relationship between gratitude and these psychological well-being outcome measures.

Although the study by Wood et al. (2007) makes a number of valuable contributions to the literature, there are at least three limitations in the work that was done by these investigators. First, the data are cross-sectional. Second, the sample is comprised of college students. This makes it difficult to determine if the results can be generalized to people in other age groups as well as the wider population as a whole. Third, Wood et al. (2007) rely on the widely used measure of perceived stress that was devised by Cohen and Williamson (1988). This scale consists of ten items that ask study participants whether they feel their lives are unpredictable, uncontrollable, and overwhelming. Unfortunately, there are significant problems with this measure of stress. For decades, many researchers have argued that stress refers to external events, such as the death of a loved one or economic difficulty (e.g., Thoits 1983). In contrast, emotions such as feeling overwhelmed represents the outcome of stress - these emotions are what stress creates or what stress *does* but they do not capture what stress *is*. As a result, a number of investigators argue that responses to perceived stress items are confounded with the mental health outcomes they are supposed to predict (e.g., Monroe and Kelley

1995).

The current study was designed to confront three key limitations in the work on gratitude, stress, and well-being. To begin with, the analyses presented below are based on data from a national probability sample of older adults who were interviewed at more than one point in time. This makes it possible to assess the effects of religion on change in gratitude over time as well as the effects of financial strain and gratitude on change in depressive symptoms over time. In addition, this study aims to expand the scope of research on gratitude, stress, and well-being by focusing on a type of stressor (i.e., chronic strain) that does not appear to have been evaluated empirically in other studies on gratitude. Finally, the widely accepted measure of stress that is used in the current study is anchored in clearly defined external circumstances (i.e., chronic financial strain) and therefore it is less likely to be confounded with the outcome it is used to predict.

METHODS

Sample

The data for this study come from a nationwide longitudinal survey of older adults. Altogether, six waves of interviews have been conducted. The study population was defined as all household residents who were noninstitutionalized, English-speaking, 65 years of age or older, and retired (i.e., not working for pay). In addition, residents of Alaska and Hawaii were excluded from the study population.

The sampling frame consisted of all eligible persons contained in the beneficiary list maintained by the Centers for Medicare and Medicaid Services (CMS). Study participants were selected at random from the CMS files. All interviews were conducted face-to-face in the homes of the study participants by Harris Interactive (New York). The

first three waves of data collection were collected between 1992 and 1999. A total of 1,103 interviews were completed at the baseline in 1992-1993. The response rate was 69.1%. Following this, 605 of the Wave 1 study participants were re-interviewed successfully in 1996-1997. Then, a third wave of interviews was conducted in 1998-1999. A total of 530 older people who participated in earlier rounds of interviews were successively re-interviewed at Wave 3.

In 2002-2003, a fourth wave of interviews was conducted. However, the sampling strategy for the Wave 4 survey was complex. Two groups of older people were interviewed at this time. All survivors from Waves 1-3 were interviewed first ($N = 269$). This group was then supplemented with a sample of new study participants who had not been interviewed previously. This supplementary sample was also selected at random from the CMS files (see Krause 2004, for a detailed discussion of this sampling strategy). Altogether, the Wave 4 sample consisted of 1,518 older adults. The overall response rate for the Wave 4 survey was 54%.

A fifth wave of interviews was completed in 2005. A total of 1,166 of the Wave 4 study participants were successfully re-interviewed. Not counting those who had moved to a nursing home or had died, the re-interview rate for the Wave 5 survey was 83.9%.

A sixth wave of interviews was completed in 2007. A total of 1,011 older people were re-interviewed at this time. Not counting older adults who had moved to a nursing home or had died, the re-interview rate for Wave 6 was 76.9% of those participating at Wave 4.

The data used in the current study are from the Wave 5 and Wave 6 surveys.

These data points were selected because questions on gratitude and religion were administered for the first time in the Wave 5 interview. After using listwise deletion of cases to deal with item nonresponse, the sample sizes in the analyses presented below range from 818 to 857 cases. Based on the sample comprising 818 individuals, preliminary data analysis revealed that the average age of the study participants at the Wave 5 interview was 76.0 years ($SD = 6.6$ years), 40% were older men, 58.6% were married at Wave 5, and the study participants reported completing an average of 12.2 years of schooling ($SD = 3.3$ years). These descriptive data, as well as the data in the analyses that follow have been weighted.

Measures

Table 1 contains the core measures that are used in this study. The procedures used to code these indicators are provided in the footnotes of this table.

<Insert Table 1 about here>

Depressive Symptoms. Four items were taken from the Center for Epidemiologic Studies Depression Scale (CES-D) to assess depressive symptoms (Radloff 1977). These indicators reflect the cognitive-affective aspects of depressive symptoms, including feeling sad, blue, and depressed. Identical depressed affect measures were administered in the Wave 5 and Wave 6 surveys. A high score on this brief scale denotes greater depressive symptomatology. The internal consistency reliability estimates for the depressed affect at Wave 5 (.853) and Wave 6 (.879) are good. The mean depressed affect score at the Wave 5 survey was 5.141 ($SD = 2.072$) and the mean at Wave 6 was 5.227 ($SD = 2.255$).

Gratitude. Gratitude is assessed in the Wave 5 and Wave 6 surveys with three

items. The first two indicators come from the work of McCullough et al. (2002). The third item was taken from the measure of gratitude that was devised by Peterson and Seligman (2004). A high score on these indicators represents a greater sense of gratitude. The internal consistency reliability estimate at Wave 5 is .822 and the corresponding estimate at Wave 6 is .832. The mean of the gratitude scale at Wave 5 is 10.955 ($SD = 1.399$) and the mean at Wave 6 is 11.052 ($SD = 1.432$).

Chronic Financial Strain. Chronic financial strain was measured at the Wave 5 survey with three items that were devised by Pearlin and his colleagues (Pearlin et al. 1981). A high score on these indicators denotes greater financial difficulty. The reliability estimate at Wave 5 is .797. The mean financial strain score is 6.026 ($SD = 3.157$).¹

Religion Control Measures. A number of constructs are subsumed under the broad rubric of religion. Moreover, many of the different facets of religion are correlated, sometimes highly (Idler et al. 2003). Therefore, in order to obtain better estimates of the relationships among gratitude, financial strain, and depressive symptoms over time, it is important to rule out the influence of other dimensions of religion. This is why two religion control measures are included in the current study. Both indicators are taken from the Wave 5 survey. The first item assesses how often study participants attend religious services. A high score denotes more frequent church attendance. The mean at Wave 5 is 5.865 ($SD = 2.888$). The second religion control variable measures how often older people pray when they are alone. A high score reflects more frequent prayer. The mean at Wave 5 is 6.539 ($SD = 1.875$).

Demographic Control Variables. The relationships among financial strain,

gratitude, and depressive symptoms are evaluated after the effects of age, sex, education, and marital status are controlled statistically. The demographic control measures were all taken from the Wave 5 survey. Age is scored continuously in years and education reflects the total number of years of schooling that were completed successfully by study participants. In contrast, sex (1 = men; 0 = women) and marital status (1 = married; 0 = otherwise) are measured in a binary format.

RESULTS

The findings from this study are presented below in three sections. When the sample for this study was introduced, data were provided which reveal that some older people who were interviewed for the Wave 5 survey did not participate in the Wave 6 interviews. Although there is considerable controversy in the literature (e.g., Groves 2006), some investigators maintain that the loss of subjects over time may bias study findings if it occurs non-randomly. The analyses that are presented in the first section were designed to take a preliminary look at this potential problem. Following this, the next section contains the findings from the analyses that were designed to see if feelings of gratitude offset the pernicious effects of chronic financial strain on change in depressive symptoms over time. The results of the analyses that assess the relationship between religious involvement and feelings of gratitude over time are provided in the last section.

Assessing the Effects of Sample Attrition

A preliminary test of whether the loss of subjects over time occurred non-randomly can be obtained by seeing whether select data at the Wave 5 survey are associated with study participation status at the Wave 6 interview. The following

procedures were used to address this issue. First, a nominal-level variable containing three categories was created to represent older adults who participated in both the Wave 5 and Wave 6 surveys (scored 1), older people were alive but did not participate at Wave 6 (scored 2), and older individuals who died during the interval between the Wave 5 and Wave 6 interviews (scored 3). Then, using multinomial logistic regression, this categorical outcome was regressed on the Wave 5 measures of age, sex, education, marital status, the frequency of church attendance, the frequency of private prayer, financial strain, gratitude, and depressive symptoms. The category representing older people who remained in the study served as the reference group in this analysis.

The results (not shown here) reveal that there were few differences between older people who remained in the study and older adults who were lost to follow-up. More specifically, there were no statistically significant differences in the relationships between any of the Wave 5 study measures and study participation status for older adults who took part in both the Wave 5 and Wave 6 surveys and older people who dropped out of the study but were presumed to be alive. Moreover, the data suggest that compared to older people who remained in the study, those who died were older ($b = .090$; $p < .001$; odds ratio = 1.094) and they were more likely to be men ($b = .833$; $p < .01$; odds ratio = 2.299). In contrast, statistically significant differences failed to emerge with respect to the Wave 5 measures of marital status, education, the frequency of church attendance, the frequency of private prayer, financial strain, gratitude, and depressive symptoms.

As noted above, there is considerable disagreement in the literature over the effects of non-random sample attrition on substantive study findings (Groves, 2006). It is obviously not possible to resolve this debate here. However, the fact that few differences

emerged in the preliminary analyses that were presented in this section suggest that bias arising from sample attrition is not likely to be great. Even so, these tests are only preliminary, and as a result it is best to keep the potential influence of non-random subject attrition in mind as the substantive findings from this study are reviewed.

Gratitude, Financial Strain, and Change in Depressive Symptoms

Table 2 contains the results from the analyses that were designed to see if feelings of gratitude offset the deleterious effects of chronic financial strain on change in depressive symptoms over time. If this study hypothesis is valid, then the noxious effects of financial strain on depressive symptoms should become progressively weaker at successively higher levels of gratitude. Stated in more technical terms, this hypothesis predicts that there will be a statistical interaction effect between financial strain and gratitude on change in depressive symptoms. Tests for this interaction were performed with a hierarchical ordinary least squares multiple regression analysis consisting of two steps. In the first step (see Model 1 in Table 2), measures of financial strain, gratitude, baseline depression, and the control variables were entered into the equation. Then, a multiplicative term was added in the second step (Model 2). This cross-product term was created by multiplying financial strain scores by scores on the gratitude measure. This multiplicative term is used to test for the proposed interaction effect. All independent variables were centered on their means prior to estimating the Models 1 and 2.

<Insert Table 2 about here>

The data in the left-hand column of Table 2 initially appear to suggest that financial strain exerts only a modest effect on depressive symptoms over time (Beta = .081; $p < .05$). Moreover, the results seem to indicate that feelings of gratitude do not

have a statistically significant effect on change in depressive symptoms (Beta = $-.016$; *n.s.*). Based on these results alone, it might be tempting to conclude that depressive symptoms in late life are not substantially affected by either persistent financial difficulties or feelings of gratitude. However, the data in the right-hand column of Table 2 (see Model 2) provide a different view.

The findings derived from estimating Model 2 reveal that there is a statistically significant interaction effect between financial strain and feelings of gratitude on change in depressive symptoms over time ($b = -.059$; $p < .001$; unstandardized coefficients are presented when interaction effects are reviewed because standardized estimates are not meaningful in this context). Even though the data suggest that there is a statistically significant interaction effect in the data, it is somewhat difficult to determine if it is in the predicted direction. Fortunately, it is possible to address this issue by using formulas provided by Aiken and West (1991) to estimate the effects of financial strain on change in depressive symptoms at select levels of gratitude. Although any level of gratitude may be used to illustrate the observed interaction effect, the following raw score values on the gratitude scale were selected for this purpose: 8, 10, and 12.²

The additional calculations (not shown here) indicate that the pernicious effects of chronic financial strain on change in depressive symptoms are fairly pronounced for older people with relatively low levels of gratitude (i.e., a score of 8) (Beta = $.320$; $b = .228$; $p < .001$). However, the findings further reveal that the size of the effect of ongoing financial difficulty on change in depression is reduced by about 50% for older people with greater feelings of gratitude (i.e., a score of 10) (Beta = $.155$; $b = .110$; $p < .001$). Finally, the results suggest that financial strain fails to exert a statistically significant

influence on change in depressive symptoms for older people with the highest observed gratitude scores (i.e., a score of 12) (Beta = -.011; *n.s.*).³

Religious Involvement and Change in Gratitude

The data provided up to this point indicate that gratitude may help offset the deleterious effects of financial strain on change in depressive symptoms over time. Recall, however, that older people may feel grateful for many reasons. Consequently, it is important to conduct a second set of analyses to see if religion plays a significant role in shaping feelings of gratitude. The data provided in Table 3 contain the results of this analysis.

<Insert Table 3 about here>

The frequency of attendance at worship services serves as a key indicator of religious involvement in this study. Consistent with the second hypothesis that was developed for this study, the data in Table 3 indicate that more frequent church attendance is associated with greater feelings of gratitude over time (Beta = .183; $p < .001$).⁴

There is a subtle issue involving the relationship between the frequency of church attendance and gratitude that must be brought to the foreground. As Kessler and Greenberg (1981) pointed out some time ago, a positive relationship between variables like the frequency of church attendance and gratitude over time may reflect not one, but two underlying processes. First, more frequent church attendance may help *sustain* feelings of gratitude over time. Second, more frequent attendance at worship services may be associated with an *increase* in gratitude over time. In order to arrive at a better understanding of the nature of the relationship between church attendance and gratitude,

it is important to see which of these processes is at work. However, based solely on the data provided in Table 3, it is not possible to tell whether more frequent church attendance sustains or increases feelings of gratitude. Consequently, a supplementary analysis was performed to shed some light on this issue.

The supplementary analysis was conducted by creating an outcome variable consisting of three ordinal categories that designate three patterns of change or stability in feelings of gratitude: A score of 3 was assigned to older study participants whose feelings of gratitude increased from Wave 5 to Wave 6 (26.1% of the study subjects fell into this category), a score of 2 was given to respondents whose feelings of gratitude remained the same over time (51.1%), and a score of 1 was used to designate older people who experienced a decline in their sense of gratitude between the Wave 5 and Wave 6 interviews (22.8%). Then, using multinomial logistic regression, this ordinal outcome measure was regressed on the Wave 5 measures of age, sex, education, marital status, and the frequency of church attendance. Older study participants who experienced a decline in gratitude over time served as the reference category in this model.

The findings (not shown here) reveal that compared to older adults who experienced a decline in gratitude over time, older people who reported an increase in gratitude did not attend worship services more often ($b = .005$; ns). But in contrast, the data further suggest that compared to older people who experienced a decline in gratitude, more frequent church attendance was significantly associated with having the same gratitude score over time ($b = .144$; $p < .001$). Viewed more broadly, the results from the supplementary analysis provide preliminary support for the notion that more frequent church attendance helps older people *sustain*, but not *increase*, their feelings of

gratitude over time.

CONCLUSIONS

The results from the current study add to the mounting evidence which suggests that feelings of gratitude may help people deal more effectively with the pernicious effects of stress (Krause 2006; Wood et al. 2007). Two key findings emerged from this research. First, the data suggest that chronic financial strain has a fairly substantial impact on depressive symptoms for older adults who are relatively less grateful. But in contrast, the findings reveal that the noxious effects of persistent economic problems on depressive symptoms are completely offset for older people who feel the most grateful. These results are noteworthy because this appears to be the first time that the relationships among chronic financial strain, gratitude, and depressive symptoms have been evaluated with data that have been gathered at more than one point in time.

The second major finding in this study involves the potentially important role that religion may play in shaping feelings of gratitude in late life. More specifically, the data indicate that older people who attend worship services more often are likely to feel more grateful over time than older adults who do not go to church as often. In the process, an effort was made to delve more deeply into the precise nature of the relationship between these constructs. More specifically, supplementary analyses suggest that more frequent church attendance tends to sustain, but not increase, feelings of gratitude over time.

A key theoretical task at this juncture involves explaining why frequent church attendance sustains, but does not increase, feelings of gratitude over the course of this study. Perhaps part of the answer may be found by viewing the relationship between these variables as a process that unfolds over a fairly extended period of time. Research

reveals that older people who attend worship services are likely to maintain high levels of church involvement for many years (Krause and Wulff 2005). Consequently, it is important to reflect on whether the nature of the relationship between church attendance and gratitude changes during this time. Careful consideration suggests that the nature of this relationship is likely to change because there is a clear limit to the extent to which church attendance can influence feelings of gratitude. More specifically, going to church more often cannot continue to increase feelings of gratitude indefinitely because there is a limit to how grateful people can feel. Instead, it is more reasonable to assume that frequent church attendance may initially increase feelings of gratitude, but once a certain threshold point has been reached, continued church attendance may simply help older people maintain or sustain the initial gains in gratitude that have emerged up to that point.

Investigating the factors that explain the relationship between church attendance and gratitude over time represents only one of a number of issues that have yet to be examined in the literature. For example, researchers also need to probe more deeply into the potentially important stress-buffering properties of gratitude. Earlier, it was proposed that people who are more grateful tend to rely on specific types of coping responses to deal with the effects of ongoing financial strain, such as finding meaning and satisfaction in other domains of life. However, these intervening coping responses were not examined empirically in the current study because measures of them were not included in the survey. Exploring the interface between chronic strain, gratitude, and a full range of coping responses should be a high priority in the future.

One contribution of the current study arises from the fact that an emphasis was placed on evaluating a type of stressful experience that has not been assessed by other

investigators (i.e., chronic strain). Researches should continue to advance research in this area by seeing whether feelings of gratitude help people cope more effectively with the effects of other kinds of stressors, especially traumatic events. Traumatic events are defined as stressors that are, "...spectacular, horrifying, and just deeply disturbing experiences" (Wheaton 1994:90). Traumatic events are distinguished from other types of stressors by their imputed seriousness. Included among traumatic events are sexual and physical abuse, witnessing a violent crime, and participation in combat. Recall that chronic strain is assumed to be more detrimental than stressful events. Yet gratitude appears to buffer the effects of chronic strain. Since traumatic events are presumed to be even more noxious than either of chronic strain or stressful events, it would be important to see if gratitude is effective even under such especially trying circumstances, as well. In this way, it will be possible to see if there are limits in the stress-buffering properties of gratitude, or whether the beneficial effects of this character strength are evident in all types of stressful experiences.

In the process of exploring these as well as other issues, researchers would be well advised to keep the limitations of the current study in mind. Three are especially important. First, even though the data from the current study were obtained at more than one point in time, it is still not possible to claim that gratitude definitely "causes" a decline in depression. Such assertions can be made only with studies that utilize a true experimental design. Second, the major outcome variable in the current study was depressive symptoms. Because data were not available on the clinical psychiatric syndromes that are assessed in DSM-IV (American Psychiatric Association 1994), the extent to which gratitude influences the kind of mental health problems that are

encountered by mental health professionals cannot be determined conclusively. Third, the frequency of church attendance was the only measure of that was used to assess the influence of religion on feelings of gratitude over time. Although a statistically significant influence of church attendance was observed in the data, it is difficult to determine what this finding means. The problem arises because church attendance encompasses a number of complex behaviors and beliefs that may affect feelings of gratitude. So, for example, people who go to church more often may feel more grateful because they receive more support from the individuals who worship with them (Krause 2008). Clearly, the use of more fine grained measures of religion is likely to provide greater insight into how religion promotes a greater sense of gratitude in late life.

Although there are limitations in the current study, the findings point to some exciting possibilities for improving the well-being of older people. For example, Emmons and McCullough (2003) devised a series of experiments which show that it is possible to manipulate feelings of gratitude in order to subsequently enhance a person's sense of psychological well-being. If involvement in religion is associated with greater feelings of gratitude, then perhaps ways can be found in the church to deliberately bolster feelings of gratitude among older adults. For example, Bible study or prayer groups may be structured so that they help older people identify, express, and discuss reasons for why they should feel grateful.

Down through the ages, scholars, sages, and philosophers have extolled the virtues of feeling grateful. One noted proponent of gratitude was Marcus Aurelius, an emperor of ancient Rome, who lived in the second century A.D. He was one of the most famous Stoic philosophers. Issues involving gratitude are evident in his recommendation

on how to live life: “Pass then through this little space of time conformably to nature, and end the journey in content, just as an olive falls off when it is ripe, blessing nature who produced it, and thanking the tree on which it grew” (as quoted in Eliot 1909:222). The emphasis on end of life issues in these insights speaks directly to the central role that is played by feelings of gratitude in late life. Although a number of the early philosophers wrote about gratitude, they discussed the benefits of feeling grateful in a very general way, linking it only loosely with broad quality of life issues. Work in the current century is set off from these intellectual roots by efforts to empirically link gratitude with public health problems, such as physical and mental health, and by the development of conceptual models that spell out how the presumed health-related benefits of gratitude arise. But our conceptualizations are still crude and there is room for considerable improvement in the research that has been done. When viewed at the broadest level, the greatest contribution of the current study may lie less in what has been empirically demonstrated and more in the insights and enthusiasm it sparks in the minds of those who wish to pursue issues that have been pondered for centuries.

NOTES

1. It is surprising to find that a number of investigators say they are assessing chronic strain but they make no effort to show that the stressor they are studying is in fact persistent and ongoing. The interval between the Wave 5 and Wave 6 surveys in the current study was two years. Preliminary analysis (not shown here) suggest that the correlation between identical measures of financial strain at Wave 5 and Wave 6 is .577 ($p < .001$). Although assessing the stability of a construct over time is a complex issue (see Kessler and Greenberg 1981), this correlation coefficient provides some evidence that the financial difficulties that are assessed in this study are, in fact, persistent and ongoing in late life.
2. The Wave 5 gratitude scores ranged from 5 to 12. However, as other investigators have observed (e.g., Chipperfield, Perry, and Weiner 2003), scores on the gratitude measure were skewed. More specifically, a frequency distribution of the gratitude scores revealed that a high proportion of older people feel grateful. Consequently, care must be taken when illustrating the nature of observed statistical interaction effects with the formulas provided by Aiken and West (1991). In particular, researchers must select scores on measures, such as gratitude, that contain a sufficient number of cases. Otherwise, the resulting estimates may be influenced by the problem of data sparseness (see Cohen et al. 2003, for a discussion of this issue). The values of 8, 10, and 12 were used to illustrate the interaction effects in the current study for the following reasons. A total of 40 older adults had a gratitude score of 8 or less, thereby providing sufficient data

to illustrate the effects of relatively low levels of gratitude. A score of 10 was used because it falls midway between a value of 8 and the highest observed score of 12. A total of 221 older study participants had gratitude scores of either 9 or 10. Finally, a score of 12 was selected because it is the highest possible value of gratitude. A total of 470 older adults had the highest possible score and an additional 87 older people had a gratitude score of 11.

3. Some might argue that financial strain may erode feelings of gratitude among older people. And if the relationship between persistent economic problems and gratitude is sufficiently large, problems may arise in estimating the interaction effect between financial strain and gratitude on depressive symptoms. Put another way, the relationship between financial strain and gratitude may be confounded with the interaction between financial strain and gratitude on symptoms of depression. This is not likely to be the case in the current study because preliminary evidence suggests that the correlation between financial strain and feelings of gratitude is fairly modest ($r = -.151$; $p < .001$).

4. Emmons and Kneezel (2005) also found that more frequent prayer was associated with a greater sense of gratitude. However, care must be taken when including prayer in the analysis because there is some evidence that older people offer prayers of thanksgiving frequently (Krause and Chatters 2005). To the extent this is true, prayer may be confounded with gratitude.

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Table 1. Core Study Measures

1. Depressed Affect - Wave 5 and Wave 6^a

A. I felt like I could not shake off the blues, even with the help of my family and friends.

B. I felt depressed.

C. I felt sad.

D. I had crying spells.

2. Gratitude - Wave 5 and Wave 6^b

A. I have much to be thankful for.

B. If I had to list everything that I feel grateful for, it would be a very long list.

C. I stop and count my blessings nearly every day.

3. Chronic Financial Strain - Wave 5

A. How much difficulty do you have meeting the monthly payments on our bills?^c

B. In general, how would you say your finances usually work out at the end of the month?^d

C. How would you rate your financial situation these days?^e

^a These items were scored in the following manner (coding in parenthesis): rarely or none

of the time (1); some or a little of the time (2); occasionally or a moderate amount of the time (3); most or all of the time (4).

^b These items were scored in the following manner: disagree strongly (1); disagree (2); agree (3); agree strongly (4).

^c This item was scored in the following manner: none (1); only a little (2); some (3); a great deal (4).

^d This item was scored in the following manner: money left over (1); just enough (2); not enough to make ends meet (3).

^e This item was scored by asking study participants to rank their financial situation on a scale from 0 to 10, where a score of 0 means the best possible financial situation and a score of 10 means the worst possible financial situation.