ABSTRACT

Accelerated and Micro-longitudinal Approaches to
Understanding Depressive Symptoms and Human Flourishing

Blake Victor Kent, Ph.D.

Mentor: Matt Bradshaw, Ph.D.

The three studies presented here assess self-reported depressive symptoms in two large samples of U.S. respondents. The first two examine the National Study of Adolescent to Adult Health (Add Health), an ongoing nationally representative prospective study of adolescents, while the third examines SoulPulse, a non-representative, self-selected smartphone study of the adult population. The purpose of these inquiries is to apply group-based trajectory modeling and hierarchical linear modeling to enhance our understanding of psychological well-being. These engage accelerated and micro-longitudinal designs, making it possible to map distinct etiological trajectories of symptom burden over a lengthy developmental period with Add Health, and to disentangle trait and state levels of psycho-social experience in assessment of depressive symptoms and flourishing with SoulPulse. Study one examines parental, educational, peer, and religious ecological clusters, finding that good parental relationships and positive family dynamics are strongly associated with decreased symptom burden. Peer support, teacher support, and educational achievement are also

highly protective. Delinquent behavior, as well as Black and Asian ethnicity, are risk factors, while other ecological factors such as romantic relationships, number of sexual partners, and religious prayer and attendance have modest associations with depressive burden. Study two disaggregates the Add Health sample by gender, developing specific etiological trajectories for each. It then examines a range of religion and spirituality items, assessing subjective measures of religious experience not common in the depressive symptoms literature. Results indicate that subjective forms of religion and spirituality are associated with increased depressive symptom burdens, and that these burdens are more strongly associated with depressive symptoms for men than for women. Study three examines daily stressors, daily spiritual experiences, depressive symptoms, and flourishing. The findings indicate robust direct associations between stressors, spiritual experiences, and the two measures of mental well-being, as well as substantial support for the moderating role of daily spiritual experiences on the relationships between stressful life events and well-being. This examination reveals that not only do higher average (trait) scores of spiritual experience associate with increased well-being, but that higher momentary (state) scores of spiritual experience are related to increased well-being above and beyond trait level.

Accelerated and Micro-longitudinal Approaches to
Understanding Depressive Symptoms and Human Flourishing

by

Blake Victor Kent, B.A., M.A., M.A.

A Dissertation

Approved by the Department of Sociology

_____
F. Carson Mencken, Ph.D., Chairperson

Submitted to the Graduate Faculty of
Baylor University in Partial Fulfillment of the
Requirements for the Degree
of
Doctor of Philosophy

Approved by the Dissertation Committee

_____
Matt Bradshaw, Ph.D., Chairperson

_____
Lindsay Wilkinson, Ph.D.

_____
Matthew A. Andersson, Ph.D.

_____
Christopher M. Pieper, Ph.D.

_____
Wade C. Rowatt, Ph.D.

_____
Christopher G. Ellison, Ph.D.

Accepted by the Graduate School

May 2018

_____
J. Larry Lyon, Ph.D., Dean

Page bearing signatures is kept on file in the Graduate School.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

ACKNOWLEDGMENTS

through several trying times, and my biggest regret in our friendship is that I never played guitar well enough to serve as the Hetfield to his Ulrich. I am, however, exceptional at tossing the dog.

Two other Baylor scholars arrived in the middle of my graduate school years and cheerfully joined my dissertation committee despite other demands on their time. I'm grateful for the wealth of insight Lindsay Wilkinson and Matt Andersson have offered since their arrival and for their encouragement and guidance on this project.

Others to whom I'm grateful for guidance over these five years include Wade Rowatt, who generously served as the outside member on both my thesis and dissertation committees, Gordon Melton, who included me as an editor and researcher on the 9th edition of his monumental *Encyclopedia of American Religion,* Brad Wright, who hired me to work on his SoulPulse project, and several other Baylor faculty and visiting scholars including Jeremy Uecker, Paul Froese, Carson Mencken, Kevin Dougherty, Jerry Park, Charlie Tolbert, James Hunter, and Peter Berger.

Of course my time at Baylor would not have held the same meaning if it weren't for an incredible cohort with whom to share the journey. I'm humbled to have enjoyed such warm friendships and working relationships with Paul McClure, Emily Hunt Hinojosa, Wang Xiuhua, and Murat Yilmaz. I was also generously befriended and shepherded by members of more senior cohorts, including Matt Henderson, Todd Ferguson, Bob Thomson, Brandon Martinez, and Josh Tom.

Lastly, I have to thank the many friends and family who encouraged me along the way, not all of whom can receive proper credit here. Please know that each of you are cherished and I am grateful for all you have given. I will, however, single out three. My

friend Brian Rush has been away in Portland these many years, but his deep friendship and creative genius has always been an inspiration to me. I hope that one day we can still live side by side and share the library we discussed so many years ago. My mother, Brenda Wilbee, embodies perseverance and brilliance in the face of trials, and gives me reason to hope. Neither of our journeys has been predictable, and I take comfort in knowing we share some knowledge of Robert Service's insight when he penned "If they just went straight they might go far / They are strong and brave and true / But they're always tired of the things that are / And they want the strange and new." And finally my wife, Rachel Olsen Kent, whom I met just weeks before moving to Texas, took the risk of following me from our beloved Pacific Northwest to sojourn at my side in this strange and distant land. Rachel, you always loved, always believed, and always trusted. Thank you for everything.

For Caspian, who arrived just in time to remind me what all this is for

CHAPTER ONE

Introduction

Depressive symptoms are widespread in U.S. society, affecting people of all ages and statuses. Whether measured through self-reports with the Center for Epidemiological Studies - Depression (CES-D) scale or through diagnosis by a mental health professional, it affects the personal and professional lives of many Americans. The World Health Organization ranks depression as the leading cause of disability worldwide and a major contributor to the global burden of disease (World Health Organization n.d.), making it a high priority for scholars, mental health practitioners, and policy makers to both understand and effectively treat. Depressive symptoms are experienced as an overall malaise, with those affected by it typically reporting feelings of being blue, a lack of energy, increased irritability, fatigue, physical symptoms like headaches, and a general lack of interest in the requirements of daily life. In more serious cases depressive symptoms are linked with feelings of suicide, and it affects all members of the population: the elderly, the young, men, women, soldiers, mothers, fathers, white collar professionals, laborers, the religious, the irreligious, the physically well, and the sick.

Despite thousands of studies published on the topic of depression and depressive symptoms, there is still much we do not know. Depressive symptoms are as much social and cultural as they are biological, genetic, and neuro-psychological, with symptoms arising not only from genetic and biological factors but also from social and cultural locations, settings, and experiences.

And despite the complexity of depressive symptoms, professionals and laymen often have differing, and surprisingly detailed, views of its causes, which are often rooted (whether correctly or not) in particular intellectual, cultural, and social scripts (Furnham, Ritchie, and Lay 2016). In other words, people have different opinions about where depressive symptoms come from and different opinions about what might serve as effective treatments. These solutions range from medication to prayer to sleep to exercise, and the challenge of research on depressive symptoms is that to one degree or another they are all likely correct. Depressive symptoms are associated with any number of factors, researchers having successfully linked them with variables including religion, political climate, family environment, socio-economic status, neighborhood composition, marital status, sexual identity, age, education, disease, abuse, gender, genetics, social support, major life events, substance abuse…and the list could go on. Its consequences are broad, including reduced social and educational achievement, reduced income, damage to intimate and personal relationships, increased risk for divorce, recurrence of mental and physical health problems, and death (Essau and Ollendick 2009; Kessler 2012; Needham 2009; Wiesner et al. 2003)

The studies that follow take a social scientific approach to understanding factors associated with depressive symptoms, as well as etiological trajectories of its development across the early part of the life course. While these studies cannot do justice to the size and scope of the challenges presented by these symptoms, they can add several pieces to the larger puzzle which so many scholars, mental health care professionals, and policy makers seek to elucidate. All three studies seek to contribute to this discussion, and to do so in two primary ways. The first is by addressing variables and combinations

of variables that are not commonly included in the literature on depressive symptoms, particularly measures of religion and spirituality. The second is by utilizing emerging methodological strategies that shed new light on the development of symptom burdens over both long and short periods of time.

Methodological Approaches

The first two studies examine long-term trends using group-based trajectory modeling in a large, national data set of adolescents and young adults (the National Longitudinal Study of Adolescent to Adult Health, or Add Health). This methodology offers a unique picture of developmental trends not captured by many earlier studies which took a population-average approach to depressive symptoms across the life course (e.g., Andrews and Wilding 2004; Avison 2010; George 1994). As newer research indicates, it is becoming increasingly clear that a population-average approach runs the risk of obscuring important individual differences in symptom trajectories (Musliner et al. 2016; Yaroslavsky et al. 2013). Substantial variation exists in the timing and severity of depressive symptoms, meaning that where and how symptoms emerge for one person may be very different than for another. According to developmental psychopathology theorists, the developmental course of symptoms emerges through multiple pathways, complicated by the fact that "mental disorders are not randomly distributed throughout society but tend to cluster more densely within some social strata than others" (Aneshensel, Phelan, and Bierman 2013:10). Because of the complex linkages between environmental factors and depressive symptoms, it is unlikely that a single, developmental trajectory can be identified (Cicchetti and Toth 1998; Raudenbush 2001). This, of course, is not to mention the possibility of neuro-psychological influences or

gene environment interactions, which unfortunately go beyond the scope of the studies presented here.

The two Add Health studies focus on the adolescent and young adult population, recognizing that major and minor depression often first appears in adolescence (Costello, Egger, and Angold 2005). Given the variation among individuals in differing social contexts, it becomes critically important to families, practitioners, and policy makers that unique trajectories of depressive symptoms, along with associated risk and protective factors, be adequately understood. One such way to creatively capture variation is through semi-parametric group-based modeling (Nagin 1999, 2005; Nagin and Odgers 2010), an approach which allows researchers to identify latent trajectory subgroups within a sample population. Several dozen studies of depressive symptoms have taken this approach, but a problem with this literature is that each of these studies varies significantly in terms of sample age and size, study period, number of trajectories identified, and patterns of the trajectories themselves (see Musliner et al. 2016 for a review). Most studies include a low-stable trajectory as well as a high-stable trajectory, along with groups exhibiting rising and falling symptom trajectories. But many of these examinations are limited in duration, making it difficult to ascertain if, for example, high-stable groups remain elevated in depressive symptomatology only through adolescence, or if elevated symptoms are stable for a longer period of time. The first two studies offered here add an important corrective to this problem by assessing environmental factors associated with adolescent and young adult depressive symptomatology and trajectories of depressive symptoms with an age-based design from the ages of 13 to 35.

The third study takes a different methodological approach. Instead of assessing trajectories of depressive symptoms over a 22 year period, this study does so over a two week period. This micro-longitudinal examination is based on the diary study method pioneered and championed by Mihaly Csikszentmihalyi which he terms the "experience sampling method" (ESM). Rather than measure variables of interest and one point in time (as in the case of cross-sectional studies) or several widely spaced points in time (as in traditional longitudinal studies), ESM studies frequently assess daily activities, social interactions, and contemporaneous mental well-being. This method can offer unique insights into how these types of variables relate to each other in the context of daily interactions, practices, and habits (Csikszentmihalyi and Larson 2014). The specific innovation of the third study presented here is that most cross-sectional—and even longitudinal—surveys assume that when respondents are asked about an item like depressive symptoms they are reporting *trait* characteristics, that is, characteristics representative of an individual's mood or affect that are stable over time. However, there is considerable temporal variation in subjective variables, particularly depressive symptoms, so it is possible that survey instruments often actually capture *state* characteristics (i.e., momentary experiences) rather than trait characteristics.

This is a methodological challenge often encountered by researchers, and often the only way forward is to simply assume (with a caveat) that the captured responses are in fact measuring trait characteristics of the study participants. The ESM study presented here seeks to solve this problem by illuminating differences between state and trait, accomplished through the novel data collected from the SoulPulse project developed by Bradley R.E. Wright at the University of Connecticut. The SoulPulse study asks for

5

repeated measures of daily stressors, daily spiritual experiences, depressive symptoms, and flourishing. Possessing this type of repeated data on a single individual over a two week period makes it possible to disentangle the state/trait problem by creating an average, trait level score for each individual and then comparing it with moment to moment state level scores of the same variable. For example, it becomes possible to determine a respondent's average level of depressive symptoms over the two week period, then look at moments in time when that individual's depressive symptom level was higher or lower than average. If it was higher, what was she doing at the time, and who was she with? What if it was lower? What factors might be associated with the decrease in depressive symptoms? The ESM method makes it possible to employ multi-level modeling to separate out these trait and state characteristics and identify social psychological and environmental factors related to changes in well-being.

A final contribution of this third study to the literature on mental health is that it examines human flourishing in addition to depressive symptoms. While depression, as already noted, is a major cause of burden, emerging theoretical and empirical work has rightly pointed out that freedom from depression and depressive symptoms should not be the end goal of mental health treatment and care. Rather, the goal should be the full flourishing of the human individual, meaning that she should experience rich social integration, a strong and centered sense of purpose in life, confidence in her ability to take care of herself and control appropriate outcomes, and contribute meaningfully and deeply to the lives of those around her. This view of well-being suggests that mental health is not simply the absence of depressive symptoms, but rather it is the experience of full flourishing and enrichment across all important areas of ones' life. This concept of

flourishing, rooted in Aristotles' articulation of virtue ethics, was developed by Marie

Jahoda (1958) and popularized by Corey Keyes (2002, 2007). It articulates flourishing as

a comprehensive construct which incorporates elements of positive emotions, positive

psychological functioning, and positive social functioning. The goal of the research

presented here is to illuminate factors which lead to this end.

A Note on Contributors

The content of this work is entirely that of the author with the exception of

chapter four, which is a co-authored manuscript. The lead author conducted the data

analysis and wrote the initial draft of all sections with the following exceptions: Matt

Bradshaw drafted the background section on stressors, religion, and well-being; W.

Matthew Henderson drafted the discussion; and Bradley R.E. Wright drafted the

limitations. Christopher G. Ellison provided comments on the manuscript and outlined

the discussion. The lead author is responsible for final re-writes and any errors.

CHAPTER TWO

Parents, Peers, Pedagogues, and Preachers:
Adolescent Context and Depressive Symptom Trajectories from Ages 13 to 35

Introduction

Depressive symptoms are widely studied, and for good reason. Among adolescents, 12-month prevalence of major depressive disorders ranges anywhere from 2.5% to 16.8% (Essau and Ollendick 2009). Depressive symptoms in adolescence are associated with life course outcomes such as reduced likelihood of finishing high school or entering and completing college (McLeod and Fettes 2007), lower occupational status and income (Chen and Kaplan 2003), decreased odds of marriage (Walkup and Gallagher 1999), earlier parenthood (Woodward and Fergusson 2001), and greater likelihood of divorce (Wade and Pevalin 2004). Individuals experiencing depressive symptoms are susceptible to recurrent mental health problems as well as a wide range of chronic physical conditions (Kessler 2012). The World Health Organization ranks depression as the leading cause of disability worldwide and a major contributor to the global burden of disease (World Health Organization n.d.).

Given this widespread problem, shedding light on the etiological trajectories of depressive symptoms is an important task, and it is one which researchers have approached in a number of ways. Here adolescent social conditions and life course trajectories are given primary attention. Adolescents establish habits, practices, relationships, and commitments that reverberate over time (Avison 2010). These habits,

relationships, etc. develop in environmental contexts which provide insight when examined from multiple and intersecting angles. This is the type of analysis associated with the ecological perspective (Bronfenbrenner 1979; Gutman and Sameroff 2004) which advocates examining behavior in context. In this case, depressive symptoms are regarded as being affected by clusters of influence rather than by isolated independent variables; the perspective emphasizes the living and growing person in relation to her environment. Here variables are clustered into four categories which focus on prominent relational contexts in adolescence: family dynamics, peer relationships, school environment, and religious activity (along with essential demographic characteristics like gender and race/ethnicity). In addition to serving as important relational contexts, these clusters also touch on prominent physical spaces inhabited by adolescents: home, school, and congregation.

The driving question of this study is how these clusters relate as risk or protective factors for the experience of depressive symptoms. A number of studies have examined the question of adolescent conditions and long-term mental health, but there is still much to learn. For example, there is some debate as to which features of the adolescent environment play a greater role in mental health, such as the role of parental or peer support in later development of symptoms (Stice, Ragan, and Randall 2004; Young et al. 2005). Emerging modeling techniques also provide opportunities to gain new insights. Here, Waves 1, 3, and 4 of the of the National Longitudinal Study of Adolescent to Adult Health (Add Health) are used in a semiparametric group-based design (Nagin 2005; Nagin and Odgers 2010), which subdivides the population into distinct symptom

trajectories rather than follow population average trends. An open question in this literature is the number and shape of these trajectories (Musliner et al. 2016).

The present study addresses these questions, as well as several others. It has a number of strengths. First, its ecological approach provides an array of variables in an interpretive context. Second, it applies these clusters to a large, nationally representative data set. Third, it follows a lengthy developmental course from the ages of 13-35. Fourth, it incorporates several variables not yet examined in the group-based literature.

Background Literature

The ecological model provides a perspective in which behavior is viewed in context, eschewing examination of isolated predictors (Bronfenbrenner 1979; Gutman and Sameroff 2004). This study examines four adolescent ecological clusters as they relate to trajectories of depressive symptoms over time: parent and household dynamics, peer context and engagement, school environment, and religious activity. It also assesses the important demographic factors of gender and race/ethnicity.

Parent and Household Dynamics

Families often serve as the first line of defense for adolescents when it comes to mental health, but where the family environment is in disarray, it can be a primary source of distress. Strained family relationships are characterized by pervasive conflict and lack of support, and create a family environment disruptive to emotional processing (Repetti, Taylor, and Seeman 2002). The effect of these strained relationships can be felt into adulthood (Morgan et al. 2012; Stewart-Brown, Fletcher, and Wadsworth 2005). Depressive symptoms typically first appear in adolescence (Costello et al. 2005), and

individuals who lack warm and supportive relationships with parents may develop broader relational patterns which eschew closeness and trust (Ainsworth et al. 2015). Given that early onset of symptoms are associated with longevity (Kovacs et al. 1984) and that decreased parental attachment is linked with depressive symptoms across the life course (Moran, Neufeld Bailey, and DeOliveira 2011; Raudino, Fergusson, and Horwood 2013), quality of the parental relationship is an essential area of investigation.

Another contextual question is the relative contribution of mothers and fathers. While parental involvement and social support has been identified as a key protective factor for depressive symptoms in adolescence (Costello et al. 2008; Duchesne and Ratelle 2014), researchers have observed differences in paternal and maternal contributions to child well-being. The father-adolescent relationship, for example, may have an independent effect on psychological well-being beyond the mother-adolescent relationship, with variation in depressive mood strongly linked to conflict (Sallinen et al. 2007). In the group-based modeling literature, Duchesne and Ratelle (2014) found that poor maternal attachments are linked with all heightened trajectory groups, but poor paternal attachments are associated with only one of three heightened trajectories. The present study considers attachments to mother and father, as well as association with depressive trajectories peaking in adolescence, the mid-20's, and the mid-30's.

Several ecological variables help place these parent-adolescent relationships in the context of family practice. This provides an opportunity to test concrete behaviors that may serve as protective factors across the life course, since habits and practices formed in early family life can have long-term benefits (Avison 2010). Contextual variables here include frequency of having fun together and frequency of eating dinner

with at least one parent. Several population average studies have found that eating dinner with a parent is a concrete practice associated with lower risk for depressive symptoms (Fulkerson et al. 2006; Kim et al. 2013; Malaquias, Crespo, and Francisco 2015), though this has not been assessed in group-based studies, nor has family fun.

Peer Environment

Peer environment is broadly defined here to include peer support, romantic and sexual relationships, and delinquent behavior. Some scholars argue that peer relationships are more influential than family relationships in the teenage years (e.g., Harris 2011), yet this a contentious claim. In some cases, peer support has been shown to mitigate depressive symptoms (Barrera and Garrison-Jones 1992), while other examinations have reported no effect of peers when parental support is taken into account (Stice et al. 2004; Young et al. 2005). It is also unclear how important peer relationships are over time relative to parental relationships in risk for depressive symptoms. Still, there does seem to be ample evidence that when friendships and romantic and sexual relationships contain negative and harmful elements depressive symptoms are close at hand (Kaltiala-Heino, Kosunen, and Rimpelä 2003; La Greca and Harrison 2005). One group-based study related depressive symptoms to risky adolescent behaviors, suggesting sexual behavior and multiple sex partners pose an increased risk (Wickrama and Wickrama 2010). Another found that the negative implications of romantic enmeshment did not persist beyond adolescence into emerging adulthood (Olson and Crosnoe 2017). The ecological cluster examined here takes into account peer support, romantic involvement, number of sexual partners, pregnancy, and contraction of a sexually transmitted infection (STI).

12

Delinquent behaviors such as criminal activity and substance abuse have also been associated with depressive symptoms (Kofler et al. 2011; Lalayants and Prince 2014; Poulin et al. 2005). Some scholars suggest the onset of a depressive disorder is commonly preceded by alcohol or substance abuse (Goodman and Huang 2002). Others, however, show that adolescent drug use—including alcohol, marijuana and other illicit drugs (though not tobacco)—is followed by later depressive disorders (Brook et al. 2002). The current group-based literature demonstrates that alcohol and tobacco are associated with higher trajectories of depressive symptoms in adolescence and early adulthood (Costello et al. 2008; Yaroslavsky et al. 2013), though longer term persistence is unknown.

Educational Context

The educational cluster takes into account both parental education levels and respondent educational achievement and experience. Several studies point to a link between low parental education and risk for depressive symptoms in offspring (Luo and Waite 2005; Ritsher et al. 2001; Saraceno, Levav, and Kohn 2005), with low parental education having a compounding effect for offspring already at risk of depression later in the life course. Group-based studies have not yet assessed parental education, which provides an opportunity here to test its relationship to distinct burden trajectories.

Studies examining adolescents' own educational achievements and experience indicate that poor performance is independently associated with elevated depressive symptoms (Owens et al. 2012). Lower self-reports of GPA and declines in GPA have been linked to increased depressive symptoms. Difficulty in school social relationships as well as difficulty completing schoolwork have also been linked (Fröjd et al. 2008). The

13

group-based literature has demonstrated lower academic achievement is associated with burdened depressive trajectories (Duchesne and Ratelle 2014; Stoolmiller et al. 2005), though these studies represent shorter assessment periods than the length of time examined here. In addition to a longer period of assessment, the present study also taps school relationships by examining respondent perception of how caring their teachers are.

Religious Context

The group-based literature has not considered religion at all, which is surprising since a substantial literature exists connecting religion and mental health. This literature generally indicates positive associations, particularly through the mechanisms of coping and social support (Hill and Pargament 2003; Koenig, King, and Carson 2012). Weekly service attendance has been linked to decreased odds of experiencing depression (Strawbridge et al. 2001), and other predictors like public religiosity (Nonnemaker, McNeely, and Blum 2003), religious volunteering (Musick and Wilson 2003), and intrinsic religiosity (Payman and Ryburn 2010) have been inversely related to depressive symptoms. The results are not consistent, however, with some studies reporting a deleterious relationship (Ellison and Lee 2010; Mohr et al. 2006). Still others report both positive and negative associations (Krause and Ellison 2003; Le, Tov, and Taylor 2007). Given this inconsistent set of findings, assessing religious activity in relation to distinct depressive symptom trajectories is an important step forward.

Demographic Context

Lastly, demographic factors of race/ethnicity and gender must be considered. Despite their prevalence in the literature, examining race and gender with these Add

Health data in a group-based design has the potential to add new information. In terms of gender, the present literature shows that men and women experience similar overall levels of mental health, but vary in terms of which disorders are experienced (Kessler 2003; Rosenfield, Lennon, and White 2005). Increased levels of symptomatology are found among adolescent females (Garber, Keiley, and Martin 2002), with women suffering more frequently from internalizing disorders that result in depression and anxiety, and men more often experiencing externalizing disorders like substance abuse (Kessler 2003). Group-based modeling studies across a variety of smaller—and a few larger—samples, report that a higher proportion of women fall into burdened trajectories of depressive symptoms (Musliner et al. 2016).

Race and ethnicity is intimately linked with exposure to stressful events, coping strategies, avenues of social support, and consequently, mental health (Brown et al. 2013). Counter-intuitively, however, epidemiological studies have found that disadvantaged minority groups have lower than expected lifetime risk of depression, with non-hispanic whites displaying higher prevalence of major depression (Breslau et al. 2006). Some scholars emphasize that while racial and ethnic differences exist, they are highly influenced by contextual factors (Brown et al. 2013; Yang and Lee 2009). This may help explain why results are mixed in the group-based modeling literature. Two studies report racial and ethnic minorities are more likely to belong to increased-risk groups (Costello et al. 2008; Liang et al. 2011), yet others find no difference by race (Lincoln and Takeuchi 2010) and more whites in the high depressive mood group (Kuchibhatla et al. 2012).

Research Questions

The ecological approach taken here emphasizes the life course in context, promoting a broad vantage through assessment of related variable clusters. Of interest is whether any clusters emerge as particularly strong predictors or whether particular variables within a cluster demonstrate good explanatory power. Each predictor represents its own test; no variable is considered a mere control. A host of questions, then, are raised. These include, but are not limited to: Do maternal and paternal attachments differentially associate with specific symptom trajectories? Does peer support retain significance when measures of parental support are assessed? Are romantic and sexual involvement predictive of depressive symptoms in light of other relational clusters? Are minority respondents more or less likely to associate with elevated trajectories? Does religious activity buffer against depressive symptoms? Is female gender associated with elevated symptom trajectories peaking throughout the life course or primarily in adolescence? Is educational achievement consistently associated with decreased risk across trajectories?

By utilizing a group-based trajectory modeling approach in a national sample from the ages of 13-35 this study provides new insights, testing an array of antecedent risk and protective factors as they predict odds of classification in elevated developmental trajectories. Several tests are designed to evaluate previous studies, and others evaluate predictors which have received limited or no attention in the group-based literature, including religion and spirituality items as well as several family and sexual behavior items.

Data and Methods

Data for this analysis was drawn from Waves 1, 3, and 4 of the National Longitudinal Study of Adolescent to Adult Health (Add Health), a nationally representative, probability-based survey of American adolescents who were in grades 7 to 12 during the 1994-1995 school year. The sample was drawn from 80 high schools selected with probabilities proportional to size, and an additional 52 feeder middle schools. The overall response rate at baseline was 79 percent. Of the more than 90,000 students who completed in-school surveys during the 1994-1995 academic year, a sample of 20,745 adolescents was interviewed in Wave 1. The measures of early-life social conditions used in this analysis were collected at Wave 1, and subsequent waves of data were collected in 1995-1996 (Wave 2), 2001-2002 (Wave 3), and 2007-2008 (Wave 4). Wave 2 interviews were conducted very close to the time of Wave 1 interviews, and so they were not used in this analysis.

Waves 1, 3 and 4 were used to construct age-based depressive symptom trajectories, and so complete depressive symptom questionnaires at all three waves were required. The sampling design, however, did not call for these items for every respondent across waves. As such, 7,725 cases were lost. 61 additional respondents were removed from the sample who were 12 at the time of Wave 1 or 36 at the time of Wave 4 since they were too few in number to be considered representative of their age groups. A further 711 were dropped due to missing sampling weights, resulting in a final sample of 12,248. For more information on why some cases do not have sampling weights see http://www.cpc.unc.edu/projects/addhealth/faqs/aboutdata/. List-wise deletion was employed in progressive models where predictors had missing values. Multiple

17

imputation is commonly used to deal with missing values, but group-based trajectory

modeling assumes a hypothesis of multiple subgroups, which may be at odds with

multiple imputation's assumption of a single population (Colder et al. 2001; Costello et

al. 2008).

Outcome Variable

Depressive symptoms were assessed using an averaged scale of nine CES-D items

common to every wave (α=.80) (Radloff 1977). Respondents were asked how often each

of the following occurred during the past week, with 0=never or rarely, 1=sometimes,

2=a lot of the time, and 3=most of the time or all of the time: "You were bothered by

things that usually don't bother you," "You felt that you could not shake off the blues,

even with help from your family and friends," "You felt that you were just as good as

other people (reverse coded)," "You had trouble keeping your mind on what you were

doing," "You felt depressed," "You felt that you were too tired to do things," "You

enjoyed life (reverse coded)," "You felt sad," and "You felt that people disliked you."

Predictor Variables

Attachments to mother and father were assessed using five items, the first three of

which range from 1=strongly agree to 5=strongly disagree. These were reverse coded so

that strongly agreeing resulted in a higher score: "Most of the time, your mother/father is

warm and loving toward you," "You are satisfied with the way your mother/father and

you communicate with each other," and "Overall, you are satisfied with your relationship

with your mother/father." The other two items range in response from 1=not at all to

5=very much: "How close do you feel to your mother/father, adoptive mother/father, step

18

mother/father, etc.?" and "How much do you think she/he cares about you?" After averaging, scores ranging from 1 to 4 were labeled as low attachment and scores greater than 4 were labeled as high attachment. All items accounted for no relationship with mother/father, and in this case they were coded as having no attachment. The result is a three-way dummy system for each parental relationship.

Age is calculated by age at time of interview. Age categories for the accelerated longitudinal design were constructed in two year increments beginning at age 13-14, except for the final group, which is 33-35. If too few respondents were in an age category to ensure representativeness, they were dropped. Female is based on biological sex at Wave 4. All other covariates were developed from Wave 1 responses. Race/ethnicity is coded as a dummy system with white, black, Hispanic, Asian, native American, and other. Mother's and father's education are coded as binary variables (bachelor's degree or more=1). Mood within the family was measured by how much the respondent felt the family had fun together, with answers ranging from 1=not at all to 5=very much. A second marker of family environment was how many days a parent was present at dinner (in days per week). School GPA was calculated based on reported grades in English, math, history, and science where A=1, B=2, C=3, and 4=D or lower. Items were reverse-coded then averaged so all A's would equal a 4.0, and so on. Friends acting as a protective factor were assessed with: "How much do you feel your friends care about you?" with responses ranging from 1=not at all to 5=very much. Religious service attendance was coded as 1 if respondent reported attending once or more per month. Frequency of prayer was coded as 1 if respondent reported praying once a week or more. Delinquent behavior was averaged across 11 items reporting behaviors engaged in during

the previous 12 months. These include vandalism, running away, fighting, stealing, selling drugs, etc. where never=0, 1 or 2 times=1, 3 or 4 times=2, and 5 or more times=3. Weekly use of alcohol, tobacco, or marijuana is a binary coded as 1 if respondents: (a) drank alcohol 1-2 days per week or more during the previous 12 months, (b) smoked cigarettes 5 days or more in the previous month, or (c) used marijuana 4-5 days in the previous month. Binary items were constructed for respondents who reported being in a romantic relationship in the previous 18 months, and those who reported becoming pregnant or impregnating another person. Number of sex partners was coded 1-8, with 8 being 8 or more partners. Finally, sexually transmitted infection (STIs) was coded as 1 if the respondent reported being infected by any one of ten STIs.

Analytic Strategy

The method applied here is a semi-parametric group-based modeling approach (Nagin 2005; Nagin and Odgers 2010). All trajectory models were estimated using the "traj" plugin for Stata 14.0 with the censored normal distribution (Jones and Nagin 2012). Prior to estimation of the trajectory groups, the data was converted from waved-based into age-based in a cohort sequential design (Costello et al. 2008; Miyazaki and Raudenbush 2000; Wickrama and Wickrama 2010). Bayesian Information Criterion (BIC) was used as recommended (Nagin 2005; Xie, Drake, and McHugo 2006) to evaluate: a) model fit; b) the optimal number of trajectory groups; and c) the functional form of each trajectory (e.g., intercept-only, linear, quadratic, cubic). A variety of models were assessed, yet only the four-group quadratic model both maximized BIC and returned selection criteria with all groups significant, so it was selected. One limitation of this model, however, is that the early high depressive symptom group returns an average

posterior probability (APP) of 0.67, slightly lower than the desired 0.70. The other three

groups are robust with regard to APP (stable low=.94, mid high=.73, late high=.78). Final

model selection was also guided by previous research and assessed in terms of

comparability to previous examinations of Add Health (e.g., Costello et al. 2008;

Wickrama and Wickrama 2010).

Results

Figure 2.1 displays the unconditional model, which assesses depressive symptom

trajectories without the addition of risk covariates into the trajectory plots (Clark and

Muthén n.d.). The trajectories are similar to those reported by Costello et al. (2008), who

assessed depressive symptoms in Add Health Waves 1, 2, and 3 up to the age of 24 using

an abbreviated 3-item scale of the CES-D (see Figure 2.2). The addition of Wave 4 in this
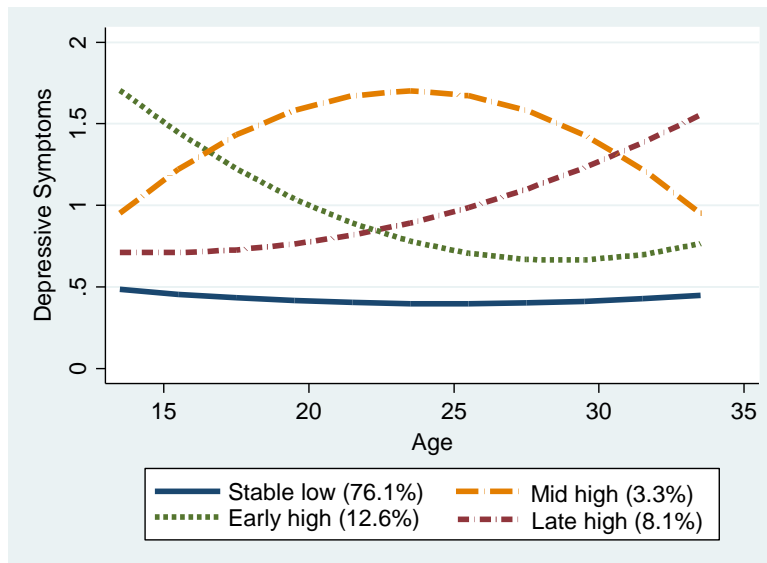
Figure 2.1. Unconditional model of depressive symptoms (Add Health Waves 1, 3, and 4, N=12,248).

study answers several critical questions from this prior work. First, the current study

maintains a stable low group through age 35. Second, what appears a moderate low group

in Costello begins to rise during the mid-20's to form a late high trajectory. Third,

Costello's early high group stabilizes as a moderate group, and fourth, Costello's

escalating group peaks in the mid-20's but then returns to moderate elevation.

Table 2.1 reports summary statistics for the trajectory groups along with

Bonferroni tests for differences of means. The stable low depressive symptom trajectory

group contrasts significantly with the three elevated groups in a number of ways.

Respondents fitting this group are more likely to be male, white, have parents with

bachelor's degrees, be highly attached to both parents, eat with their parents, have fun

with their families, feel cared for by teachers and friends, report higher GPAs, participate
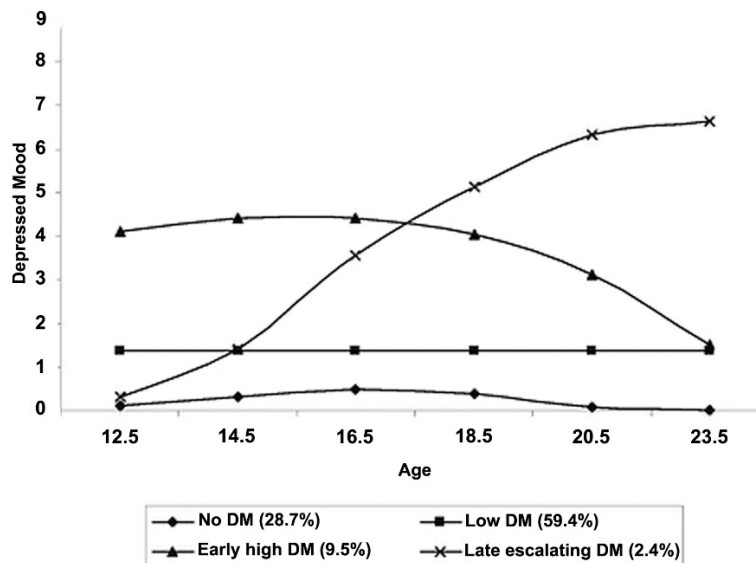
Figure 2.2. Predicted depressed mood score for each trajectory group in a sample
of American adolescents and young adults (Wave 1, 2, and 3 Add Health, *N*=11,559).
Source: Costello et al. (2008).

Table 2.1. *Summary statistics at ages 13-18 (Add Health wave 1).*

Measures	Stable low	Early high	Mid high	Late high	Total	SD	Range
Female	.50 [eml]	.67 [sm]	.75 [sel]	.65 [sm]	.54	-	0-1
White	.59 [em]	.49 [sl]	.47 [s]	.55 [e]	.57	-	0-1
Black	.19 [ml]	.21	.25 [s]	.23 [s]	.20	-	0-1
Hispanic	.07 [l]	.07	.07	.05 [s]	.07	-	0-1
Asian	.06 [e]	.09 [sl]	.06	.06 [e]	.06	-	0-1
Native American	.02 [e]	.03 [s]	.02	.02	.02	-	0-1
Other race	.08 [em]	.11 [s]	.12 [s]	.09	.08	-	0-1
Mother BA plus	.28 [eml]	.21 [s]	.16 [s]	.20 [s]	.26	-	0-1
Father BA plus	.24 [eml]	.16 [s]	.15 [s]	.16 [s]	.22	-	0-1
Hi attach mother	.77 [eml]	.53 [sl]	.56 [sl]	.71 [sem]	.73	-	0-1
Lo attach mother	.18 [eml]	.40 [sl]	.37 [sl]	.24 [sem]	.22	-	0-1
No attach mother	.05 [e]	.07 [s]	.07	.05	.05	-	0-1
Hi attach father	.53 [eml]	.29 [sl]	.30 [sl]	.41 [sem]	.48	-	0-1
Lo attach father	.22 [em]	.37 [sl]	.36 [sl]	.25 [em]	.24	-	0-1
No attach father	.25 [eml]	.34 [s]	.34 [s]	.34 [s]	.28	-	0-1
Eat with parent	4.71 [eml]	3.61 [sl]	3.74 [sl]	4.40 [sem]	4.51	2.54	0-7
Family fun	3.81 [eml]	3.23 [sl]	3.31 [sl]	3.59 [sem]	3.70	1.02	1-5
Teacher care	3.60 [eml]	3.19 [sl]	3.30 [s]	3.41 [se]	3.53	.99	1-5
GPA	2.86 [eml]	2.56 [s]	2.54 [s]	2.64 [s]	2.79	.77	1-4
Friend care	4.30 [eml]	4.04 [sl]	4.10 [s]	4.14 [se]	4.25	.79	1-5
Monthly religious attendance	.60 [el]	.53 [s]	.53	.54 [s]	.58	-	0-1
Weekly prayer	.64	.62	.64	.62	.64	-	0-1
Delinquent behavior	.27 [eml]	.44 [sl]	.40 [sl]	.31 [sem]	.30	.35	0-3
Weekly ATOM	.21 [eml]	.38 [sml]	.27 [se]	.26 [se]	.24	-	0-1
Romantic relationship	.54 [e]	.65 [sml]	.57 [e]	.54 [e]	.55	-	0-1
Number sex partners	.84 [em]	1.48 [sl]	1.26 [s]	1.00 [e]	.95	2.07	0-8
Pregnancy	.06 [el]	.11 [s]	.09	.08 [s]	.07	-	0-1
STI	.02 [eml]	.05 [s]	.07 [sl]	.04 [sm]	.03	-	0-1
N	9315	1540	402	991	12248		

[s]Differs from stable low at p<.05

[e]Differs from early high at p<.05

[m]Differs from mid high at p<.05

[l]Differs from late high at p<.05

less frequently in delinquent behavior and drug use, report fewer sex partners, and report fewer teen pregnancies.

Table 2.2 reports three multinomial logistic regression models with odds ratios indicating the likelihood of belonging to the reported group in comparison to the reference category. The first model includes demographic data and attachment relationship with parents. The second model adds variables that may serve as protective factors for the experience of depressive symptoms, while the third adds potential risk factors. Model 1 includes parental attachment since this has been identified as a key protective factor for depressive symptoms in adolescence (Costello et al. 2008; Duchesne and Ratelle 2014). It is also of central interest because differences have been observed between the relative contribution of mothers and fathers to child well-being, and this modeling strategy observes the persistence of attachment relationships after including other protective and risk factors into the equation. Following is a summary of all risk and protective factors based on the final model.

Early High vs. Stable Low

Participants who had low attachment to mother or father, no attachment to father, were female, Asian, other race, who prayed weekly, had elevated delinquent behavior, or used alcohol, tobacco, or marijuana on a weekly basis were more likely to be classified in the early high depressive symptom group. Participants whose father had a B.A., ate more with their parents, had fun together, felt cared for by teachers and friends, or had a higher GPA were more likely to be classified in the stable low symptom group.

Table 2.2. *Estimated odds ratios for adolescent predictors*
of depressive symptom trajectories age 13-35 (Add Health waves 1, 3, and 4).

	Reference: Stable low			Reference: Early high		Reference: Mid high
	Early high	Mid high	Late high	Mid high	Late high	Late high
Model 1 (N=12248, Log Likelihood -8789.81)						
Lo attach mother[a]	2.78 ***	2.33 ***	1.41 ***	.83	.50 ***	.60 ***
No attach mother	2.38 ***	2.30 **	1.19	.96	.50 ***	.51 **
Lo attach father[b]	2.23 ***	2.06 ***	1.54 ***	.92	.69 ***	.74 †
No attach father	2.08 ***	1.82 ***	1.65 ***	.87	.79 *	.90
Female	1.67 ***	2.93 ***	1.58 ***	1.75 ***	.94	.54 ***
Black[c]	1.29 **	1.83 ***	1.60 ***	1.41 *	1.24 †	.87
Hispanic	.90	1.47 †	.82	1.63 †	.90	.55 *
Asian	1.55 **	1.81 *	1.09	1.16	.70	.60 †
Native American	2.03 ***	.35	1.50	.17 *	.73	4.20 †
Other race	1.56 ***	2.71 ***	.97	1.73 **	.62 **	.35 ***
Model 2 (N=11755, Log Likelihood -7980.47)						
Lo attach mother[a]	1.86 ***	1.68 ***	1.11	.90	.59 ***	.66 **
No attach mother	1.31 *	1.53 †	.88	1.17	.64 *	.55 *
Lo attach father[b]	1.45 ***	1.41 *	1.15	.97	.79 *	.81
No attach father	1.30 **	1.21	1.24 *	.92	.94	1.02
Female	2.01 ***	3.58 ***	1.89 ***	1.77 ***	.93	.52 ***
Black[c]	1.11	1.56 **	1.39 **	1.40 *	1.24 †	.88
Hispanic	.85	1.37	.73 †	1.61 †	.85	.53 *
Asian	1.83 ***	2.21 **	1.30	1.20	.71	.59 *
Native American	1.74 *	.10	1.39	.06 *	.80	12.74 †
Other race	1.44 **	2.27 ***	.85	1.56 *	.59 **	.37 ***
Mother BA plus	.89	.72 †	.81 *	.81	.91	1.12
Father BA plus	.79 *	.75	.82 †	.94	1.03	1.09
Eat with parent	.90 ***	.93 **	.99	1.03	1.09 ***	1.06 *
Family fun	.73 ***	.73 ***	.82 ***	1.01	1.12 *	1.11
Teacher care	.82 ***	.85 **	.92 *	1.03	1.11 *	1.07
GPA	.66 ***	.62 ***	.69 ***	.94	1.05	1.11
Friend care	.80 ***	.90	.84 ***	1.12	1.05	.93
Monthly religious attend	.89	1.17	.82 *	1.30 †	.91	.70 *
Weekly prayer	1.19 *	1.02	1.08	.85	.90	1.06
Model 3 (N=11347, Log Likelihood -7595.81)						
Lo attach mother[a]	1.68 ***	1.60 ***	1.10	.95	.65 ***	.68 *
No attach mother	1.18	1.47 †	.80	1.25	.68 †	.54 *
Lo attach father[b]	1.38 ***	1.39 *	1.16	1.00	.84	.83
No attach father	1.20 *	1.20	1.27 **	.99	1.05	1.05
Female	2.28 ***	3.78 ***	1.97 ***	1.65 ***	.86	.52 ***
Black[c]	1.17	1.38 *	1.36 **	1.18	1.16	.98
Hispanic	.85	1.26	.73 †	1.47	.86	.58 †
Asian	1.95 ***	2.31 **	1.35	1.18	.69	.58 †
Native American	1.45	.09 †	1.22	.06 †	.84	12.43 †
Other race	1.39 **	2.02 ***	.82	1.45 †	.59 **	.40 ***

(continued)

	Reference: Stable low			Reference: Early high		Reference: Mid high
	Early high	Mid high	Late high	Mid high	Late high	Late high
Mother BA plus	.85 †	.68 *	.79 *	.79	.93	1.17
Father BA plus	.75 **	.75	.82 †	1.00	1.09	1.08
Eat with parent	.91 ***	.93 **	.99	1.02	1.09 ***	1.06 *
Family fun	.75 ***	.75 ***	.82 ***	.99	1.09 †	1.10
Teacher care	.87 ***	.85 *	.95	.97	1.08 †	1.11
GPA	.71 ***	.64 ***	.71 ***	.91	1.00	1.10
Friend care	.78 ***	.89	.84 ***	1.15 †	1.08	.94
Monthly religious attend	.96	1.20	.82 *	1.25	.85	.68 *
Weekly prayer	1.21 *	1.04	1.05	.85	.86	1.10
Delinquent behavior	2.11 ***	1.74 ***	1.31 *	.82	.61 ***	.74
Weekly ATOM	1.22 *	.73 *	1.08	.59 **	.88	1.47 *
Romantic relationship	1.11	.97	.82 *	.87	.74 **	.85
Pregnancy	1.14	1.06	1.47 **	.92	1.28	1.38
Number sex partners	1.01	1.06 *	.98	1.05 †	.97	.92 *
STI	1.07	1.40	1.04	1.31	.97	.74

Note: †p<.10 *p<.05 **p<.01 ***p<.001. Weighted data.

[a]Hi attach mother is contrast category.
[b]Hi attach father is contrast category.

[c]White is contrast category.

Mid High vs. Stable Low

Participants who had a low attachment to mother or father, were female, black, Asian, other race, had elevated delinquent behavior or an increased number of sex partners were more likely to be classified in the mid high depressive symptom group. Participants whose mother had a B.A., ate with their parents, had fun together, felt cared for by teachers, had a higher GPA, or used alcohol, tobacco, or marijuana on a weekly basis were more likely to be classified in the stable low symptom group.

Late High vs. Stable Low

Participants with no attachment to father, were female, black, had elevated delinquent behavior, or reported being involved in a pregnancy were more likely to be classified in the late high group. Participants whose mother had a B.A., had fun together, had a higher GPA, felt cared for by friends, attended religious services once a month, or were in a romantic relationship were more likely to be classified in the stable low group.

Mid High vs. Early High

Female participants were more likely to be classified in the mid high group. Participants who used alcohol, tobacco, or marijuana on a weekly basis were more likely to be classified in the early high group.

Late High vs. Early High

Participants who ate more often with their parents were more likely to be classified in the late high group. Participants with low attachment to mother, were other race, had elevated delinquent behavior, or were in a romantic relationship were more likely to be classified in the early high group.

Late High vs. Mid High

Participants who ate with their parents or used alcohol, tobacco, or marijuana on a weekly basis were more likely to be classified in the late high group. Participants who had low or no attachment to mother, were female, other race, attended religious services monthly, or had an increased number of sex partners were more likely to be classified in the mid high group.

Discussion

The ecological approach taken here regards depressive symptoms as being affected by clusters of influence rather than individual variables (Bronfenbrenner 1979; Gutman and Sameroff 2004); thus the goal is to highlight meaningful associations in context. This study examined four such ecological clusters as they relate to trajectories of depressive symptoms over time: parent and household dynamics, peer context and engagement, school environment, and religious activity, in addition to demographic

factors. Results indicate strong support for the parent/household cluster, moderate support across the peer and school clusters, and minimal associations in the religion cluster. Several observations follow.

A previous group-based study demonstrated preference for two-parent families in protection against depressive symptoms (Costello et al. 2008). An adolescent's relationship with her parents reflects her security and identity in many ways, and an absent parent no doubt leaves an enormous relational gap. It is conceivable, however, that a two-parent household characterized by low relationship quality may put children at greater risk than a one-parent household characterized by loving care. Thus, differences between low attachment and no attachment at all were assessed here. Results indicated that low attachment is more strongly associated with elevated depressive symptoms than no attachment due to parental absence. This is consistent with the findings of Downs and Rindels (2004), who showed that women with absent fathers scored more favorably on the Beck Anxiety and Depression Inventories than those with abusive fathers. The present study does not examine or account for abuse, but it similarly suggests that strained relationships may put adolescents more at risk for depressive symptoms than absent relationships.

One exception to this pattern arises when comparing the low stable group to the late high group. Here, an absent father is the only indicator of parental attachment risk. This raises the interesting possibility that an adolescent's relationships with her mother and father are differentially associated with symptom peaks throughout the life course. Low maternal attachment is associated with increased symptoms during adolescence (the early high group) and also the 20's (the mid high group), but not the 30's (the late high

28

group). Poor and absent paternal attachments are modestly associated with increased

symptoms in adolescence and the 20's, but only an absent paternal attachment is

associated with increased risk in the 30's. This underscores not only the role mothers tend

to play earlier in the life course through involvement and emotional support (Dubas and

Gerris 2002), but also the unique role fathers may play later in life, when they often

provide financial advice, practical guidance, and other forms of support (Fingerman et al.

2009). Parental support is crucial in the early years, but it also plays a significant role as

adult children embark on careers, start their own families, experience divorce, and begin

to face health and other challenges. 20% of adult children lack an active relationship with

their father and 6.5% lack one with their mother (Hartnet, Fingerman, and Birditt 2016).

During the 30's—just when these data suggest fathers have an important role to play—

research suggests parental support tends to decline most precipitously (Cooney and

Uhlenberg 1992).

What about other measures of relational support? Eating regularly with at least

one parent, having fun together as a family, and feeling cared for by teachers and friends

are all robustly associated with decreased odds of belonging to two or more of the

elevated trajectory groups. One clear takeaway from these data is that time and

investment in relationships has a lasting effect. Previous studies have suggested that peer

support does not have a significant effect once parental support is taken into account

(Stice et al. 2004; Young et al. 2005), but here perceived relationship quality with peers

and parents are both related to decreased risk of depressive symptoms. Additionally,

perception of care from teachers is protective not only during adolescence, but appears to

also extend to the trajectory group peaking in 20's. The same is true of eating regularly

with at least one parent (Eisenberg et al. 2004). Reporting a great deal of fun as a family is associated with persistent protection, and is robustly linked to decreased odds of belonging to all depressive trajectories. One explanation for this is that establishment of communication, trust, and family rituals goes on to shape relational dynamics as respondents start their own families (Rushton, Forcier, and Schectman 2002). Overall, these variable clusters point to the cumulative advantage of cascading positive relationships (Umberson and Montez 2010).

Both parental education and respondent GPA are associated with the stable low trajectory group, findings which complement those of other group-based studies (Kuchibhatla et al. 2012; Stoolmiller et al. 2005). One reason mother's education may matter in particular is that due to delayed childbearing and increased maternal employment across all education levels, the most-educated women gain resources such as time and money to spend on their children, rather than the least educated (McLanahan 2004). With increased education, work hours tend to become more flexible and benefits more substantial. Of course, a parent's education can also socialize a child into savvy use of financial resources, cultural and social capital, and a sense of personal control. The child's own performance in school, though, sets the appropriate trajectory which ultimately allows her to utilize these resources on her own, and in these data the respondent's performance in school is robustly linked with decreased odds of depressive symptoms across all trajectory groups (Mirowsky and Ross 2003).

For some adolescents, negative behaviors in the peer context pose a serious risk for membership in a burdened trajectory. In these data, participation in delinquent behavior is strongly associated with increased depressive symptom burdens, though the

30

odds and significance of such behavior diminishes at subsequent depressive peaks. This is consistent with Costello et al. (2008). Results are somewhat mixed when considering weekly use of tobacco, alcohol, or marijuana. Substance use is associated with higher depressive symptoms in the early high group, but lower depressive symptoms in the mid high group. This may point to differing intentions of use, as well as differing social contexts of the life course. While adolescents typically use substances as a form of rebellion, adults in their 20's may use these substances on a moderate basis as a (successful) means of coping with other sources of distress (Peele and Brodsky 2000). Furthermore, the mid-high trajectory is made up of 75% women, and alcohol or marijuana use in this largely female group may reflect a gendered pattern, as women are less at risk for substance abuse than men.

Sexual activity in these data has only a weak association with depressive symptoms when all other ecological factors are taken into account (ancillary models show a positive association). Yet, there are a few associations. An increased number of sex partners is very modestly associated with odds of depressive symptoms in the mid high group (compared to stable low), and significantly, this remains a viable result even when romantic relationship is taken into account. Previous studies have pitted romantic involvement and sexual activity against one another, suggesting depressive symptoms are largely the result of one or the other (Hallfors et al. 2005; Monahan and Lee 2008). These results indicate multiple sex partners—possibly a marker of overall decreased relationship quality—is associated with depressive symptoms even after taking romantic relationship status into account. This curtails the findings of another multi-trajectory

study which strongly related multiple sex partners to depressive symptoms (Wickrama and Wickrama 2010).

A secondary sex-related risk factor which has not been addressed in group-based modeling is pregnancy. Interestingly, while pregnancy has been associated with an immediate increased risk for depressive symptoms elsewhere (Hodgkinson et al. 2010), in these data, becoming pregnant or impregnating a partner in adolescence is not associated with a strong increase in symptoms in the adolescent years. Pregnancy is, however, associated with depressive symptoms in the late high trajectory group. This may be due to increasing pressure over time and the cumulative disadvantage of missed opportunities for education, stable romantic relationships, and stable careers that might be caused by early, unplanned pregnancy (Umberson and Montez 2010). This late-high trajectory group is also at risk, as previously discussed, for decreased support from parents (Cooney and Uhlenberg 1992), which could have a compounding effect.

The final ecological cluster under examination here is religion, which has not been assessed in the group-based literature. Religion is generally associated with positive outcomes (Ellison and Lee 2010; Koenig et al. 2012), and frequency of religious attendance is often a strong predictor. In these data, however, service attendance does not play a strong role. Religious attendance is not protective of depressive symptoms in the early or mid-high trajectory groups, though a small association is reported with decreased odds in the late-high group. The emergence of this protective factor in the mid-30's may relate to changing social networks. Built-in networks for social support thin after the formal education years (Smith et al. 2011), and participation in many kinds of civic organizations is on the decline (Putnam 2000). This leaves congregations as likely

locations of support in the 30's and beyond, with several studies suggesting religious

congregations may be effective sources of social support later in life (see Koenig et al.

2012).

While attendance is associated with lower risk of depressive symptoms later in

life, in these data prayer is actually linked with increased odds during adolescence. Two

arguments could be made for this finding, each reflecting a different causal order. First,

respondents might pray more as a response to elevated depressive symptoms (Ahrenfeldt

et al. forthcoming). This aligns with a perspective in which God is turned to as a source

of comfort during times of distress (Kirkpatrick 2005). Alternatively, depressive

symptoms might increase as a result of prayer where the relationship with God is

uncertain. Some families and religious traditions normatively expect prayer whether the

respondent is confident in her relationship with God or not; an individual who has trouble

praying may thus be at an increased risk, especially in a totalizing religious environment.

One study examining prayer and attachment to God found a negative association with

well-being when attachment to God was insecure (Bradshaw and Kent forthcoming).

The final variables under consideration are also some of the most fundamental.

Gender and race/ethnicity are highly salient statuses in the experience of depressive

symptoms, though more consensus surrounds gender than race/ethnicity. Women suffer

more from internalizing disorders that result in depression and anxiety (Kessler 2003),

and the findings here do not suggest otherwise. Women are much more likely to be

classified on the three elevated trajectories, particularly the mid high group, where the

odds are nearly four times those of men. Race/ethnicity is a little less straightforward.

The larger literature has often found that non-hispanic whites are at higher risk for

depression (e.g., Breslau et al. 2006), whereas the group-based literature is mixed, with some finding blacks and Asians at higher risk, some Latino, some white, and some none at all (Costello et al. 2008; Kuchibhatla et al. 2012; Liang et al. 2011; Lincoln and Takeuchi 2010). The findings here point to increased risk among black respondents (relative to whites) in the mid and late high groups, as well as Asians or those of another race in the early and mid-high groups. Further research is clearly necessary to evaluate these results, particularly since it is problematic to draw conclusions based on broadly defined categories without taking into account nativity, ethnicity, cultural factors, and intersecting statuses (Brown et al. 2013; Yang and Lee 2009).

Overall, these examinations offer several refinements of previous group-based work. Examining Add Health Waves 1, 2, and 3, Costello et al. (2008) only found two high risk trajectory groups (see Figure 2.2). Adding the fourth wave of data shifts the picture, suggesting instead that one of these low-risk groups is in fact a late-peaking high risk group. This late-peaking trajectory consists of 8.1% of the sample, significantly increasing the overall proportion of respondents who reported high depressive symptoms at some point in the study period. What is distinct about this late elevated group? The single factor which most demarcates it from others is pregnancy in the adolescent years.

Strengths, Limitations, and Future Research

This study has a number of notable strengths, particularly its a) size and representativeness, b) longitudinal span, c) identification and description of separate depressive symptom burden trajectories, and d) broad range of protective and risk factors. Despite these strengths, however, it is subject to several limitations. First, this study is interested in the adolescent context and long term ramifications. It asks: "Given our

34

knowledge of depressive symptom trajectories from age 13-35 in this particular study population, what can we say about other adolescents today? What factors, statuses, accomplishments, and relationship qualities are likely to put them on one of these four trajectories?" For this reason the study does not account for time-varying covariates such as marital status, family structure, employment, home ownership, immigration status, etc. which may occur later in time. Inclusion of such covariates may alter the findings, and future work should address this possibility. At minimum, these findings point to differing degrees of elevation for depressive burdens in adolescence, with possible application to peaks of symptom burden later in the life course. Second, self-report measures of depressive symptoms are subject to various forms of bias, and the CES-D scale used here does not mitigate this problem. The measure does not constitute a professional diagnosis of a depressive disorder. Third, despite the study's longitudinal nature, arguments for causality are limited. In all likelihood, depressive symptoms operate reciprocally with social context, such that both selection and causation effects occur. Fourth, despite the relatively long developmental period assessed here, there is no way to know how the trajectories might change if extended further. None of the trajectories graphed here are immune to adjustment with more complete data. Finally, depressive symptoms have been shown to differ between genders (Diamantopoulou, Verhulst, and van der Ende 2011), and trajectories may look different if men and women are evaluated separately. They are retained together here to allow for comparison of risk ratios between men and women and for continuity with previous Add Health research (e.g., Costello et al. 2008).

As such, future research could evaluate trajectories separately by gender. It might also disaggregate alcohol, tobacco, and marijuana. Previous group-based studies have

combined them (e.g., Costello et al. 2008), and for this reason they are combined here, but some evidence suggests differing associations between adolescent alcohol and tobacco use and later depressive symptoms (Brook et al. 2002). Further theoretical and empirical work needs to evaluate the disparity of findings on race/ethnicity in the group-based literature in order to solidify a) which groups are consistently more at risk at different development periods, and b) the reasons for these elevated risks. Finally, additional investigation might seek to unravel the positive links found here between prayer and depressive symptoms. Evaluations of the mental health benefits of prayer have been inconsistent, with some finding positive and others deleterious associations (Bradshaw, Ellison, and Flannelly 2008; Ellison, Burdette, and Hill 2009). At least one study has found that benefits of prayer are highly contingent on one's perception of God (Bradshaw and Kent forthcoming), making this a potential area for further analysis.

Conclusion

Giussani (2001:73) wrote that there is nothing more "harmful, debilitating, and, in the long run, frustrating to an adolescent than to feel that no caring effort is made to help him deal with his world." This study shows that such care is often associated with well-being over time. In particular, good parental relationships and positive family dynamics are strongly associated with decreased symptom burden. Peer support, teacher support, and educational achievement are also highly protective. Delinquent behavior is a risk factor, while other ecological factors such as romantic relationships, number of sexual partners, and religious prayer and attendance have minimal association with depressive

burden. The group-based approach taken here further joins a growing number of studies using this methodology; it is hoped that other researchers will continue to develop this approach in examining depressive symptoms across the life course.

CHAPTER THREE

Religion/Spirituality and Gender Differentiated
Trajectories of Depressive Symptoms Age 13 to 35

Introduction

Links between religion and depression have received considerable attention, both in the young adult and broader populations (Koenig, King, and Carson 2012). Religious attendance has received particular attention and is commonly associated with positive mental well-being (Rew and Wong 2006). However, emerging research examining religion and spirituality (R/S) from a more experiential or subjective perspective offers a picture in which R/S may be associated with decreases in mental well-being (Ellison and Lee 2010; Hayward et al. 2012). Scholars conducting this work emphasize that R/S must be examined from many angles since it is multifaceted and not easily reduced to a single dimension.

At the same time, research on the U.S. population, including adolescents and young adults, reveals marked gender differences in self-reports and diagnosis of depression (Garber et al. 2002; Kessler et al. 2005). Females are more likely to experience internalizing disorders, whereas males more often experience externalizing disorders (Kessler 2003). In the study of depression, it seems clear that both religion and gender play a significant role, each of which accounts for approximately 10% of the variance in depressive symptoms (Koenig et al. 2012; Nolen-Hoeksema, Larson, and Grayson 1999). However, we know little of whether religion matters differently for men

than women or whether the relationship shifts with varying measures of religion and spirituality.

The current study examines these questions by modeling R/S and depressive symptoms disaggregated by gender. Its purposes are threefold. First, to examine links between depressive symptoms and an array of R/S predictors, including those more experiential or subjective in nature. Second, to examine gender differences in depressive symptoms among young adults. And third, to examine these differences using group-based trajectory models (GBTM) in a large, national sample. Group-based studies, which are relatively few in number, offer unique insights into the etiologies of depressive symptom burden in adolescence and young adulthood (Musliner et al. 2016).

Background Literature

Religion/Spirituality and Depressive Symptoms

The relationship between religion and depressive symptoms is receiving increasing attention. In the second edition of the *Handbook of Religion and Health*, Koenig and colleagues (2012) summarized 339 studies published between 2000 and 2010 examining religion and spiritual involvement (R/S) and depression, up from the 104 published prior to 2000 examined in the first edition. The majority of these found a salutary relationship between R/S and depression. For example, Strawbridge and colleagues (2001) found that participants who were depressed at baseline and attended religious services weekly or more were 2.3 times more likely to recover during the 29 year follow-up period. Similarly, Van Vorhees et al. (2008) found in a 12-month follow-up of adolescents that regular prayer and attending youth religious services predicted

39

decreased odds of new-onset depressive disorders. In these analyses, the predominant measurement of R/S was a form of religious attendance or participation. Religious participation was similarly prevalent in a review of depression among adolescents by Rew and Wong (2006). Many scholars agree that this beneficial relationship operates through the mechanisms of social support and buffering (e.g., George, Ellison, and Larson 2002).

Not all studies report a beneficial association, however. Overall, 6 percent of cross-sectional studies and 11 percent of prospective studies located for the *Handbook* found that R/S was associated with higher levels of depression. These studies often incorporated R/S measures beyond attendance, and what researchers are now beginning to recognize is that R/S is multifaceted and its relationship to depression changes depending on context and measurement. For example, several studies examined interaction effects or measures of R/S that moved into the perceptual realm, including perceived religiousness (Baetz et al. 2004) and salience of spiritual values (Baetz et al. 2006). Hayward and colleagues (2012) examined not just attendance, but also religious media use, private religious practice, religious salience, group affiliation, and report of born-again or other life changing religious experiences. They found that attendance was linked to lower depression, prayer was linked to higher, and less depression severity was associated with a born again experience, although this was among those already depressed in an elderly sample. What is important for the present purpose is these scholars' conclusion that religion is multidimensional and associates with depression via multiple pathways not limited to social support/buffering in religious participation.

Subjective, experiential, and perceptual measures are understudied and present an opportunity to examine R/S in addition to indicators like attendance.

Religion/Spirituality, Gender, and Depression

While studies in R/S and depression typically control for gender, only a handful specifically examine gender differences. Of those that do, a common theme emerges consistent with the literature on the gender gap in religion (Schnabel 2015), that is, men and women may have different depressed mood outcomes vis-à-vis religion and spirituality. For example, men who did not attend religious services or who stopped attending were at lower risk for lifetime major depression, whereas no relationship was found among women (Maselko and Buka 2008). In another case, men obtained greater benefit from religious involvement than women (McFarland 2010). In a sample of Muslim Palestinian students, Barber (2001) found that religious involvement was inversely related to depression for all respondents, but more so for women than men. And in a longitudinal study of six European countries, women appeared more likely to cope with depressive symptoms through religious participation than men (Angst et al. 2002). These and similar studies are too few to reach any conclusions, but they point to the likelihood that gender differences in R/S are linked with differential outcomes in mental well-being.

Study Aims

The aims of this study are threefold. The first is to examine an array of R/S measures, including subjective perceptions of divine involvement in the respondent's life. In recent years several new ways of measuring R/S have garnered attention. These types

of measures examine perceptions of both God's engagement in the world and perceptions of God's involvement in the respondent's life. Research in attachment to God, for example, has shown that private prayer might be associated with negative well-being when the relationship with God is not trustworthy (Bradshaw and Kent forthcoming). Other research suggests depressive symptoms are higher among Pentecostals, where there is a normative expectation in the religious community for divine communication and intervention (Koenig et al. 2012). The present study takes advantage of an underutilized battery of R/S questions in Add Health Wave 3 which, in addition to religious attendance, prayer, and salience, measure experiential/subjective religious reports (i.e., having a born again experience, having a spiritual experience that changed the respondent's life, believing God leads the respondent in daily decisions, and belief that angels watch and protect the respondent). It is possible that experiential spirituality may increase as a coping response to depressed mood, or it may generate depressed mood under specific circumstances, but whatever the causal order, this type of spirituality is expected to associate with increased depressive symptom burden.

The second and third aims are intertwined. They are to examine gender differences, and to do so using disaggregated group-based trajectory models. Gender-specific depressive symptom trajectories provide an opportunity to identify distinct symptom etiologies for male and female respondents. As Musliner et al. (2016) report in their review of the group-based depression literature, a higher proportion of women fall into burdened trajectories of depressive symptoms. Few of these studies, however, disaggregate the sample by gender. Further, no group-based studies have yet examined religion and spirituality. Thus, this study not only examines subjective and experiential

measures of R/S, but provides a group-based assessment of more commonly used indicators like religious attendance. The present study disaggregates men and women to identify the number of functional trajectories for each gender, the shape of these trajectories, and any patterns of similarity or difference between men and women via model coefficients.

Data and Methods

Sample

Data for this analysis was drawn from Waves 1, 3, and 4 of the National Longitudinal Study of Adolescent to Adult Health (Add Health), a nationally representative, probability-based survey of American adolescents who were in grades 7 to 12 during the 1994-1995 school year. 20,745 adolescents were interviewed in W1, and subsequent waves were collected in 1995-1996 (W2), 2001-2002 (W3), and 2007-2008 (W4). Waves 1, 3 and 4 were used here to construct age-based depressive symptom trajectories of all respondents having complete data for depressive symptom measurements, a requirement of group-based trajectory modeling (W2 was not used because of its proximity to W1). Since Add Health does not assess depressive symptoms in every respondent across waves, 7,725 cases were lost. Multiple imputation was not used to recover missing values since GBTM assumes a hypothesis of multiple subgroups, which is at odds with multiple imputation's assumption of a single population (Colder et al. 2001). 61 additional respondents were removed from the sample who were 12 at the time of Wave 1 or 36 at the time of Wave 4 since they were too few in number to be

considered representative of their age groups. A further 711 were dropped due to missing sampling weights, resulting in a final sample of 12,248.

Outcome Variable

Participants responded to nine items on the CES-D scale common to Waves 1, 3, and 4. The CES-D assessed how often respondents experienced depressed affect in the past week ("bothered by things," "could not shake the blues," "felt depressed," etc.). Responses ranged from 0 (never or rarely) to 3 (most or all of the time). The items showed good internal consistency across the three waves with an alpha of .80.

Predictor Variables

The primary variables of interest include a battery of religion/spirituality items. Four of them are unique to the W3 questionnaire. These include "having a born again experience" (1=yes), "a spiritual experience that changed your life" (1=yes), belief that "coincidences are not really coincidences; I am being 'led' spiritually" (1=strongly agree and agree), and belief that "angels are present to help or watch over me" (1=strongly agree and agree). Three items are available in both the W1 and W3 questionnaires. These assess religious service attendance (0=never to 6=several times a week), prayer frequency (0=never to 7=more than once a day), and importance of religious faith (0=not important to 3=more important than anything else).[1] W1 items control for those religion/spirituality measures unique to W3 (see Wickrama and Wickrama 2010). Female is based on biological sex at Wave 4. Race/ethnicity is coded as a dummy system with white, black, Hispanic, Asian, native American, and other (W1). Mother's and father's education are

---

[1] W1 provided fewer response options than W3 for attendance and prayer. Recoding to match did not substantively alter results, so W3 scaling is retained.

coded as binary variables (W1, bachelor's degree or more=1). Self-rated health has a range of 1-5 with 1=poor to 5=excellent (W1, W3). Wave 3 controls include marital status (married=1), income (in dollars), employment status (employed=1), education (in years), and children in home (children=1).

Analytic Strategy

This study utilizes a semi-parametric group-based modeling approach (Nagin 2005). Prior to estimation of the trajectory groups, data were converted to an age-based cohort sequential design (Costello et al. 2008; Miyazaki and Raudenbush 2000; Wickrama and Wickrama 2010). Age categories for this design were constructed in two year increments beginning at age 13-14, except for the final group, which is 33-35. If too few respondents were in an age category to ensure representativeness, they were dropped. Bayesian Information Criterion (BIC) and Maximum Likelihood Estimates (MLE) were used as recommended (Nagin 2005; Xie et al. 2006) to evaluate: a) model fit; b) the optimal number of trajectory groups; and c) the functional form of each trajectory (e.g., intercept-only, linear, quadratic, cubic). Models were assessed with the full sample as well as separate samples by gender. Separating the sample provided marginally better model fit, as well as a unique number of trajectories and functional shapes indicating etiological distinctions. A four-group quadratic solution for females maximized BIC and returned significant MLE estimates, and so it was selected. Average posterior probability (APP) for each group are stable low=.94, early high=.65, mid high=.78, and late high=.78. For males a five-group model maximized BIC and returned appropriate MLE estimates. All trajectories fit a quadratic form with the exception of the elevated group, which takes a linear form. APP for stable low=.91, elevated=.66, early high=.89, mid

45

high=.84, and late high=.92. Multinomial logistic regression was used to examine covariates in unconditional models, with R/S items assessed both independently and together. Correlation coefficients among R/S items (not reported) were low to moderate, and minor differences in coefficients did not alter the overall story. Therefore, reported coefficients are of R/S items modeled collectively.

Results

Trajectory Plots

Figure 3.1 displays the unconditional model of female respondents, which assesses depressive symptom trajectories without the addition of risk covariates into the trajectory plots (Clark and Muthén n.d.). Four distinct trajectories emerge, with 72.6% of respondents classified in the stable low symptom group. The remaining 27.4% are classified in one of three groups following unique developmental trajectories that range from moderately elevated to high levels of symptom burden.

Figure 3.2 displays the unconditional model of male respondents. The primary difference between these two figures is the addition of a stable, moderately elevated symptom burden group. 64.1% of males are classified in the stable low group, with 25.7% classified on the stable, moderately elevated group. Whereas 27.4% of females are classified on a trajectory reaching high levels of symptomatology, 10.2% of males are classified on such a trajectory.

Group Means

Table 3.1 reports Wave 3 religion and spirituality means for each trajectory group by gender. For females, increased levels of religious attendance were reported on the
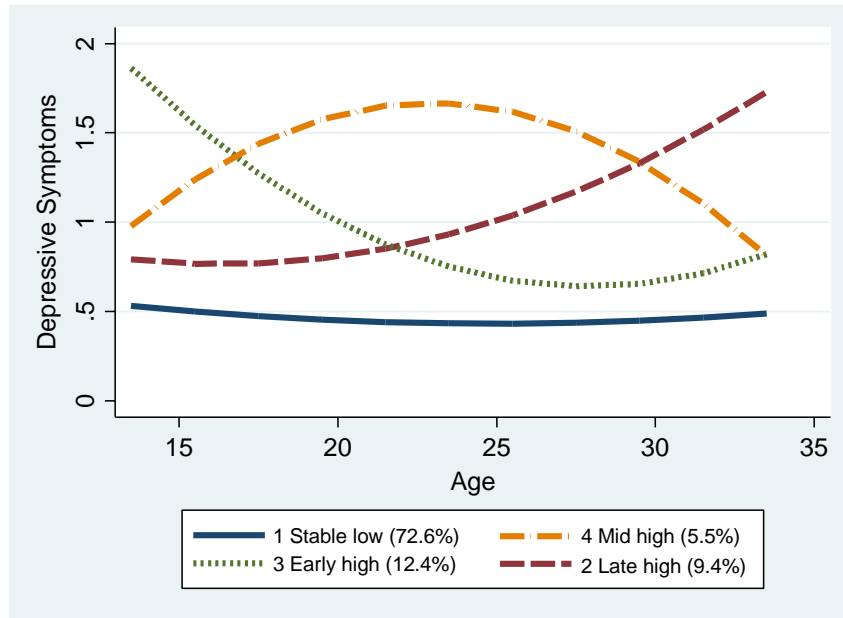
Figure 3.1. Unconditional female model of predicted depressive symptom trajectories (Waves 1, 3, and 4 Add Health, N=6,658).
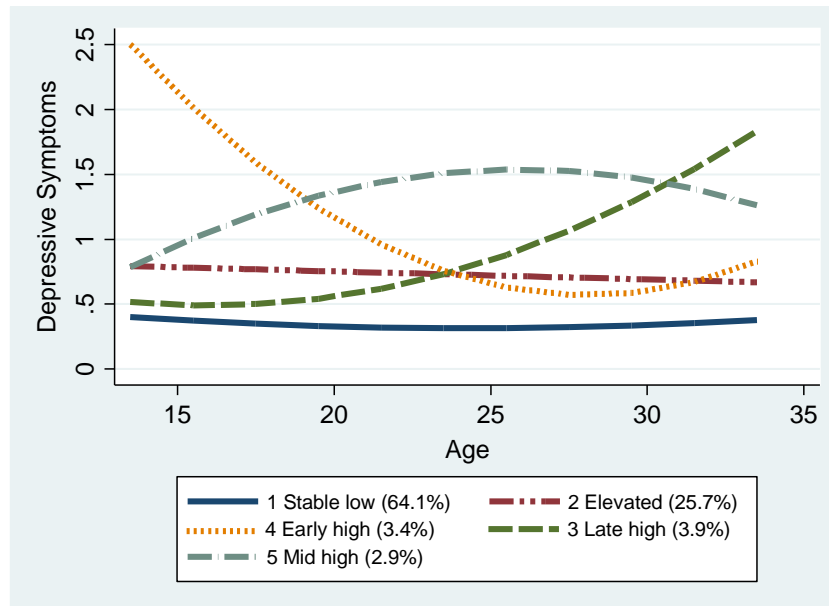
Figure 3.2. Unconditional male model of predicted depressive symptom trajectories (Waves 1, 3, and 4 Add Health, N=5,590).

Table 3.1. *Group means of Add Health wave 3 religion/spirituality items by gender.*

Trajectory Group	N	Service Attendance	Prayer Frequency	Religious Salience	Born Again Experience	Spiritual Experience	Led by Spirit	Angels Protect Me
Range		0-6	0-7	0-3	0-1	0-1	0-1	0-1
Female								
Stable low (s)	4,923	2.39^{eml}	4.22^{ml}	1.57^{ml}	.13	.29	.48	.69^{e}
Early high (e)	857	2.10^{sm}	4.12	1.53	.15	.31	.52	.74^{s}
Mid high (m)	350	1.69^{se}	3.78^{s}	1.45^{s}	.11	.34	.49	.69
Late high (l)	528	1.90^{s}	3.84^{s}	1.46^{s}	.13	.30	.50	.71
Total	6,658	2.28$^{\#}$	4.16$^{\#}$	1.55$^{\#}$	.13	.29$^{\#}$	.49$^{\#}$	.70$^{\#}$
ANOVA F		23.83***	6.75***	5.06**	1.04	1.82	1.81	3.13*
Male								
Stable low (s)	3,661	1.94^{v}	3.24	1.39	.12	.24^{vm}	.40^{m}	.51^{m}
Elevated (v)	1,498	1.77^{s}	3.11	1.36	.13	.28^{sm}	.44	.55
Early high (e)	147	1.69	3.39	1.37	.09	.30	.43	.58
Mid high (m)	143	1.73	3.44	1.40	.17	.39^{sv}	.54^{sl}	.63^{e}
Late high (l)	141	1.66	3.60	1.37	.11	.28	.37^{m}	.57
Total	5,590	1.87$^{\#}$	3.22$^{\#}$	1.38$^{\#}$	.12	.26$^{\#}$	.41$^{\#}$	.53$^{\#}$
ANOVA F		2.97*	1.87	0.22	1.46	5.58***	3.87**	4.12**

Notes: †p<.1, *p<.05, **p<.01, ***p<.001
^{s}contrasts with stable low at p<.05
^{v}contrasts with elevated at p<.05
^{e}contrasts with early high at p<.05
^{m}contrasts with mid high at p<.05
^{l}contrasts with late high at p<.05
$^{\#}$average for all females differs significantly from all males at p<.05

stable low trajectory group. These respondents also reported higher levels of prayer and religious salience compared to the mid and late high groups. Stable low women reported slightly lower levels of agreement that angels watch over them in comparison to the early high group.

Among males, the stable low group reported higher levels of service attendance than those classified as elevated, with no difference in prayer or religious salience. The stable low group also reported lower levels of spiritual experience, feelings of being led

by the spirit, and belief that angels watch over them.[2] Overall, females reported higher levels of religious belief and behavior than men in all categories except born again experience.

Multinomial Regression

Odds ratios in Table 3.2 estimate the probability that increased religion/spirituality associates with membership on a burdened trajectory group. In females, religious service attendance is associated with decreased odds of classification on all burdened symptom trajectories, as is prayer frequency when comparing the late high to stable low groups. No significant relationship emerges in religious salience or born again experience. Having had a life-changing spiritual experience indicates an increase in classification on the mid and late high groups, as well as marginally increased odds for classification on the early high group. Belief that "the spirit of God leads me" is linked with higher odds of classification on the early high trajectory, as well as higher marginal odds on the mid high group. Belief in angelic care relates to classification on the late high group.

In male respondents religious service attendance is associated with decreased odds of membership in the elevated (marginal) and late high groups. Private prayer is associated with increased odds of classification on the early and late trajectories, and religious salience is associated with lower odds of membership in the elevated (marginal), mid, and late high groups. Males who reported having a born again experience have higher odds of placement on the mid and late high groups, while those

_____

[2] Small N's in the other three groups give them comparatively low statistical power. Contrast between the high burden groups and the stable low group might still represent substantive differences.

Table 3.2. *Multinomial regression of depressive symptom trajectory group on wave 3 religion/spirituality (Add Health, female N=6,658 , male N=5,590)*

Trajectory Group	Service Attendance	Prayer Frequency	Religious Salience	Born Again Experience	Spiritual Experience	Led by Spirit	Angels Protect Me
Female							
Stable low (ref)							
Early high	.93*	.99	.94	1.18	1.22†	1.42**	1.17
Mid high	.84***	.97	.99	.68	1.46*	1.37†	.91
Late high	.88**	.91**	.99	1.01	1.31*	1.06	1.35*
Male							
Stable low (ref)							
Elevated	.95†	.99	.89†	1.13	1.30**	1.12	1.19†
Early high	.99	1.17***	.78	.61	2.04**	.48***	2.05**
Mid high	.96	1.07	.70*	1.81*	1.91**	2.02**	.94
Late high	.84*	1.13**	.72*	1.87*	1.25	1.04	1.02

Notes: †p<.1, *p<.05, **p<.01, ***p<.001. Males and females regressed separately. Coefficients are odds ratios. Race/ethnicity, parent education, religious attendance, prayer, and religious tradition were controlled at Wave 1. Self-rated health was controlled at Waves 1 and 3. Marital status, income, employment, education, and children were controlled at Wave 3.

reporting a spiritual experience that changed their life have increased odds of classification on the elevated, early high, and mid high groups. Belief in being led by the spirit of God is associated with higher odds of placement on the mid high group and decreased odds on the early high group. Belief in angelic care is linked with increased odds of classification on the elevated (marginal) and early high groups.

Discussion

The findings on religious attendance reported here bear out prior research, in that increased attendance is associated with lower odds of classification on elevated depressive symptom trajectories. This holds true for all comparison groups among women and some groups among men. Where coefficients reach significance the reduction in odds are similar for both men and women. The remainder of R/S items reveal several

potential differences by gender, either in the direction of the relationship between R/S

and depression, or in the magnitude of classification odds.

Take prayer, for example. Here, the direction of the relationship moves in

opposite directions. For women, prayer is either non-significant or associated with a

decreased symptom burden, but for men it is associated with increased burden. Why? On

average, women report higher levels of engagement in religion and spirituality (Schnabel

2015) and they also report higher levels of intimacy with God (Kent 2015). For those

who experience intimacy with God, prayer is associated with positive well-being, but the

opposite is true for those feeling distant from God (Bradshaw and Kent forthcoming).

Based on these reports, it is possible to speculate that two dynamics may be at play:

frequency of engagement and quality of engagement. Motivation differs for the first,

while experience differs for the second.

Frequency of engagement suggests that women pray more often, and they do so

because of an increased value on relational components of faith (Buchko 2004). For men,

prayer is less frequent because "men's relationships are framed by different motivations,

objectives, and benefits, which results in unique implications for their spirituality"

(Bryant 2007:836). The theoretical implication is that women are more likely to pray

regardless of their depressive state, whereas men are more likely to pray as a response to

a felt need, such as feelings of depression.

Quality of engagement would amplify these dynamics. Because women

experience greater intimacy and security with God (Kent 2015), it is likely that when they

pray the experience is more efficacious than it is for men, who report lower levels of

intimacy. For them, the act of prayer may be less effective, or even introduce further distress.

What of religious salience? In these data no significant relationship emerges for women, but for men it is linked with lower odds of membership on several increased burden trajectories. One explanation is that these findings is that there is more variation among men on this measure than women. It may be capturing real differences between men who prioritize their faith against those who do not. Men who hold their faith in high regard likely invest in their relationship with God and participate in a religious community, both of which are linked with affective well-being.

The final four items (having a born again or life-changing spiritual experience, being led by the Spirit, and belief in angelic intervention) tap subjective and experiential dimensions of R/S. These variables collectively indicate a disposition towards the supernatural which anticipates divine interaction and participation in one's life. Interestingly, many of the tests for both men and women indicate that these variables are associated with increased odds of membership on burdened symptom trajectories. One straightforward explanation for this is that people suffering from depression seek out spiritual experiences and divine affirmations as a means of managing their symptoms (Baetz et al. 2006).

Another explanation suggests spiritual environments themselves may lead to depression (Ellison and Lee 2010). In this line of reasoning, the subjective/experiential variables examined in this study can be seen as "windows" into three facets of religious faith: perception of oneself, perception of God, and perception of others in the religious community. Evidence indicates both that emotional well-being is linked with consistency

among one's beliefs, actions, and relationships (Wink and Scott 2005), and that uncertainty or distance in the relationship with God, concern over whether God is pleased, or failure to live up to personal or communal expectations are liable to create a gap between idealized and actual spirituality, particularly in experience-driven environments (Hayward et al. 2012; Henderson and Kent 2015; Murray and Ciarrocchi 2007).

Religious communities in the U.S. differ in expectations for engagement with God, but sizable portions of U.S. religion, particularly in conservative Christianity, propagate this type of environment. As Luhrmann (2012:312) writes in her ethnography of conservative, charismatic congregations, "In experiential churches, the way God is imagined insists that a congregant pay constant attention to her mind and world…she must scrutinize her thoughts and mental images…looking for moments that might be God…such a theology demands constant vigilance from those who follow it." These environments demand high levels of attention, and members inevitably compare themselves to one another and to biblical and historical exemplars, thus putting participants at risk of distress when expectations are not met.

These dynamics may help explain why the coefficients reported among men and women indicate a modest pattern of increased risk for men vis-à-vis R/S experience. It may further turn on the culture of American Christianity, which historians have noted has been increasingly "sentimentalized" in the 20th century. Men who choose to pursue spirituality in this "feminized" religious culture might not only face scrutiny within the congregation, but may also experience sanctioning—and therefore distress—from actors and other forces external to the congregation.

Conclusion

Despite several limitations, such as use of a self-report scale for depression rather than professional diagnosis, this study offers a number of important findings. First, it documents gender differences in etiological trajectories of depressive symptoms over a lengthy developmental course. Second, it confirms previous findings on religious attendance by way of a group-based modeling strategy. Third, it adds to the literature on subjective and experiential religion and spirituality by showing that subjective forms of R/S may be associated with increased depressive symptom burden. And fourth, it indicates that experiential/subjective R/S may be more strongly associated with depressive symptoms for men than women. These findings, though subject to replication and further testing, are hoped to offer theoretical and practical insight for scholars, mental health counselors, and religious care professionals.

CHAPTER FOUR

Do Daily Spiritual Experiences Moderate the Effect of Stressors on Psychological
Well-being? An Experience Sampling Study of Depressive Symptoms and Flourishing

Introduction

A bevy of research findings in the U.S. population demonstrate largely consistent
salutary associations between multiple dimensions of religion/spirituality (R/S) and
psychological well-being, including organizational and non-organizational practices,
religious commitment and identity, and congregational support and R/S coping behaviors
(Koenig, King, and Carson 2012; Rew and Wong 2006). Additional attention has
gathered recently around a growing literature highlighting subjective and perceptual
spirituality, including daily spiritual experiences (Preston and Shin 2017; Underwood
2011). While reports of daily spiritual experience (DSE) presume to assess daily
respondent reports of spiritual perception and engagement, methodological constraints
have often prevented researchers from demonstrating which dimensions of R/S directly
contribute to positive affect. Our concern is that measures of individual affect more often
capture *state* characteristics (i.e., momentary experiences) rather than *trait* characteristics
(i.e. aspects of personality presumed to be relatively stable). This possibility poses a
challenge for much of the existing research on psychological well-being, and social
scientists are typically forced to assume that their measurements capture the trait
characteristics of their respondents, rather than state characteristics.

Furthermore, the inability to disentangle state and trait characteristics prevents
researchers from precisely demonstrating the full extent to which R/S moderates the

relationship between stress and mental health. Stress is well-known as a negative predictor of mental health (Hammen 2005; Monroe and Harkness 2005), but religion and spirituality have been shown to buffer this relationship, presumably through mechanisms such as religious coping and social support (Davis, Hook, and Worthington Jr. 2008; Dein, Cook, and Koenig 2012; Ellison and Taylor 1996). A growing number of studies also identifies a negative relationship between R/S and psychological well-being. In either case, however, studies of stress, religion, and mental health rarely disentangle state and trait characteristics (Koenig et al. 2012) and there is little evidence that R/S practices, such as DSE, contribute to immediate positive affect in the presence of stressors.

The current study addresses these issues with data from the SoulPulse project, an experience sampling method (ESM) study using smartphone technology. Relying on multilevel analysis of surveys sent to individuals twice a day over a two-week period, our analyses disentangle state-level spiritual experiences and practices from trait-level characteristics, examining how these are uniquely associated with psychological well-being (PWB) vis-à-vis daily environmental stressors. Our research is centered on three key areas of investigation: 1) the relationship between daily stressors and PWB, 2) the association between DSE and PWB, and 3) and the moderation of stressors by DSE. As we investigate these questions, we examine DSE at both the state and trait levels, and assess DSE using the full daily spiritual experience scale, as well as its constitutive theistic and non-theistic items (Underwood 2011; Underwood and Teresi 2002). Our findings indicate robust direct associations between stressors, DSE, and PWB, as well as substantial support for the moderating role of DSE on the relationships between stressful life events and PWB.

Religion and Well-being

While the mechanisms are often assumed due to data limitations, there is a substantial literature linking spirituality and religion to mental health (e.g., Hill and Pargament 2003; Koenig, King, and Carson 2012). This scholarship generally indicates positive associations, and indeed, in an assessment of studies undertaken prior to 2000, two-thirds reported lower rates of depressive symptoms among the religious (Koenig 2009). Weekly religious service attendance, for example, has been associated with decreased odds of depression (Strawbridge et al. 2001) as well as decreased depression vis-à-vis religious volunteering, intrinsic religiosity, and public expression of religion (Musick and Wilson 2003; Nonnemaker, McNeely, and Blum 2003; Payman and Ryburn 2010). Many other studies have reported similar findings (e.g. Dein, Cook, and Koenig 2012; Koenig et al. 2012).

Not all studies report a salutary link, however. In a meta-analysis of 147 studies, Smith, McCullough, and Poll (2003) found that 27 identified a relationship between increased religiosity and depressive symptoms. That religion is associated with increased as well as decreased depressive symptoms should not be a surprise, since depressive symptoms can be both a cause and a consequence of religious beliefs, behaviors, and social interactions. Religion may lead to increased well-being in some circumstances but worse well-being in others, and likewise religious beliefs and practices might result from changes in psychological well-being (i.e., increased prayer as a response to depressive symptoms). Scholars working the field of spiritual struggles show that negative emotions about one's relationship with God, interpersonal conflicts in religious settings, and

feelings of guilt over moral offenses can all have negative consequences for well-being (Ellison and Lee 2010; Exline et al. 2014). Recent scholarship in attachment theory has shown that religious activities like prayer can be beneficial when adherents feel securely attached to God, but harmful when the attachment to God is insecure (Bradshaw and Kent forthcoming).

The difference between studies finding positive and negative association often comes down to measurement. Those which examine religious attendance or participation in the U.S. population often find a beneficial relationship, while those finding a deleterious relationship often include measures reflecting subjective perceptions of the religious environment or relationship with God. Most of these studies are cross-sectional, and even those prospective in nature face measurement challenges in that they assess R/S at isolated points in time several months or years apart.

Flourishing

Much of the literature on religion and well-being has focused on depressive symptoms, anxiety, stress, and other negative outcomes, but scholars also investigate positive outcomes (Bradshaw and Kent forthcoming; Kent, Bradshaw, and Uecker forthcoming; Koenig et al. 2012). Examinations have found, for example, associations between R/S and life satisfaction, happiness, and subjective well-being (Helliwell and Putnam 2004; Koenig and Vaillant 2009; Krause 2003; Krause and Ellison 2003). Our study examines depressive symptoms, but it also moves to incorporate an important marker of positive well-being: flourishing (Jahoda 1958; Keyes 2002, 2007; Miner, Dowson, and Devenish 2012; Tuck and Anderson 2014). Flourishing is more than just the absence of mental illness. Rather, flourishing is a comprehensive construct

58

incorporating elements of positive emotions, positive psychological functioning, and positive social functioning. A leading scholar in the study of flourishing argues that such a view is necessary in the field of mental health (Keyes 2002, 2007; Keyes et al. 2010). While a majority of the population is technically free of a mental disorder, only a portion of the population—about one fifth—can be classified as flourishing. The remainder is classified as moderately healthy or languishing. Flourishing takes a broad view of the individual in context and takes into account concepts such as positive affect, self-acceptance, purpose in life, autonomy, environmental mastery, social contribution, and social integration, among others.

In flourishing research, mental well-being is examined on a dual continuum of mental health/illness and flourishing/languishing (Keyes 2002). Research supporting this two-factor approach has provided evidence for examining both mental health (i.e., depressive symptoms) *and* flourishing. Adults diagnosed as flourishing do not simply experience an absence of depressive symptoms. Rather, they experience a wide array of positive functioning which is superior to those classified as moderately healthy or languishing (Keyes 2002, 2004, 2005a, 2005b; Keyes and Haidt 2003). The growth of flourishing studies has coincided with a shift in mental health research which has moved away from "a medical model that focuses on illness to a consideration of human well-being and flourishing" (Diehl, Hay, and Berg 2011:883).

Daily Spiritual Experiences

As noted, much of the literature in R/S examines well-being through a limited number of mechanisms such as religious affiliation, religious participation, and prayer frequency (Dein et al. 2012; Levin 2010). While these are worthwhile avenues of inquiry,

59

research using alternative measurement strategies are necessary to develop a comprehensive picture (Hill and Hood 1999). One such promising approach is that of the Daily Spiritual Experience Scale (DSES) (Underwood 2011; Underwood and Teresi 2002). Unlike many other measures of religion and spirituality, the DSES is an "attempt to measure everyday ordinary experience rather that particular beliefs or behaviors" (Underwood and Teresi 2002:22). The original 16-item scale includes items that capture lived spiritual experience, with the scale tapping dimensions of spirituality that are both theistic (e.g., "I feel God's presence") and non-theistic (e.g., "I feel deep inner peace or harmony").

Implicit in the DSES is the assumption that there are daily spiritual experiences (DSE) which can broadly contribute to health, including spiritual, psychological, and physical health, as well as social well-being. DSE have been associated with lower scores on the CES-D scale, the State-Trait Anxiety Inventory, and the Cohen Perceived Stress Scale, as well as reduced alcohol consumption and enhanced perceptions of social support and quality of life (Underwood and Teresi 2002). DSE have further been positively associated with social support, cognitive functioning, and cooperation in an elderly sample (Koenig, George, and Titus 2004); inversely related with depression in a Korean immigrant sample (Park and Roh 2013); and associated with decreased depression in a sample of diabetes patients (Lynch et al. 2012). While these and other studies point to a link between DSE and depressive symptoms, none have yet examined DSE as a moderator between daily stressors and depressive symptoms. Neither have studies examined the relationship between DSE and flourishing, or the potential moderating role of DSE on stressors and flourishing.

Stressors, Religion, and Well-being

Stress is characterized by physiological arousal and negative affect which emerge from interactions in the environment that exceed one's ability to cope (Lazarus 1966). Many studies have examined the deleterious effects of stressful events on well-being, as well as the coping role played by a variety of psychosocial resources (e.g., Ellison et al. 2012; Pearlin 1999). Daily stressors arrive in many forms, including conflicts with family members and co-workers, experiencing illnesses, injuries, or financial problems, and learning of difficult situations among family and friends.

Existing research provides evidence for religion as a buffer. For example, religious service attendance protects against stressors such as racial discrimination and financial hardship (Bierman 2006; Bowen-Reid and Harrell 2002; Bradshaw and Ellison 2010) and prayer compensates for the adverse effects of poor health and financial decline on anxiety (Ellison, Burdette, and Hill 2009). Religious coping also matters, with research indicating it moderates the effects of stressful life conditions on depressive symptoms and other aspects of mental health (Carpenter, Laney, and Mezulis 2012; Lee 2007). Belief in an afterlife appears to be important as well; at least two studies have shown that it moderates the effects of stressors on mental health (Bradshaw and Ellison 2010; Ellison et al. 2009). Overall, this research suggests that both organizational religious involvement and private religious practices and beliefs are capable of buffering against the harmful effects of stressful conditions and mental health, and in fact, religious resources may even have stronger effects than secular sources of social engagement (Acevedo, Ellison, and Xu 2014).

61

Daily spiritual experiences may also help (Park and Roh 2013). Feeling God's presence, feeling loved by God, finding strength in religion or spirituality, and feelings of inner peace and harmony might partially compensate for stressors when they arise, mitigating their negative effects on mental health and flourishing (Brewer-Smyth and Koenig 2014; Ellison and Henderson 2011; Schieman, Bierman, and Ellison 2013).

There are at least four reasons to expect DSE may function this way. First, the perception that one enjoys a personal relationship with a higher power that is engaged in human affairs and whose presence can be felt is likely to enhance feelings of intrinsic moral self-worth (e.g., Ellison 1993; Pargament 1997). To the extent that DSE strengthen such perceptions, they may be particularly important for persons experiencing stressful life events. This may ultimately function to reduce the impact of stressors on mental health and flourishing. Second, spiritual experiences may facilitate a sense of divine (i.e., vicarious or secondary) control that may help individuals deal with stressors. Even though stress tends to erode feelings of control, those who feel God's presence and have other spiritual experiences may take comfort that a higher power is in charge, and this may help when they feel unable to control their own affairs (Krause 2005; Schieman, Pudrovska, and Milkie 2005). In this case, the effects of stressful life events on mental health and flourishing may be less severe. Third, individuals who have frequent spiritual experiences may benefit from a perceived attachment to a caring, responsive divine other; indeed, some researchers have described a loving God as "the ultimate attachment figure," who may function as a "haven of safety" in a stressful world (e.g., Granqvist, 1998; Granqvist & Hagekull, 1999; Kirkpatrick, 2005). Experiencing this type of God may help people experiencing stress by shifting attention away from personal struggles

and toward feelings of spiritual security. Fourth, non-theistic spiritual experiences, which

can entail thankfulness for blessings, a sense of inner harmony, and appreciation for the

beauty of nature, might reduce the effect of stressors by promoting gratitude, have a

calming effect, or reducing somatic arousal. The non-theistic scale has been shown to be

predictive of well-being in several samples (Currier et al. 2012; Ellison and Fan 2008).

All of this suggests that DSE may at least partially mitigate the harmful effects of

stressors on mental health and flourishing.

State vs. Trait

Experiencing some type of depressive symptom is somewhat common, and

moods can change from day to day (Peeters et al. 2003). One of the methodological

concerns cited in the religion and mental health literature is the over-abundance of cross-

sectional survey designs that potentially miss the fluctuating nature of mental health

(Dein et al. 2012). One benefit of the current study design is that its micro-longitudinal

approach makes it possible to disentangle moment-by-moment experiences (state) from

stable characteristics of the individual (trait). The experience sampling method utilized in

SoulPulse takes repeated measures twice daily over a two-week period. This allows for

repeated measurements of a person's state as well as mean-calculation of a person's trait

score for DSE. The data and methods section contains greater detail on this strategy.

Hypotheses

We now formalize our research questions in six hypotheses. Hypotheses 1 and 2

consist of single tests, while Hypotheses 3-6 each consist of six tests: the full DSES scale

(between person and within person), the theist DSES scale (between person and within

person), and the non-theist DSES scale (between person and within person). Our models comprise a total of 26 individual tests.

H1: *Daily stressors will be positively associated with depressive symptoms.*

H2: *Daily stressors will be inversely associated with flourishing.*

H3: *Daily spiritual experiences will be inversely associated with depressive symptoms.*

H4: *Daily spiritual experiences will be positively associated with flourishing.*

H5: *Daily spiritual experiences will moderate the relationship between daily stressors and depressive symptoms.*

H6: *Daily spiritual experiences will moderate the relationship between daily stressors and flourishing.*

Data and Methods

Data

This study uses data from the SoulPulse Study, an experience sampling method (ESM) study which used smartphones to collect data. ESM studies typically collect data over short period of time, chronicling emotional states in varying daily situations. Early studies utilized pagers and paper diaries (Csikszentmihalyi, Larson, and Prescott 1977) or palmtop computers provided by the researchers (Kashdan and Farmer 2014), but the emergence of smartphone technology provides the opportunity to conduct ESM studies on a much larger scale. 64% of Americans own a smartphone (Smith 2015), making smartphone-based ESM studies feasible. SoulPulse participants self-selected into the study, primarily based on word-of-mouth and media exposure. SoulPulse received national media attention, with stories about it carried in the Associated Press and Religious News Service; it was also featured in *The New Yorker* magazine. As a result, a

64

geographically and socially diverse group of participants from the U.S., as well as a small number from outside the U.S., enrolled. Our data are based on participants who completed the study between November 2013, when the study was launched, through April 2016.

Participants elected to join the SoulPulse study by visiting SoulPulse.org. After completing a 10-minute intake survey which collected background and demographic information, participants received text messages at two random times a day for fourteen days linking them to a brief survey. The daily surveys were constructed of 15-20 items from a large battery of questions which were programmed to appear at varying frequencies; some items appeared as infrequently as one percent of the time, while others appear on every daily survey. Participants were instructed to respond to the survey as soon as safely possible (i.e., not while driving) and to answer as if they were in the moment that the survey was received.

A benefit of ESM methodology is that it gives real-time data that capture moment-to-moment changes in circumstances and emotional states. Cross-sectional and widely-spaced longitudinal studies require individuals to recall past experiences or generalize their tendencies, but ESM avoids generalization and recall bias. Since surveys are taken frequently and quickly, ESM also lessens the extent to which experiences are made sense of through discursive thought processes that organize them into narrative form (Vaisey 2009). The potential for response bias does exist, however, particularly since early in the process respondents may have been more likely to provide socially desirable responses. In order to address this concern we controlled for survey chronology in all analyses.

During the time frame analyzed here, 3,046 people in the U.S. signed up for SoulPulse and completed the intake questionnaire. Non-U.S. respondents were not considered in this analysis. A total of 84,344 daily surveys were scheduled to be sent out, and of these, 79,743 (93.4%) were actually sent because some participants withdrew while the study was in progress. Of the surveys sent, 59,969 (75.2%) were completed. 2,339 surveys were viewed but not completed and 17,435 surveys were not viewed. The sample was also reduced by 71 respondents because these respondents did not supply answers on the intake survey for selected control variables. After listwise deletion the sample is comprised of 2,795 individuals.

Participants

SoulPulse participants self-selected into the study and thus cannot be considered a representative sample. Despite the prevalence of smartphones in the U.S., use varies across personal and social characteristics. Use is higher in urban and suburban areas, among young, the educated, and the wealthy (Smith 2015). Still, the sample is socially and geographically diverse. Participants represent all 50 states and follow rough contours of the American population with some notable differences. Comparatively, SoulPulse respondents are disproportionately female (62%) and participants include a lower proportion of blacks (3%) than the general population. They are highly educated (36.5% have a graduate education), and a majority report their religious identity as Evangelical Protestant (53%). Eight percent of the SoulPulse sample is made up of the religiously unaffiliated.

Measures

      Dependent variables. This study seeks to illuminate the relationship between an individual's daily spiritual experiences and her mental well-being, measured by established scales of depressive symptoms and flourishing. Depressive symptoms are measured with seven items from the depression portion of the larger Depression Anxiety Stress Scale (DASS) developed by Lovibond and Lovibond (1995). In that scale 14 items are used to measure seven distinct aspects of depression with two items each: dysphoria, hopelessness, devaluation of life, self-deprecation, lack of interest/involvement, anhedonia, and inertia. One item from each was selected for use in SoulPulse based upon strength of factor loading reported by the original authors. The DASS depression scale appeared in 18% of daily surveys and all seven items always appeared together. Respondents used a sliding fader to select a response ranging from 0 (not at all) to 100 (very much) for each of the seven items, which read: "I feel downhearted and blue," "I feel that I have nothing to look forward to," "I feel that life is meaningless," "I feel that I am not worth much as a person," "I am unable to become enthusiastic about anything," "I can't seem to experience any positive feelings at all," and "I find it difficult to work up the initiative to do things." These items were averaged from each daily survey on which they appear to form a mean score of depressive symptoms for that moment. The items load together at α=.93.

      Depressive symptoms are relatively uncommon in the general population and is thus often skewed. Our data are no different, with the mean DASS depression score right skewed at 1.36. The solution was to transform the variable to produce a more even distribution, which we did through a square root transformation (skewness=.54). We then

fitted each model with both the transformed and untransformed variable, but results were consistent in all cases. Since using the transformed variable makes interpretation more challenging, we elected to report the results of the untransformed variable.

Flourishing is a measure that taps not just the absence of depressive symptoms, but feelings of positivity about oneself and one's place in the world. Mental health is more than the absence of mental illness (Keyes 2002, 2007). SoulPulse utilized a condensed version of the Mental Health Continuum Short Form (MHC-SF) developed by Keyes (2009). Possible responses for SoulPulse participants ranged from 0 (not at all) to 100 (very much), and the scale appeared in 26% of daily surveys. A total of seven items from the MHC-SF were included. The first two items assessed emotional well-being. They read: "I am feeling happy" and "I am feeling satisfied." The remaining five items assess positive functioning. They read: "I am feeling..." "that I like most parts of my personality," "good at managing the responsibilities of my life today," "that I have a warm and trusting relationship with others," "confident to think or express my own ideas and opinions," and "that I have something important to contribute to society." These items respectively measure self-acceptance, environmental mastery, positive relationships with others, autonomy, and social contribution. Items were averaged from each daily survey on which they appeared to form a mean score for flourishing for that moment. The scale loads at $\alpha=.91$.

Independent variables. Two measures were used to predict depressive symptoms and flourishing, the Daily Spiritual Experience Scale (Underwood and Teresi 2002) and a checklist of daily stressors (Dasch et al. 2007). The Daily Spiritual Experience Scale (DSES) is a 16-item self-report measure designed to assess feelings of divine connection

68

through everyday, ordinary experiences. It assesses both those that are linked directly with God or a divine power (theistic items) and those that are only indirectly related with God or a divine power (non-theistic items). SoulPulse utilized a shortened nine-item version of the scale with six theistic and three non-theistic items. The DSES appeared on 15% of daily surveys. Response options were selected by a swiping fader and range from 0 (not at all) to 100 (very much). Theistic items read: "I feel God's presence," "I find strength and comfort in my religion or spirituality,"[1] "I feel God's love for me directly or through others,"[2] "I desire to be closer to God or in union with the divine," "I feel guided by God in the midst of daily activities," and "I feel close to God." Non-theistic items read: "I feel a deep inner peace or harmony," "I am spiritually touched by the beauty of creation," and "I feel thankful for my blessings." Responses to the DSES items were transformed into between person and within person scores in order to predict between-person and within-person variation in mixed multilevel modeling. More will be said on this below. Our analyses examined the full DSES scale as well as the separate theist and non-theist scales. Alpha level for the full DSES scale is .94. The theist variables load at α=.94 and the non-theist variables load at α=.78. The DSES was included in the 1998 General Social Survey and evidenced good validity and reliability (Idler et al. 2003).

The daily stressors checklist is composed of eight items appearing in Dasch et al.'s (2007) larger scale of 17 daily stressors. Similar measures were also used in Gunthert et al. (1999) and O'Neill et al. (2004). The stressor scale appeared on 25% of

---

[1] This phrasing combines two items—"strength" and "comfort" are separate items on the DSES. The same strategy was employed in the 1997-98 General Social Survey.

[2] This phrasing combines two items—"directly" and "through others" are separate items on the DSES. The same strategy was employed in the 1997-98 General Social Survey.

daily surveys and the eight items ranged in response from 0 (not at all) to 100 (very much). Using the question stem "Since you last took a daily survey, have any of the following happened to you?," participants were asked about eight possible stressful events or situations: an argument with a loved one (friend, family member, or romantic partner); an argument with somebody else; being treated badly by a loved one; being treated badly by somebody else; illness, injury or accident; job-related stressor; financial problems; or a tragic situation with someone you know. The items were averaged from each daily survey on which they appeared to form a mean score for daily stressors at that moment.

Covariates. A number of covariates were included to control for respondent characteristics. These include gender (male=1), race/ethnicity (a dummy system of white, black, and other), age (in years), income (<$25K=1, $25-50K=2, $50-100K=3, $100-200K=4, >$200K=5), education (8th grade or less=1, 9th-12th grade=2, high school or GED=3, technical school=4, some college=5, associate's degree=6, bachelor's degree=7, master's degree=8, PhD or professional degree=9), marital status (married=1), and children (has children=1). We also controlled for survey number (1-28) in order to minimize bias since respondents are more likely to report socially desirable responses earlier in the process.

We also controlled for potential religious confounders of the relationship between daily spiritual experiences, stressors, and depressive symptoms and flourishing with measures of religious service attendance, salience of religious beliefs, and religious affiliation. Service attendance ranged from "never" (1) to "several times a week" (7). Salience of religious beliefs asked, "In general, how important are religious or spiritual

70

beliefs in your day-to-day life?" Responses were selected using a slider that ranges from 1-100, with 1 being "not important" and 100 being "very important." Religious affiliation was measured with the question "With which religious family, if any, do you most closely identify?" Respondents were offered an extensive list of religious groups, including "none." From these responses a modified RELTRAD variable was constructed (Steensland et al. 2000). Our data utilize a dummy system of Evangelical Protestant, Mainline Protestant, Catholic, other religion, and none. There were insufficient levels of Jewish respondents to create a unique category so they were assigned to the "other" category. Black Protestants were assigned to the Evangelical category.

Analytic Strategy

Each SoulPulse respondent was sent 28 daily surveys over a two-week period, with each survey generated by an algorithm weighting questions based on preferences set by the SoulPulse research team. Some participants received some items more than others. In order to be included in our analyses, all key independent and dependent variables must have been asked on the same survey. We investigate the effect of situational characteristics on spiritual awareness using mixed-effects multilevel regression models. This approach decomposes the situational effects into within-person effects (L1) and between-person effects (L2). For each person, we calculated an overall mean for a variable using a participant's observations across all daily surveys. Then, for each specific observation, we created a deviation score that represents the difference between that observation and the person's mean. We included both the person-mean and the person-deviations in the equations to calculate the between and within-person effects (McCrae et al. 2008; Wang, Xie, and Fisher 2011). We estimated random intercept

equations that include both within-person and between-person effects. The equations take the following form:

$$y_{ij} = b_0 + \underbrace{b_1(x_{ij} - \overline{x}_j)}_{within\_effects} + \underbrace{b_2(\overline{x}_j)}_{between\_effects} + \underbrace{u_j + e_{ij}}_{random\_effects}$$

Multilevel modeling of this type allowed us to disentangle the influence of respondents' average levels of spiritual experience (trait level) over against their day-to-day experiences of spirituality (state level). Lastly, we modelled a number of interactions between the person-means and person-deviations of DSE and daily stressors. All terms used for these interactions were zero-centered prior to variable construction.

Results

Levels of stressors in the SoulPulse population are relatively low, with an average score of 14.65 out of 100. Daily spiritual experiences (DSE) are common, with respondents reporting 70.71 out of 100. Spiritual experiences are higher for affiliates than non-affiliates (73.08 vs. 42.69, t=-39.71, p<.000), but there is still a large range for affiliates. 13.18% of affiliates report a score of less than 50 on the Daily Spiritual Experience Scale (DSES). Mean scores on the theist portion of the DSES are lower than the non-theist (68.26 and 74.15). As expected, affiliates and non-affiliates differ much more widely on the theist scale (71.16 vs. 30.79, t=.46.71, p<.000) than non-theist (75.40 vs. 58.86, t=-21.87, p<.000). Further summary data is found in Table 4.1.

The primary research questions in this study investigate the relationship between stressors, depressive symptoms, and flourishing (H1 and H2); between the DSES,

Table 4.1. *Summary Statistics (SoulPulse, April 2016).*

Measures	Mean	SD	Range
Age	44.04	15.08	18-85
Male	.38	-	0-1
White	.79	-	0-1
Black	.03	-	0-1
Other race	.18	-	0-1
Income	3.05	1.1	1-5
Education	6.75	1.6	1-9
Married	.61	-	0-1
Has children	.64	-	0-1
Stressors	14.65	11.69	1-100
Full DSES	70.71	20.73	1-100
Theist DSES	68.26	24.46	1-100
Non-theist DSES	74.15	19.91	1-100
Depression	19.78	18.58	1-100
Flourishing	71.66	17.05	1-100
Religious salience	82.95	24.61	1-100
Religious attendance	5.00	1.91	1-7
Evangelical Protestant	.53	-	0-1
Mainline Protestant	.18	-	0-1
Catholic	.08	-	0-1
Other religion	.14	-	0-1
No religion	.08	-	0-1
N	2795		

depressive symptoms, and flourishing (H3 and H4); and also the potential moderation of stressors, depressive symptoms, and flourishing by DSE (H5 and H6). Hypotheses 1 and 2 receive strong support. Stressors are associated with increased depressive symptoms and decreased flourishing, and this relationship remains strong, though diminished, after levels of DSE are added (Tables 4.2 and 4.4). The decrease in coefficients from Models 2 to 4 suggest DSE buffers somewhat the deleterious effects of stress, with DSE buffering about 15 percent of the relationship for depressive symptoms and 23 percent for flourishing.

Hypotheses 3 and 4 are each comprised of six separate tests (Full DSES, theist DSES, and non-theist DSES, both between person and within person). Across all tests both of these hypotheses receive robust support (Tables 4.3 and 4.5, Models 1 and 2). In between person comparisons, all three versions of the DSES are associated with decreased depressive symptoms and increased flourishing. Recall that the between person score is calculated by averaging levels of DSE across the two-week study period, which results in a better measure of an individual's trait-level characteristics of DSE than if the measure were taken at a single time. This means that when comparing individuals in the sample, there is an association between higher trait levels of DSE, decreased depressive symptoms, and increased flourishing. The within person, state-level characteristic (calculated in each instance by a person's deviation from her own mean) of increased DSE is also associated with decreased depressive symptoms and increased flourishing. This means that an individual respondent participating in higher levels of DSE than average on a day-to-day basis is associated with salutary outcomes, while participating in lower levels of DSE than average is associated with deleterious outcomes.

Hypotheses 5 and 6 assess whether the relationship between daily stressors, depressive symptoms, and flourishing is moderated by engaging in daily spiritual experiences. Each hypothesis consists of six tests just as before. Across the total of twelve tests for these two hypotheses, seven reach significance in interaction models (Tables 4.2 and 4.4, Models 5 and 6; Tables 4.3 and 4.5, Models 3, 4, 7, and 8). An additional three tests reach marginal significance. The full DSES scale on both between person and within person analyses moderates the relationship with depressive symptoms, as does the theist DSES scale between persons. With regard to flourishing, the full DSES

74

within person, theist DSES between person and within person, and non-theist DSES within person all moderate daily stressors. Selected relationships are graphed in Figures 4.1-4.[1] The overall picture from tests of H5 and H6 is moderate support for the hypothesis that daily spiritual experiences moderate the relationship between stressors and well-being. For those at higher standard deviations of both state and trait levels of

Table 4.2. *Mixed multilevel regression predicting depressive symptoms, full DSES.*

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Stressors	-	.62 ***	-	.53 ***	.52 ***	.51 ***
Full DSES between	-	-	-.51 ***	-.52 ***	-.52 ***	-.50 ***
Full DSES within	-	-	-.35 ***	-.29 ***	-.29 ***	-.38 ***
Male	.86	.85	-1.40	-.25	-.30	.03
Black[a]	-5.29 **	-3.81	-3.40	-4.17	-4.21	-4.38
Other race	-.31	-1.65	-.62	-2.26	-2.19	-2.05
Age	-.06 *	-.03	.07 †	.11 †	.10 †	.11 †
Income	-.61 **	-.62 *	-.47 †	.04	.05	-.03
Education	-.48 *	-.32	-.79 **	-1.29 **	-1.23 *	-1.30 **
Married	-1.71 *	-1.62	-.49	-3.08	-3.45 †	-2.63
Has children	-.34	-1.63	-.83	-1.36	-1.13	-1.34
Religious attendance	-.42 †	-.29	-.18	-.20	-.16	-.16
Religious salience	-.10 ***	-.07 ***	.18 ***	.19 ***	.19 ***	.17 ***
Evangelical Protestant[b]	4.34 **	.79	5.57 **	7.59 *	7.49 *	7.37 *
Mainline Protestant	4.26 **	1.47	4.80 *	9.69	9.45 *	9.17 *
Catholic	.71	-1.89	2.90	3.98	3.68	3.88
Other religion	3.66 *	.55	3.69 †	6.66 †	6.65 †	6.75 †
Stressors*full DSES between	-	-	-	-	-.01 *	-
Stressors*full DSES within	-	-	-	-	-	-.02 ***
N (Level 1)	10239	2672	2021	513	513	513
N (Level 2)	2451	1607	1371	469	469	469
Log likelihood	-41535	-11065	-8305	-2117	-2115	-2110
ICC	.56	.53	.59	.52	.52	.53

Note: †p<.1 *p<.05 **p<.01 ***p<.001, two-tailed tests. Models also control for sequential survey number.
[a]White is contrast category.
[b]No affiliation is contrast category.

---

[1] Remaining figures take similar shape and are available by request.

Table 4.3. *Mixed multilevel regression predicting depressive symptoms, theist and non-theist scales.*

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
Stressors	-	.54 ***	.53 ***	.53 ***	-	.46 ***	.46 ***	.51 ***
Theist DSES between	-.40 ***	-.42 ***	-.43 ***	-.41 ***	-	-	-	-
Theist DSES within	-.44 ***	-.41 ***	-.40 ***	-.42 ***	-	-	-	-
Nontheist DSES between	-	-	-	-	-.53 ***	-.56 ***	-.56 ***	-.45 ***
Nontheist DSES within	-	-	-	-	-.41 **	-.43 ***	-.44 ***	-.39 ***
Male	-1.21	.39	.29	.43	-1.55 †	-.56	-.55	.27
Black[a]	-4.47 †	-4.46	-3.87	-4.67	-2.71	-2.61	-2.58	.24
Other race	-.15	-1.43	-1.24	-1.18	-1.86	-4.01 *	-4.00 *	-1.43 †
Age	.04	.07	.07	.07	.09 *	.12 †	.12 †	.08 †
Income	-.65 *	.08	.11	.02	-.52 †	.17	.17	.14
Education	-.73 *	-1.26 *	-1.21 *	-1.25 *	-.74 *	-1.46 **	-1.47 **	-1.64 **
Married	-.63	-3.50	-3.87 †	-3.37	.40	-2.62	-2.60	-2.82
Has children	-.78	-1.63	-1.48	-1.48	-.81	-.26	-.28	-1.59
Religious attendance	-.19	.16	.29	.10	-.46	-.63	-.64	.42
Religious salience	.17 ***	.19 ***	.18 ***	.19 ***	.08 **	.10 *	.10 *	.18 *
Evangelical Protestant[b]	6.79 **	7.24 †	6.71 †	7.49 †	1.03	1.64	1.67	4.04
Mainline Protestant	5.76 *	9.64 *	8.84 *	9.80 *	.84	4.94	4.92	8.05
Catholic	3.74	3.49	2.72	3.84	-1.72	-.55	-.55	2.12
Other religion	4.59 *	6.65 †	6.54 †	6.91 †	.90	2.18	2.17	5.00
Stressors*theist DSES between	-	-	-.01 **	-	-	-	-	-
Stressors*theist DSES within	-	-	-	-.01 †	-	-	-	-
Stressors*nontheist DSES between	-	-	-	-	-	-	.00	-
Stressors*nontheist DSES within	-	-	-	-	-	-	-	-.01 †
N (Level 1)	1848	462	462	462	1813	446	446	464
N (Level 2)	1275	428	428	428	1243	410	410	410
Log likelihood	-7650	-1923	-1918	-1922	-7399	-1832	-1832	-1831
ICC	.59	.51	.51	.50	.58	.53	.53	.53

Note: †p<.1 *p<.05 **p<.01 ***p<.001, two-tailed tests. Models also control for sequential survey number.
[a]White is contrast category.
[b]No affiliation is contrast category.

Table 4.4. *Mixed multilevel regression predicting flourishing, full DSES.*

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Stressors	-	-.43 ***	-	-.33 ***	-.32 ***	-.32 ***
Full DSES between	-	-	.59 ***	.57 ***	.57 ***	.57 ***
Full DSES within	-	-	.42 ***	.35 ***	.35 ***	.37 ***
Male	-.14	-.11	1.53 *	.59	.63	.56
Black[a]	4.73 **	5.60 **	5.08 *	8.17 **	8.18 **	8.21 **
Other race	.39	1.49	.15	.63	.66	.31
Age	.13 ***	.08 **	-.03	-.10 *	-.10 *	-.09 *
Income	.72 ***	.75 ***	.61 **	.81 *	.80 *	.73 *
Education	.19	-.12	.83 ***	.38	.36	.43
Married	.89	.52	.83	1.22	1.27	1.28
Has children	-.56	.99	-.29	.80	.77	.62
Religious attendance	.27	.60 *	-.11	.68 †	.68 †	.66 †
Religious salience	.10 ***	.08 ***	-.18 ***	-.20 ***	-.20 ***	-.20 ***
Evangelical Protestant[b]	-5.34 ***	-4.92 **	-9.34 ***	-12.57 ***	-12.69 ***	-12.06 ***
Mainline Protestant	-5.60 ***	-5.77 **	-8.03 ***	-13.01 ***	-13.10 ***	-12.29 ***
Catholic	-2.89 †	-1.97	-9.02 ***	-11.15 ***	-11.20 ***	-10.61 ***
Other religion	-4.01 **	-3.01 †	-5.52 ***	-8.12 **	-8.23 ***	-7.63 **
Stressors*full DSES between	-	-	-	-	.00	-
Stressors*full DSES within	-	-	-	-	-	.02 ***
N (Level 1)	14117	3635	2783	716	716	716
N (Level 2)	2520	1867	1602	615	615	615
Log likelihood	-55461	-14742	-10968	-2817	-2817	-2803
ICC	.56	.55	.55	.57	.58	.59

Note: †p<.1 *p<.05 **p<.01 ***p<.001, two-tailed tests. Models also control for sequential survey number.
[a]White is contrast category.
[b]No affiliation is contrast category.

Table 4.5. *Mixed multilevel regression predicting flourishing, theist and non-theist scales.*

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
Stressors	-	-.35 ***	-.33 ***	-.34 ***	-	-.23 ***	-.25 ***	-.22 ***
Theist DSES between	.50 ***	.46 ***	.46 ***	.47 ***	-	-	-	-
Theist DSES within	.46 ***	.50 ***	.50 ***	.47 ***	-	-	-	-
Nontheist DSES between	-	-	-	-	.64 ***	.64 ***	.64 ***	.63 ***
Nontheist DSES within	-	-	-	-	.47 ***	.42 ***	.42 ***	.38 ***
Male	1.05	-.36	-.29	-.18	1.86 **	1.22	1.15	1.17
Black[a]	5.69 **	7.22 *	7.24 *	7.51 *	4.47 *	7.99 **	7.95 **	8.27 **
Other race	.01	.06	.21	-.19	1.27	1.59	1.57	1.38
Age	-.01	-.04	-.04	-.04	-.05 †	-.08 †	-.08 *	-.08 †
Income	.75 ***	.83 *	.77 *	.83 *	.37 *	.43	.44	.43
Education	.88 ***	.38	.32	.44	.78 ***	.31	.36	.29
Married	1.24	2.06	2.34	1.89	.86	.68	.55	.75
Has children	-.36	.94	.78	.97	-.98	-.42	-.37	-.39
Religious attendance	-.27	.59	.60	.55	.36	.96 *	.93 *	.97 *
Religious salience	-.18 ***	-.20 ***	-.20 ***	-.20 ***	-.09 ***	-.10 ***	-.10 ***	-.10 ***
Evangelical Protestant[b]	-10.17 ***	-12.51 ***	-12.92 ***	-12.16 ***	-5.64 ***	-7.00 **	-6.46 *	-7.16 **
Mainline Protestant	-8.02 ***	-12.63 ***	-12.93 ***	-12.22 ***	-4.77 **	-8.39 **	-7.89 **	-8.45 **
Catholic	-8.68 ***	-8.85 **	-9.01 **	-8.69 **	-5.91 ***	-7.14 *	-6.78 *	-7.37 *
Other religion	-5.81 ***	-8.31 **	-8.60 **	-8.14 **	-3.48 *	-3.77	-3.30	-3.70
Stressors*theist DSES between	-	-	.003 *	-	-	-	-	-
Stressors*theist DSES within	-	-	-	.02 **	-	-	-	-
Stressors*nontheist DSES between	-	-	-	-	-	-	-.003 †	-
Stressors*nontheist DSES within	-	-	-	-	-	-	-	.01 **
N (Level 1)	2559	652	652	652	2543	644	644	644
N (Level 2)	1470	560	560	560	1464	552	552	552
Log likelihood	-10153	-2593	-2590	-2588	-9866	-2488	-2486	-2484
ICC	.57	.57	.59	.59	.54	.53	.52	.57

Note: †p<.1 *p<.05 **p<.01 ***p<.001, two-tailed tests. Models also control for sequential survey number.

[a]White is contrast category.

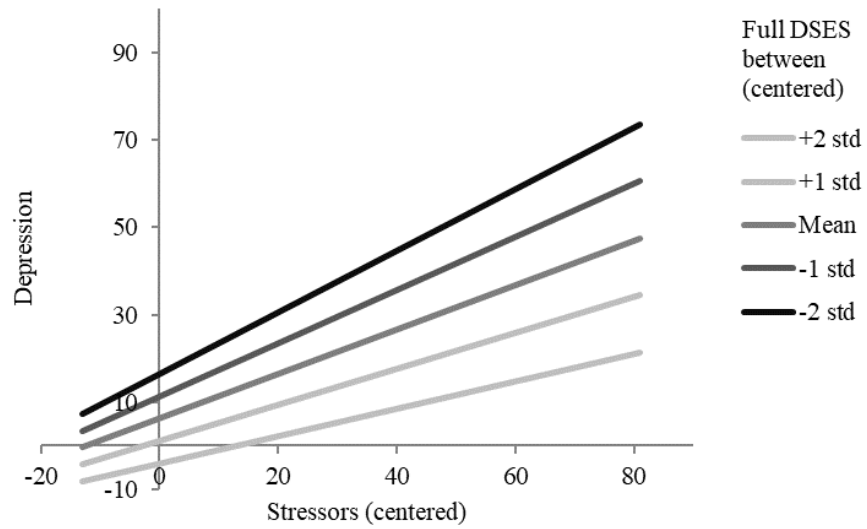[b]No affiliation is contrast category.

Figure 4.1. Interactive effects of stressors and between-person differences for full DSES on depression.
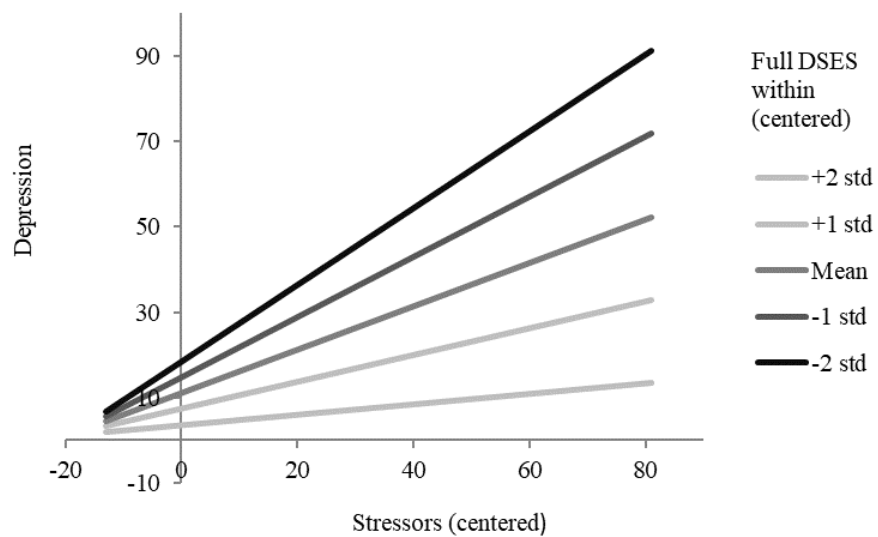

Figure 4.2. Interactive effects of stressors and within-person differences for full DSES on depressive symptoms.
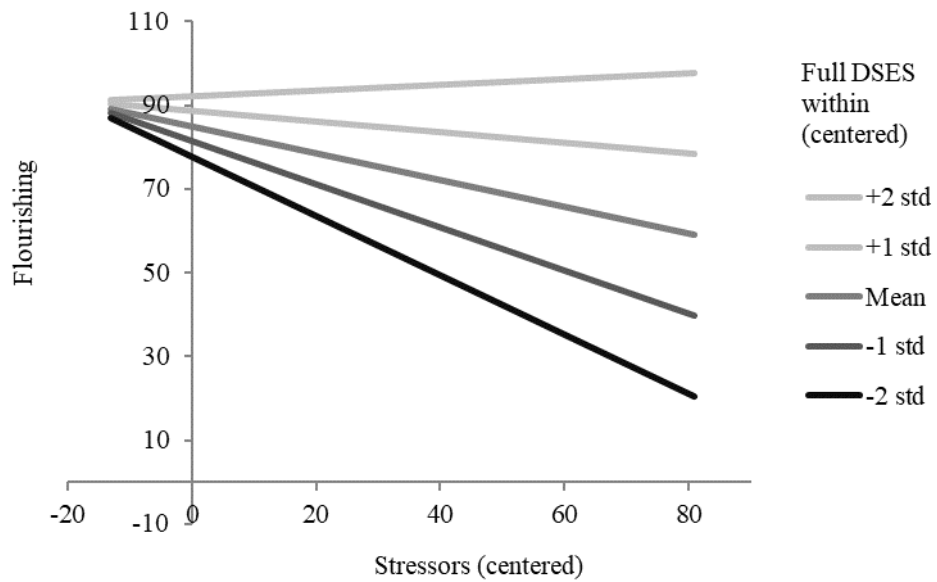
Figure 4.3. Interactive effects of stressors and within-person differences for full DSES on flourishing.
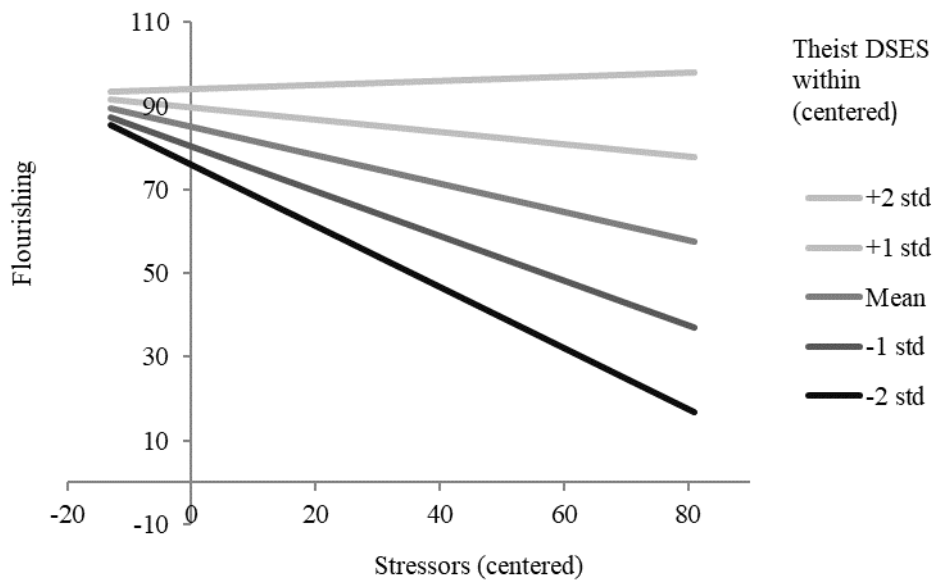

Figure 4.4. Interactive effects of stressors and within-person differences for theist scale on flourishing.

DSE, there appears to be a buffering effect such that stressors are linked with lower depressive symptoms and higher flourishing.

Though not related to formal hypotheses, findings showing higher levels of depressive symptoms and lower levels of flourishing among religiously affiliated, compared with religiously non-affiliated, deserve mention. While some evidence supports a negative association between religion/spirituality and mental health (e.g., Ellison and Lee 2009), the literature more consistently suggests a salutary relationship (e.g., Koenig et al. 2012). Ancillary t-tests reveal lower mean levels of depressive symptoms (t=2.47, p<.01) and higher mean levels of flourishing (t=-3.15, p<.002) among religiously affiliated compared to non-affiliated. Models fitted to include only basic demographics and religious affiliation showed no significant differences between these groups. Yet when religious attendance, religious salience, and daily spiritual experiences were included in models (see Tables 4.2-5), religious affiliation suddenly appears associated with *increased* depressive symptoms and *decreased* flourishing. This will be elaborated in the following section.

A final note of interest concerns Black respondents, who appear to have an advantage over against Whites (after controlling for stressors) in flourishing. This is consistent with the findings of Keyes (2007) in his analysis of flourishing using Midlife in the United States (MIDUS) data. Blacks do not appear to have any advantage in depressive symptoms, however, which lends support to the two continua hypothesis of mental health and flourishing (Keyes 2002, 2007; Tudor 1996).

Discussion

As stated above, researchers have identified both salutary and deleterious links between multiple dimensions of religion/spirituality (R/S) and psychological well-being (PWB). However, conceptual and data limitations have prevented scholars from compellingly demonstrating how separate dimensions of religious and spiritual behavior serve as mechanisms for improved or diminished well-being. More recently, investigators have begun to investigate daily spiritual experiences (DSE) to answer this question. The unique micro-longitudinal data contained in the SoulPulse survey allow us the unique opportunity to report the direct relationship between a specific aspect of R/S (in the form of DSE) and PWB. Specifically, we are able to demonstrate that momentary, state scores of DSE are associated with salutary outcomes beyond more general trait scores.

Our study contributes to this literature in the following ways: (1) by examining the associations between DSE—both theistic and non-theistic—and variations in two important aspects of psychological well-being: depressive symptoms and sense of flourishing; (2) by considering the effects of overall DSE as well as specific theistic and non-theistic components; (3) by exploring whether the apparent psychosocial benefits of DSES are more pronounced among persons facing stressful conditions as compared with others; and (4) by distinguishing the effects of trait spirituality (i.e., relatively stable personal tendencies toward DSE) and state spirituality (i.e., short-term fluctuations in DSES). Furthermore, our study breaks new ground by recognizing: (1) that individuals may vary in their general tendencies toward DSE (trait); (2) that individuals may also experience short-term changes in DSE (state); and (3) that it is important to distinguish conceptually and empirically between the trait and state aspects of DSE.

82

Several key results merit in-depth discussion. First, DSE are positively associated with changes in both depressive symptoms and flourishing for both theistic *and* non-theistic DSE. These patterns run counter to previous findings highlighting stronger salutary associations involving theistic (i.e., more conventionally Christian) spiritual experiences (Ellison and Fan 2008). Our results show robust links between both types of DSES and psychosocial benefits, indicating there is something about spiritual experiences—of whatever type—that may deter negative emotional states such as depression, while fostering and sustaining aspects of human flourishing (i.e., self-acceptance, perceptions of autonomy and mastery, positive social relationships, and sense of meaning and purpose). Previous findings highlight that the salutary relationship between religious behavior and mental health is more attributable to the benefits of collective religious participation and belonging than to private religious practices (Acevedo 2010; Ellison and George 1994). The robust findings for theistic DSE, even when collective participation was controlled (as well as those for non-theistic DSE), support the conclusion that daily private spiritual and religious experiences positively contribute to well-being in a direct and immediate way. Understanding the range of psychosocial outcomes influenced by DSE, and the reasons for these empirical patterns, should clearly be a priority for future investigators.

A second implication of this study involves the value of distinguishing between "trait" and "state" measures of key constructs. We find that both trait and state measures of theistic and non-theistic DSE have independent salutary associations with both depressive symptoms and flourishing. In other words, even controlling for general tendencies in individuals' levels of DSE, short-term increases or decreases in DSE are

significantly associated with positive and negative outcomes. One possible implication of these results is that treating DSE and other aspects of R/S as stable traits, as is typical of most survey designs, may misspecify, and potentially underestimate, the full or "true" effects of DSE and other R/S factors on psychosocial functioning.

In addition to the main effects of theistic and non-theistic DSE on depressive symptoms and flourishing, we are also interested in the potential role of DSE in moderating the deleterious effects of daily environmental stressors. This is an important area because a significant body of prior research has suggested that R/S—some dimensions more than others—are particularly valuable for persons encountering difficult events and conditions, thereby reducing the otherwise damaging effects on psychosocial functioning (Koenig and Vaillant 2009; Rew and Wong 2006; Strawbridge et al. 2001; Van Voorhees et al. 2008). Although certain aspects of R/S (e.g., religious coping, congregational support) have occupied a prominent place in this literature, fewer studies have focused on the stress-buffering properties of DSE. Our research reveals that in most models both theistic and non-theistic DSE mitigate the effects of daily, routine environmental stressors on depressive symptoms and flourishing, and these stress-buffering properties seem to involve both state and trait aspects of DSE. Thus, individuals who tend to have more DSE encounter fewer negative results of stressor exposure, and furthermore, individuals who experience short-term increases in DSE appear to more effectively manage feelings of depression while sustaining a more positive outlook on self, others, and life conditions and prospects. It is possible that DSE simply divert attention from problems, thereby deterring negative feelings (e.g., anger, guilt or shame) and thwarting rumination that might increase depression and dampen

84

positive attitudes (Pargament 1997). DSE, whether theistic or non-theistic in nature, may also counter the psychological effects of negative events by fostering gratitude, promoting tranquility and equanimity, and perhaps connecting daily affairs with a broader structure of meaning that diminishes, or reinterprets, routine stressors in fresh and less threatening terms. Here again, the precise reasons for the stress-buffering patterns observed here are unclear, but given their consistency across model specifications and outcomes, they certainly merit additional exploration.

One interesting finding that emerged from these analyses concerns the interplay of DSE and other R/S indicators, which are chiefly associated with conventional (primarily Christian) religiousness. Specifically, to rule out confounding of DSE (especially, but not exclusively, its theistic component), we controlled for the effects of denominational affiliation, frequency of attendance at religious services, and overall salience of religion. Several interesting results surfaced. First, as noted above, ancillary comparison of means tests revealed that, in the absence of any statistical controls, religious affiliates exhibit fewer depressive symptoms and higher levels of flourishing than non-affiliates. However, in subsequent regression models these differences disappear when demographic characteristics are controlled. Moreover, when religious attendance, religious salience, and DSE are added to the models, religious affiliates appear to have higher levels of depressive symptoms and lower levels of flourishing than non-affiliates, who constitute the reference category in our regression models.

In our view, the most plausible interpretation of these patterns is as follows: Many of the benefits associated with religious affiliation stem largely from participation in organized religious communities, with their capacity for integration and support and

reinforcement of religious plausibility structures (Koenig and Vaillant 2009; Li et al. 2016; Strawbridge et al. 2001). Community norms, socialization, and religious training within these communities may facilitate DSE among devout members. Whereas low levels of R/S—and low levels of DSE—may be expected and common among religious non-affiliates, these patterns may be uncommon, indeed counter-normative, among affiliates. Indeed, for religious believers, irregular religious participation or an absence of personal attachment to, or interaction with the divine may be symptomatic of spiritual struggles, which often manifest in feelings of uncertainty, isolation from faith communities, and that one is being punished by God (Dew et al. 2008; Ellison and Lee 2010; Kent et al. forthcoming). When religious attendance, salience, and DSE are included as covariates in models, the resulting coefficients effectively highlight differences between affiliates and non-affiliates who share low R/S in common. This may help to explain why, in the fully specified models, religious affiliates experience higher depressive symptoms and lower flourishing than non-affiliates.

Much the same logic could explain why the sign for religious salience switches when DSE are controlled. Without DSE, religious salience is inversely associated with depressive symptoms and positively associated with flourishing. Individuals for whom religion is particularly important, and who regularly experience secure attachment with, and satisfying interaction, with the divine (e.g., through prayer and meditation), tend to fare well in terms of psychosocial functioning. On the other hand, persons for whom religion is important, but who feel estranged from God, may suffer tremendous spiritual alienation and emotional discomfort. Not only are they deprived of the salutary effects of faith, but their lonely, non-normative experience is a unique source of added stress. This

86

interpretation is highly consistent with a growing body of literature on spiritual struggles, their distribution and effects on well-being outcomes (Bonelli et al. 2012; Bradshaw and Kent forthcoming; Ellison and Fan 2008; Ellison and Lee 2010).

Limitations

Although this study has made progress toward addressing several limitations of previous findings, additional work is needed. For example, the SoulPulse study period is two weeks, with two data collection points per day during that period. While this is a notable contribution, issues regarding temporal lag nevertheless remain. Closer attention to the role of temporal lag in conceptualization and measurement—and identifying the appropriate temporal lag for specific outcomes—is important, and indeed, long overdue.

Among other issues deserving further investigation: A wealth of evidence on R/S and health/well-being has revealed that multiple dimensions of R/S tend to yield proportionally greater benefits for African Americans as compared with non-Hispanic Whites (or other racial/ethnic groups). Our analyses reveal intriguing direct and suppressor effects involving race that lie beyond the scope of this discussion. Nevertheless, exploring the interplay of race, DSE, and depressive symptoms and flourishing is certainly a significant and worthy topic for further study. In addition, our measure of daily environmental stressors is an omnibus measure tapping the number of difficulties experienced by individual respondents. It would be useful to explore the role of DSE (and other dimensions of R/S) in mediating, moderating, or under certain circumstances exacerbating the effects of specific individual stressors (e.g., discrimination, neighborhood disorder, relationship strain) on mental and physical health outcomes.

Finally, the data here comes from a non-random, self-selected sample. Participants in this study are those who heard of SoulPulse, had smartphones, and were interested in participating. While participants responded to a majority of the surveys they received, they did not reply to some of them. It is possible some of these surveys were ignored because they arrived during times when the participants were in the midst of stressful events. As such, the situations sampled in this study might not be fully representative of the participants' life experiences. Even with these limitations, the data used here show the power of this data collection methodology for illuminating complex processes, both within and between persons, as they unfold during the course of everyday life.

Conclusion

The bulk of research on the U.S. population reports beneficial associations between religion/spirituality and psychological well-being, with a significant minority identifying deleterious associations. Much of this research, however, faces a common methodological challenge: data is either cross-sectional in nature or several years or months pass between data collection points. Our concern is that this measurement strategy assumes psychosocial variables capture respondent traits, when they in fact might be capturing temporary states. By utilizing a smartphone based experience sampling method, this study demonstrates that state experiences of daily spirituality and stressors predict well-being above and beyond trait measures. The findings indicate robust direct associations between stressors, daily spiritual experiences, and psychological well-being, as well as substantial support for the moderating role of daily spiritual experiences on the relationships between stressful life events and psychological

well-being. It is our hope that scholars interested in religion/spirituality and well-being will consider how alternative data collection strategies can impact our understanding of processes in this important area of inquiry.

CHAPTER FIVE

Conclusion

Depression is a significant public health issue facing the United States and the global community. Its effects range from minor difficulties navigating daily life to complete debilitation. No parent, grandparent, aunt, uncle, educator, religious leader, friend, employer, or teammate in their right mind wishes to see those close to them or under their care in the throes of depression. Depressive symptoms, whether self-reported with measures like the CES-D or DASS, or diagnosis of a major depressive disorder (MDD) or persistent depressive disorder (PDD), pose significant challenges to those affected by them. MDD is the leading cause of disability in the United States for those aged 15 to 44, faced by approximately 16.1 million (6.7%) Americans a year, while PDD affects 3.3. million (1.5%) per year (Anxiety and Depression Association of America n.d.).

In the Add Health data reported here, upwards of 35% of the adolescent and young adult population report moderately elevated symptoms, and in the SoulPulse data symptom scores average approximately 20 out of 100. While experience of depressive symptoms may not be as debilitating as MDD or PDD, their very prevalence in U.S. society could mask some of their pernicious effect. When depressive symptoms are common enough so as to almost be considered "normal," becoming acclimated to them poses a particular risk, the risk of accepting them as inescapable. This could particularly be a problem in families where depression of one family member increases both the

visibility and the risk of depression for other family members. For example, a parent's own struggle with depression fosters an environment where a child is at double the risk for also becoming depressed (Olfson et al. 2003). It is possible that the child might come to see emotional struggle as something over which they have little control, just as one might catch a cold or the flu. Certainly genetic components reduce control over depression—it is naïve to think the right mindset can just wish it away—but there is an increased risk of longer term ramification when too fatalistic a view is taken.

Individuals at risk for or suffering from depression may benefit from learning that, to a certain degree (and this is of course the view most interesting to sociologists) depression and depressives symptoms may be seen as socially constructed, influenced not only by innate psychological or genetic factors, but also by one's social environment. Durkheim discussed depression in the context of his work on suicide, suggesting that depression is socially constructed in response to the changing bonds in a society (Durkheim 1897/1979; Fisher and Chon 1989). Further work in the sociology of emotions suggests that emotions emerge as a response to events embedded in a particular situation (Turner and Stets 2005), which supports the view of depressed mood as dynamically constructed in particular environments and situations.

The research presented here takes these approaches seriously, and its interpretation is aided by a view in which the experience of depressive symptoms is fundamentally related to social environment, including an individual's interaction with other actors, objects, events, and moments. While deeply rooted cognitive and neurological or genetic factors may predispose portions of the population to depression, interaction with the social environment is fundamentally bound up in how and why

symptoms are manifested. The unifying theme of this study is that human and divine relationships, whether played out in families, congregations, neighborhoods, or schools, enact an important role in protecting the individual elevated depressive burden or adding to the risk.

Chapters two and three, utilizing the National Longitudinal Study of Adolescent to Adult Health, indicated several mechanisms through which environmental and social contexts might relate to risk for depressive symptoms. Major factors identified in long-term well-being included parents, peers, and teachers, and not only were perceived quality of relationship with these actors related to decreased odds of membership in an elevated symptom trajectory, but some of their attendant features were also related, such as school GPA.

Given the value of healthy and loving relationships as a protective factor, it is not unsurprising that damaging relationships and membership in lower status groups indicate long term risk for depression. This is precisely because depression is, as has been suggested, at least partly socially constructed. People involved in relationships that fail to call out the best in them, that fail to lavish on them reminders of their dignity and worth, miss out on the essential experience of being known and loved without merit. Couple this with the challenging experience of membership in a lower status social group and one can see the difficulty of constructing a positive identity when the value and goodness of their very selves are questioned. Women, blacks, Asians, the poor - all these and more, whether through blatant derogatory messaging or much more subtle means, face challenges in constructing a self free from the stings and arrows of a callous society.

Even where social groups do not intend to do harm, such as in religious and spiritual settings, it is possible that harm is done nonetheless. Chapter three demonstrated that while religious attendance is likely to have a buffering effect due to caring and supportive social relationships, it is possible that those environments are also able to produce the opposite effect. This may be due to the fact that this location, expected to be a place of safety, ends up being something else entirely. How difficult it must be to receive wounds from those whom you expect to offer only care, kinship, and hope. This "dark side" of religion has been documented in several studies, with reports not only of distress related to negative experiences and interactions within the congregation (Ellison and Lee 2010), but to difficulties in the very quality of relationship with God (Murray and Ciarrocchi 2007).

This latter problem is highlighted by results in the Add Health sample indicating an increased risk for depressive symptom burden as levels of subjective spiritual experience increase. People experiencing depressive symptoms are likely to turn to religion as a source of comfort, but the reverse causal explanation is also probable, so that those seeking high levels of spirituality are also more at risk for depression when they fail to meet spiritual expectations. This scenario is more probable in religious environments that heavily emphasize personal relationship and communication with God, where people make their relationship with God an integral part of their self-identity and well-being.

Some might argue, however, that it is appropriate for religious believers to experience negative emotion when they fail to meet spiritual expectations. Doesn't guilt, for example, play a role in aiding people to make correct ethical choices? This brings up the interesting question of whether depression or depressive symptoms ever play a

93

beneficial role in one's life. The tenor of this manuscript has been that depressive symptoms universally hinder well-being. There are several reasons to suspect it may be possible for depressed mood to have positive effects, however. Depression, for example, can increase immune response to infections (Raison and Miller 2013); it has also been associated with increased ability to process information and perform complex tasks (Barbic, Durisko, and Andrews 2014). The implication is that depression may serve a role in helping people navigate—physically, intellectually, or emotionally—some types of challenges. In this view, depression is an adaptive trait that helps people solve problems and manage trying situations. But depression is clearly not a panacea. It is likely that these benefits are best captured in the short run. Long term symptoms can be debilitating and are associated with a host of negative outcomes, including reduced social and educational achievement, reduced income, damage to intimate and personal relationships, increased risk for divorce, recurrence of mental and physical health problems, and death (Essau and Ollendick 2009; Kessler 2012; Needham 2009; Wiesner et al. 2003). This list, of course, could be much longer.

Given the long-term ramifications of depressive symptoms, it is important to provide adequate treatment. But, as chapter four discusses, freedom from depressive symptoms does not necessarily equate with full and robust human flourishing. The concept of flourishing is rooted in the Aristotelian vision of the good, the true, and the beautiful, where flourishing (eudaimonia) is the appropriate end of human experience rather than a means to some other end (Ackrill 2010). Flourishing implies a deep-seated well-being in our physical, emotional, social, and rational lives, where virtue and wisdom are endorsed as constitutive of human happiness. In current social scientific thought,

flourishing is a comprehensive construct incorporating elements of positive emotions, positive psychological functioning, and positive social functioning. Keyes (2002, 2007) has argued that while a majority of the population is technically free of mental disorders like depression, only a portion of the population can be seen as flourishing.

A hermeneutic of the SoulPulse findings in chapter four could imply something similar to Aristotle's own thought: we become virtuous and live into full flourishing first through a vision adequate to our human potential, and then through the appropriation of education and virtuous habits. Religion and spirituality cannot monopolize these visions and habits, but they certainly serve as a source of them for many. The SoulPulse participants who reported higher levels of daily connection with God—people who cultivated a mindset of communion and love with the divine—not only experienced lower levels of stress and depressive symptoms, but also reported higher levels of flourishing. In other words, they reported feelings of happiness, satisfaction, enjoyment of their personality, success at managing responsibilities, warmth in their personal relationships, confidence in the expression of their ideas and opinions, and belief that they contributed something important to society. Notably, spiritual feelings not directly connected to the divine, like feelings of inner peace and being touched by the beauty of creation, also indicated well-being. It is not adequate for the human person to simply seek freedom from depressive symptoms, but rather to find and pursue a path to full flourishing.

That vision is what animates this research, with the purpose of advancing our understanding of human persons and how they might experience full flourishing and well-being, not only within the secret chambers of a single heart, but externally, as a collection of persons acting together for a true and good end.

REFERENCES

Acevedo, Gabriel A. 2010. "Collective Rituals or Private Practice in Texas? Asessing the Impact of Religious Factors on Mental Health." *Review of Religious Research* 52(2):188–206.

Acevedo, Gabriel A., Christopher G. Ellison, and Xiaohe Xu. 2014. "Is It Really Religion? Comparing the Main and Stress-Buffering Effects of Religious and Secular Civic Engagement on Psychological Distress." *Society and Mental Health* 4(2):111–28.

Ackrill, John L. 2010. "Aristotle On Eudaimonia (Book I.1–5 [1–3] And 7–8 [5–6])." *Aristotle's "Nicomachean Ethics"* 33–52.

Ahrenfeldt, Linda Juel et al. forthcoming. "Religiousness and Health in Europe." *European Journal of Epidemiology* 1–9.

Ainsworth, Mary D. Salter, Mary C. Blehar, Everett Waters, and Sally N. Wall. 2015. *Patterns of Attachment: A Psychological Study of the Strange Situation*. New York, NY: Psychology Press.

Andrews, Bernice and John M. Wilding. 2004. "The Relation of Depression and Anxiety to Life-Stress and Achievement in Students." *British Journal of Psychology* 95(4):509–21.

Aneshensel, Carol S., Jo C. Phelan, and Alex Bierman. 2013. "The Sociology of Mental Health: Surveying the Field." Pp. 1–19 in *Handbook of the Sociology of Mental Health*, edited by C. S. Aneshensel, J. C. Phelan, and A. Bierman. New York: Springer.

Angst, J. et al. 2002. "Gender Differences in Depression." *European Archives of Psychiatry and Clinical Neuroscience* 252(5):201–9.

Anxiety and Depression Association of America. n.d. "Anxiety and Depression Association of America." Retrieved February 22, 2018 (https://adaa.org/about-adaa/press-room/facts-statistics#).

Avison, William R. 2010. "Incorporating Children's Lives into a Life Course Perspective on Stress and Mental Health." *Journal of Health and Social Behavior* 51(4):361–75.

Baetz, Marilyn, Rudy Bowen, Glenn Jones, and Tulay Koru-Sengul. 2006. "How Spiritual Values and Worship Attendance Relate to Psychiatric Disorders in the Canadian Population." *The Canadian Journal of Psychiatry* 51(10):654–61.

Baetz, Marilyn, Ronald Griffin, Rudy Bowen, Harold G. Koenig, and Eugene Marcoux. 2004. "The Association between Spiritual and Religious Involvement and Depressive Symptoms in a Canadian Population." *The Journal of Nervous and Mental Disease* 192(12):818–22.

Barber, Brian K. 2001. "Political Violence, Social Integration, and Youth Functioning: Palestinian Youth from the Intifada." *Journal of Community Psychology* 29(3):259–80.

Barbic, Skye P., Zachary Durisko, and Paul W. Andrews. 2014. "Measuring the Bright Side of Being Blue: A New Tool for Assessing Analytical Rumination in Depression." *PLOS ONE* 9(11):e112077.

Barrera, Manuel and Carolynne Garrison-Jones. 1992. "Family and Peer Social Support as Specific Correlates of Adolescent Depressive Symptoms." *Journal of Abnormal Child Psychology* 20(1):1–16.

Bierman, Alex. 2006. "Does Religion Buffer the Effects of Discrimination on Mental Health? Differing Effects by Race." *Journal for the Scientific Study of Religion* 45(4):551–65.

Bonelli, Raphael, Rachel E. Dew, Harold G. Koenig, David H. Rosmarin, and Sasan Vasegh. 2012. "Religious and Spiritual Factors in Depression: Review and Integration of the Research." *Depression Research and Treatment*. Retrieved January 23, 2018 (https://www.hindawi.com/journals/drt/2012/962860/abs/).

Bowen-Reid, Terra L. and Jules P. Harrell. 2002. "Racist Experiences and Health Outcomes: An Examination of Spirituality as a Buffer." *Journal of Black Psychology* 28(1):18–36.

Bradshaw, Matt and Christopher G. Ellison. 2010. "Financial Hardship and Psychological Distress: Exploring the Buffering Effects of Religion." *Social Science & Medicine* 71(1):196–204.

Bradshaw, Matt, Christopher G. Ellison, and Kevin J. Flannelly. 2008. "Prayer, God Imagery, and Symptoms of Psychopathology." *Journal for the Scientific Study of Religion* 47(4):644–59.

Bradshaw, Matt and Blake Victor Kent. forthcoming. "Prayer, Attachment to God, and Changes in Psychological Well-Being in Later Life." *Journal of Aging and Health*.

Brenneman, Todd M. 2014. *Homespun Gospel: The Triumph of Sentimentality in Contemporary American Evangelicalism*.

Breslau, Joshua et al. 2006. "Specifying Race-Ethnic Differences in Risk for Psychiatric Disorder in a USA National Sample." *Psychological Medicine* 36(1):57–68.

Brewer-Smyth, Kathleen and Harold G. Koenig. 2014. "Could Spirituality and Religion Promote Stress Resilience in Survivors of Childhood Trauma?" *Issues in Mental Health Nursing* 35(4):251–56.

Bronfenbrenner, Urie. 1979. *The Ecology of Human Development: Experiments by Design and Nature*. Cambridge, MA: Harvard University Press.

Brook, David W., Judith S. Brook, Chenshu Zhang, Patricia Cohen, and Martin Whiteman. 2002. "Drug Use and the Risk of Major Depressive Disorder, Alcohol Dependence, and Substance Use Disorders." *Archives of General Psychiatry* 59(11):1039–44.

Brown, Tony N., Katharine M. Donato, Mary Therese Laske, and Ebony M. Duncan. 2013. "Race, Nativity, Ethnicity, and Cultural Influences in the Sociology of Mental Health." Pp. 255–76 in *Handbook of the Sociology of Mental Health*, edited by C. S. Aneshensel, J. C. Phelan, and A. Bierman. New York, NY: Springer.

Bryant, Alyssa N. 2007. "Gender Differences in Spiritual Development During the College Years." *Sex Roles* 56(11–12):835–46.

Buchko, Kathleen J. 2004. "Religious Beliefs and Practices of College Women as Compared to College Men." *Journal of College Student Development* 45(1):89–98.

Carpenter, Thomas P., Tyler Laney, and Amy Mezulis. 2012. "Religious Coping, Stress, and Depressive Symptoms among Adolescents: A Prospective Study." *Psychology of Religion and Spirituality* 4(1):19–30.

Chen, Zeng-yin and Howard B. Kaplan. 2003. "School Failure in Early Adolescence and Status Attainment in Middle Adulthood: A Longitudinal Study." *Sociology of Education* 76(2):110–27.

Cicchetti, Dante and Sheree L. Toth. 1998. "The Development of Depression in Children and Adolescents." *American Psychologist* 53(2):221–41.

Clark, Shaunna L. and Bengt Muthen. n.d. "Relating Latent Class Analysis Results to Variables Not Included in the Analysis."

Colder, Craig R. et al. 2001. "Identifying Trajectories of Adolescent Smoking: An Application of Latent Growth Mixture Modeling." *Health Psychology* 20(2):127–35.

Cooney, Teresa M. and Peter Uhlenberg. 1992. "Support from Parents over the Life Course: The Adult Child's Perspective." *Social Forces* 71(1):63–84.

Costello, Darcé M., Joel Swendsen, Jennifer S. Rose, and Lisa C. Dierker. 2008. "Risk and Protective Factors Associated with Trajectories of Depressed Mood from Adolescence to Early Adulthood." *Journal of Consulting and Clinical Psychology* 76(2):173–83.

Costello, E. Jane, Helen Egger, and Adrian Angold. 2005. "10-Year Research Update Review: The Epidemiology of Child and Adolescent Psychiatric Disorders: I. Methods and Public Health Burden." *Journal of the American Academy of Child & Adolescent Psychiatry* 44(10):972–86.

Csikszentmihalyi, Mihaly and Reed Larson. 2014. "Validity and Reliability of the Experience-Sampling Method." Pp. 35–54 in *Flow and the Foundations of Positive Psychology*. Springer, Dordrecht. Retrieved February 15, 2018 (https://link.springer.com/chapter/10.1007/978-94-017-9088-8_3).

Csikszentmihalyi, Mihaly, Reed Larson, and Suzanne Prescott. 1977. "The Ecology of Adolescent Activity and Experience." *Journal of Youth and Adolescence* 6(3):281–94.

Currier, Joseph M., Seong-Hyeon Kim, Charlotte Sandy, and Robert A. Neimeyer. 2012. "The Factor Structure of the Daily Spiritual Experiences Scale: Exploring the Role of Theistic and Nontheistic Approaches at the End of Life." *Psychology of Religion and Spirituality* 4(2):108–22.

Dasch, Kimberly B., Lawrence H. Cohen, Jorden C. Sahl, and Kathleen C. Gunthert. 2007. "Moderating Effects of Sociotropy and Autonomy on Affective and Self-Esteem Reactivity to Daily Stressors." *Cognitive Therapy and Research* 32(2):177–95.

Davis, Don E., Joshua N. Hook, and Everett Worthington Jr. 2008. "Relational Spirituality and Forgiveness: The Roles of Attachment to God, Religious Coping, and Viewing the Transgression as a Desecration." *Journal of Psychology and Christianity* 27(4):293–301.

Dein, Simon, Christopher C. H. Cook, and Harold Koenig. 2012. "Religion, Spirituality, and Mental Health: Current Controversies and Future Directions." *The Journal of Nervous and Mental Disease* 200(10):852–55.

Dew, Rachel E., Stephanie S. Daniel, David B. Goldston, and Harold Koenig. 2008. "Religion, Spirituality, and Depression in Adolescent Psychiatric Outpatients." *The Journal of Nervous and Mental Disease* 196(3):247–51.

Diamantopoulou, Sofia, Frank C. Verhulst, and Jan van der Ende. 2011. "Gender Differences in the Development and Adult Outcome of Co-Occurring Depression and Delinquency in Adolescence." *Journal of Abnormal Psychology* 120(3):644–55.

Diehl, Manfred, Elizabeth L. Hay, and Kathleen M. Berg. 2011. "The Ratio between Positive and Negative Affect and Flourishing Mental Health across Adulthood." *Aging & Mental Health* 15(7):882–93.

Downs, William R. and Barb Rindels. 2004. "Adulthood Depression, Anxiety, and Trauma Symptoms: A Comparison of Women With Nonabusive, Abusive, and Absent Father Figures in Childhood." *Violence and Victims* 19(6):659–71.

Dubas, Judith Semon and Jan R. M. Gerris. 2002. "Longitudinal Changes in the Time Parents Spend in Activities with Their Adolescent Children as a Function of Child Age, Pubertal Status and Gender." *Journal of Family Psychology* 16(4):415–27.

Duchesne, Stéphane and Catherine F. Ratelle. 2014. "Attachment Security to Mothers and Fathers and the Developmental Trajectories of Depressive Symptoms in Adolescence: Which Parent for Which Trajectory?" *Journal of Youth and Adolescence* 43(4):641–54.

Durkheim, Emile. 1897. *Suicide*. New York: The Free Press.

Eisenberg, Marla E., Rachel E. Olson, Dianne Neumark-Sztainer, Mary Story, and Linda H. Bearinger. 2004. "Correlations Between Family Meals and Psychosocial Well-Being Among Adolescents." *Archives of Pediatrics & Adolescent Medicine* 158(8):792–96.

Ellison, Christopher G. 1993. "Religious Involvement and Self-Perception among Black Americans." *Social Forces* 71(4):1027–55.

Ellison, Christopher G., Matt Bradshaw, Nilay Kuyel, and Jack P. Marcum. 2012. "Attachment to God, Stressful Life Events, and Changes in Psychological Distress." *Review of Religious Research* 53(4):493–511.

Ellison, Christopher G., Amy M. Burdette, and Terrence D. Hill. 2009. "Blessed Assurance: Religion, Anxiety, and Tranquility among US Adults." *Social Science Research* 38(3):656–67.

Ellison, Christopher G. and Daisy Fan. 2008. "Daily Spiritual Experiences and Psychological Well-Being Among US Adults." *Social Indicators Research* 88(2):247–71.

Ellison, Christopher G. and Linda K. George. 1994. "Religious Involvement, Social Ties, and Social Support in a Southeastern Community." *Journal for the Scientific Study of Religion* 33(1):46–61.

Ellison, Christopher G. and Andrea K. Henderson. 2011. "Religion And Mental Health: Through The Lens Of The Stress Process." Pp. 11–44 in *Toward a Sociological Theory of Religion and Health*, edited by A. Blasi. Boston, MA: Brill. Retrieved January 18, 2017).

Ellison, Christopher G. and Jinwoo Lee. 2010. "Spiritual Struggles and Psychological Distress: Is There a Dark Side of Religion?" *Social Indicators Research* 98(3):501–17.

Ellison, Christopher G. and Robert Joseph Taylor. 1996. "Turning to Prayer: Social and Situational Antecedents of Religious Coping among African Americans." *Review of Religious Research* 38(2):111–31.

Essau, Cecilia A. and Thomas H. Ollendick. 2009. "Diagnosis and Assessment of Adolescent Depression." Pp. 53–74 in *Handbook of Depression in Adolescents*, edited by S. Nolen-Hoeksema and L. M. Hilt. New York, NY: Routledge.

Exline, Julie J., Kenneth I. Pargament, Joshua B. Grubbs, and Ann Marie Yali. 2014. "The Religious and Spiritual Struggles Scale: Development and Initial Validation." *Psychology of Religion and Spirituality* 6(3):208–22.

Fingerman, Karen, Laura Miller, Kira Birditt, and Steven Zarit. 2009. "Giving to the Good and the Needy: Parental Support of Grown Children." *Journal of Marriage and Family* 71(5):1220–33.

Fisher, Gene A. and Kyum Koo Chon. 1989. "Durkheim and the Social Construction of Emotions." *Social Psychology Quarterly* 52(1):1–9.

Fröjd, Sari A. et al. 2008. "Depression and School Performance in Middle Adolescent Boys and Girls." *Journal of Adolescence* 31(4):485–98.

Fulkerson, Jayne A. et al. 2006. "Family Dinner Meal Frequency and Adolescent Development: Relationships with Developmental Assets and High-Risk Behaviors." *Journal of Adolescent Health* 39(3):337–45.

Furnham, Adrian, William Ritchie, and Alixe Lay. 2016. "Beliefs about the Causes and Cures of Depression." *International Journal of Social Psychiatry* 62(5):415–24.

Garber, Judy, Margaret K. Keiley, and Nina C. Martin. 2002. "Developmental Trajectories of Adolescents' Depressive Symptoms: Predictors of Change." *Journal of Consulting and Clinical Psychology* 70(1):79–95.

George, Linda K. 2013. "Life-Course Perspectives on Mental Health." Pp. 585–602 in *Handbook of the Sociology of Mental Health*, edited by C. S. Aneshensel, J. C. Phelan, and A. Bierman. New York, NY: Springer.

George, Linda K. 1994. "Social Factors and Depression in Late Life." Pp. 131–53 in *Diagnosis and treatment of depression in late life: Results of the NIH Consensus Development Conference*, edited by L. S. Schneider, C. F. Reynolds, B. D. Lebowitz, and A. J. Friedhoff. Arlington, VA, US: American Psychiatric Association.

George, Linda K., Christopher G. Ellison, and David B. Larson. 2002. "TARGET ARTICLE: Explaining the Relationships Between Religious Involvement and Health." *Psychological Inquiry* 13(3):190–200.

Giussani, Luigi. 2001. *The Risk of Education*. Reprint edition. New York, NY: The Crossroad Publishing Company.

Goodman, Elizabeth and Bin Huang. 2002. "Socioeconomic Status, Depressive Symptoms, and Adolescent Substance Use." *Archives of Pediatrics & Adolescent Medicine* 156(5):448–53.

Gunthert, Kathleen Cimbolic, Lawrence H. Cohen, and Stephen Armeli. 1999. "The Role of Neuroticism in Daily Stress and Coping." *Journal of Personality and Social Psychology* 77(5):1087–1100.

Gutman, Leslie Morrison and Arnold J. Sameroff. 2004. "Continuities in Depression from Adolescence to Young Adulthood: Contrasting Ecological Influences." *Development and Psychopathology* 16(4):967–84.

Hall, Donald E. 2006. *Muscular Christianity: Embodying the Victorian Age*. Cambridge University Press.

Hallfors, Denise D., Martha W. Waller, Daniel Bauer, Carol A. Ford, and Carolyn T. Halpern. 2005. "Which Comes First in Adolescence—Sex and Drugs or Depression?" *American Journal of Preventive Medicine* 29(3):163–70.

Hammen, Constance. 2005. "Stress and Depression." *Annual Review of Clinical Psychology* 1(1):293–319.

Harris, Judith Rich. 2011. *The Nurture Assumption: Why Children Turn Out the Way They Do*. Simon and Schuster.

Hartnet, Caroline Sten, Karen Fingerman, and Kira S. Birditt. 2016. *With the Ties That Bind: Young Adults Who Lack Active Parental Relationships*. Ann Arbor, MI: University of Michigan.

Hayward, R. David, Amy D. Owen, Harold G. Koenig, David C. Steffens, and Martha E. Payne. 2012. "Religion and the Presence and Severity of Depression in Older Adults." *The American Journal of Geriatric Psychiatry* 20(2):188–92.

Helliwell, John and Robert D. Putnam. 2004. "The Social Context of Well–being." *Philosophical Transactions of the Royal Society B: Biological Sciences* 359(1449):1435–46.

Henderson, W. Matthew and Blake Victor Kent. 2015. "Non-Linear Attachment to God and Psychological Distress." Newport Beach, CA.

Hill, Peter C. and Ralph W. Hood, eds. 1999. *Measures of Religiosity*. Religious Education Press.

Hill, Peter C. and Kenneth I. Pargament. 2003. "Advances in the Conceptualization and Measurement of Religion and Spirituality: Implications for Physical and Mental Health Research." *American Psychologist* 58(1):64–74.

Hodgkinson, Stacy C., Elizabeth Colantuoni, Debra Roberts, Linda Berg-Cross, and Harolyn M. E. Belcher. 2010. "Depressive Symptoms and Birth Outcomes among Pregnant Teenagers." *Journal of Pediatric and Adolescent Gynecology* 23(1):16–22.

Idler, Ellen L. et al. 2003. "Measuring Multiple Dimensions of Religion and Spirituality for Health Research Conceptual Background and Findings from the 1998 General Social Survey." *Research on Aging* 25(4):327–65.

Jahoda, Marie. 1958. *Current Concepts of Positive Mental Health*. Basic Books.

Jones, Bobby L. and Daniel S. Nagin. 2012. "A Stata Plugin for Estimating Group-Based Trajectory Models." *Carnegie Mellon University Research Showcase* 1–30.

Kaltiala-Heino, Riittakerttu, Elise Kosunen, and Matti Rimpelä. 2003. "Pubertal Timing, Sexual Behaviour and Self-Reported Depression in Middle Adolescence." *Journal of Adolescence* 26(5):531–45.

Kashdan, Todd B. and Antonina S. Farmer. 2014. "Differentiating Emotions across Contexts: Comparing Adults with and without Social Anxiety Disorder Using Random, Social Interaction, and Daily Experience Sampling." *Emotion* 14(3):629–38.

Kent, Blake Victor. 2015. "To Know and Be Known: Divine Attachments, Intimacy, and Biblical Literalism." in *Annual meeting of the Society for the Scientific Study of Religion*. Newport Beach, CA.

Kent, Blake Victor, Matt Bradshaw, and Jeremy E. Uecker. forthcoming. "Forgiveness, Attachment to God, and Mental Health Outcomes in Older US Adults: A Longitudinal Study." *Research on Aging*.

Kessler, Ronald C. 2003. "Epidemiology of Women and Depression." *Journal of Affective Disorders* 74(1):5–13.

Kessler, Ronald C. 2012. "The Costs of Depression." *The Psychiatric Clinics of North America* 35(1):1–14.

Kessler, Ronald C., Wai Tat Chiu, Olga Demler, and Ellen E. Walters. 2005. "Prevalence, Severity, and Comorbidity of 12-Month DSM-IV Disorders in the National Comorbidity Survey Replication." *Archives of General Psychiatry* 62(6):617.

Keyes, C. L. M. 2004. "The Nexus of Cardiovascular Disease and Depression Revisited: The Complete Mental Health Perspective and the Moderating Role of Age and Gender." *Aging & Mental Health* 8(3):266–74.

Keyes, C. L. M. and J. Haidt, eds. 2003. "Complete Mental Health: An Agenda for the 21st Century." Pp. 293–312 in *Flourishing: Positive psychology and the life well-lived*. Washington, DC, US: American Psychological Association.

Keyes, Corey L. M. 2009. "Brief Description of the Mental Health Continuum Short Form (MHC-SF)." Retrieved May 3, 2016 (http://sociology.emory.edu/home/people/faculty/keyes-corey.html).

Keyes, Corey L. M. 2005a. "Chronic Physical Conditions and Aging: Is Mental Health a Potential Protective Factor?" *Ageing International* 30(1):88–104.

Keyes, Corey L. M. 2005b. "Mental Illness and/or Mental Health? Investigating Axioms of the Complete State Model of Health." *Journal of Consulting and Clinical Psychology* 73(3):539–48.

Keyes, Corey L. M. 2007. "Promoting and Protecting Mental Health as Flourishing: A Complementary Strategy for Improving National Mental Health." *American Psychologist* 62(2):95–108.

Keyes, Corey L. M. 2002. "The Mental Health Continuum: From Languishing to Flourishing in Life." *Journal of Health and Social Behavior* 43(2):207–22.

Keyes, Corey L. M., Satvinder S. Dhingra, and Eduardo J. Simoes. 2010. "Change in Level of Positive Mental Health as a Predictor of Future Risk of Mental Illness." *American Journal of Public Health* 100(12):2366–71.

Kim, Young-Seok, Min-Ji Lee, Young-Sung Suh, and Dae-Hyun Kim. 2013. "Relationship between Family Meals and Depressive Symptoms in Children." *Korean Journal of Family Medicine* 34(3):206–12.

Kirkpatrick, Lee A. 2005. *Attachment, Evolution, and the Psychology of Religion*. New York: Guilford Press.

Koenig, Harold G. 2009. "Research on Religion, Spirituality, and Mental Health: A Review." *Résumé : Recherche Sur La Religion, La Spiritualité et La Santé Mentale : Une Revue.* 54(5):283–91.

Koenig, Harold G., Linda K. George, and Patricia Titus. 2004. "Religion, Spirituality, and Health in Medically Ill Hospitalized Older Patients." *Journal of the American Geriatrics Society* 52(4):554–62.

Koenig, Harold, Dana King, and Verna B. Carson. 2012a. *Handbook of Religion and Health*. Oxford University Press.

Koenig, Harold, Dana King, and Verna B. Carson. 2012b. *Handbook of Religion and Health*. New York, NY: Oxford University Press, USA.

Koenig, Laura B. and George E. Vaillant. 2009. "A Prospective Study of Church Attendance and Health over the Lifespan." *Health Psychology* 28(1):117–24.

Kofler, Michael J. et al. 2011. "Depression and Delinquency Covariation in an Accelerated Longitudinal Sample of Adolescents." *Journal of Consulting and Clinical Psychology* 79(4):458–69.

Kovacs, Maria, Terry L. Feinberg, Mary Ann Crouse-Novak, Stana L. Paulauskas, and Richard Finkelstein. 1984. "Depressive Disorders in Childhood: A Longitudinal Study of Characteristics and Recovery." *Archives of General Psychiatry* 41(3):229–37.

Krause, Neal. 2005. "God-Mediated Control and Psychological Well-Being in Late Life." *Research on Aging* 27(2):136–64.

Krause, Neal. 2003. "Religious Meaning and Subjective Well-Being in Late Life." *The Journals of Gerontology Series B: Psychological Sciences and Social Sciences* 58(3):S160–70.

Krause, Neal and Christopher G. Ellison. 2003. "Forgiveness by God, Forgiveness of Others, and Psychological Well–Being in Late Life." *Journal for the Scientific Study of Religion* 42(1):77–93.

Kuchibhatla, M. N., G. G. Fillenbaum, C. F. Hybels, and D. G. Blazer. 2012. "Trajectory Classes of Depressive Symptoms in a Community Sample of Older Adults." *Acta Psychiatrica Scandinavica* 125(6):492–501.

La Greca, Annette M. and Hannah Moore Harrison. 2005. "Adolescent Peer Relations, Friendships, and Romantic Relationships: Do They Predict Social Anxiety and Depression?" *Journal of Clinical Child & Adolescent Psychology* 34(1):49–61.

Lalayants, Marina and Jonathan D. Prince. 2014. "Delinquency, Depression, and Substance Use Disorder among Child Welfare-Involved Adolescent Females." *Child Abuse & Neglect* 38(4):797–807.

Lazarus, Richard S. 1966. *Psychological Stress and the Coping Process*. New York, NY: McGraw-Hill.

Le, Thao N., William Tov, and Julie Taylor. 2007. "Religiousness and Depressive Symptoms in Five Ethnic Adolescent Groups." *The International Journal for the Psychology of Religion* 17(3):209–32.

Lee, Bong-Jae. 2007. "Moderating Effects of Religious/Spiritual Coping in the Relation Between Perceived Stress and Psychological Well-Being." *Pastoral Psychology* 55(6):751–59.

Levin, Jeff. 2010. "Religion and Mental Health: Theory and Research." *International Journal of Applied Psychoanalytic Studies* 7(2):102–15.

Li, Shanshan, Meir J. Stampfer, David R. Williams, and Tyler J. VanderWeele. 2016. "Association of Religious Service Attendance With Mortality Among Women." *JAMA Internal Medicine* 176(6):777.

Liang, Jersey, Xiao Xu, Ana R. Quiñones, Joan M. Bennett, and Wen Ye. 2011. "Multiple Trajectories of Depressive Symptoms in Middle and Late Life: Racial/Ethnic Variations." *Psychology and Aging* 26(4):761–77.

Lincoln, Karen D. and David T. Takeuchi. 2010. "Variation in the Trajectories of Depressive Symptoms: Results from the Americans' Changing Lives Study." *Biodemography and Social Biology* 56(1):24–41.

Lovibond, P. F. and S. H. Lovibond. 1995. "The Structure of Negative Emotional States: Comparison of the Depression Anxiety Stress Scales (DASS) with the Beck Depression and Anxiety Inventories." *Behaviour Research and Therapy* 33(3):335–43.

Luhrmann, Tanya M. 2012. *When God Talks Back: Understanding the American Evangelical Relationship with God*. New York, NY: Vintage Books.

Luo, Ye and Linda J. Waite. 2005. "The Impact of Childhood and Adult SES on Physical, Mental, and Cognitive Well-Being in Later Life." *The Journals of Gerontology Series B: Psychological Sciences and Social Sciences* 60(2):S93–101.

Lynch, Cheryl P., Melba A. Hernandez-Tejada, Joni L. Strom, and Leonard E. Egede. 2012. "Association Between Spirituality and Depression in Adults With Type 2 Diabetes." *The Diabetes Educator* 38(3):427–35.

Malaquias, Sara, Carla Crespo, and Rita Francisco. 2015. "How Do Adolescents Benefit from Family Rituals? Links to Social Connectedness, Depression and Anxiety." *Journal of Child and Family Studies* 24(10):3009–17.

Maselko, Joanna and Stephen Buka. 2008. "Religious Activity and Lifetime Prevalence of Psychiatric Disorder." *Social Psychiatry and Psychiatric Epidemiology* 43(1):18–24.

McCrae, Christina S. et al. 2008. "Sleep and Affect in Older Adults: Using Multilevel Modeling to Examine Daily Associations." *Journal of Sleep Research* 17(1):42–53.

McFarland, Michael J. 2010. "Religion and Mental Health Among Older Adults: Do the Effects of Religious Involvement Vary by Gender?" *The Journals of Gerontology: Series B* 65B(5):621–30.

McLanahan, Sara. 2004. "Diverging Destinies: How Children Are Faring under the Second Demographic Transition." *Demography* 41(4):607–27.

McLeod, Jane D. and Danielle L. Fettes. 2007. "Trajectories of Failure: The Educational Careers of Children with Mental Health Problems." *AJS; American Journal of Sociology* 113(3):653–701.

Miner, Maureen, Martin Dowson, and Stuart Devenish. 2012. *Beyond Well-Being: Spirituality and Human Flourishing*. IAP.

Mirowsky, John and Cahterine E. Ross. 2003. *Education, Social Status, and Health*. 1 edition. New York: Routledge.

Miyazaki, Yasuo and Stephen W. Raudenbush. 2000. "Tests for Linkage of Multiple Cohorts in an Accelerated Longitudinal Design." *Psychological Methods* 5(1):44–63.

Mohr, Sylvia, Pierre-Yves Brandt, Laurence Borras, Christiane Gilliéron, and Philippe Huguelet. 2006. "Toward an Integration of Spirituality and Religiousness Into the Psychosocial Dimension of Schizophrenia." *American Journal of Psychiatry* 163(11):1952–59.

Monahan, Kathryn C. and Joanna M. Lee. 2008. "Adolescent Sexual Activity: Links Between Relational Context and Depressive Symptoms." *Journal of Youth and Adolescence* 37(8):917–27.

Monroe, Scott M. and Kate L. Harkness. 2005. "Life Stress, the 'Kindling' Hypothesis, and the Recurrence of Depression: Considerations From a Life Stress Perspective." *Psychological Review* 112(2):417–45.

Moran, Greg, Heidi Neufeld Bailey, and Carey Anne DeOliveira. 2011. "The Roots of Depression in Early Attachment Experiences." in *Risk Factors in Depression*, edited by K. S. Dobson and D. J. A. Dozois. San Diego, CA: Academic Press.

Morgan, Z., T. Brugha, T. Fryers, and S. Stewart-Brown. 2012. "The Effects of Parent–child Relationships on Later Life Mental Health Status in Two National Birth Cohorts." *Social Psychiatry and Psychiatric Epidemiology* 47(11):1707–15.

Murray, Kelly and Joseph W. Ciarrocchi. 2007. "The Dark Side of Religion, Spirituality and the Moral Emotions: Shame, Guilt, and Negative Religiosity as Markers for Life Dissatisfaction." *Journal of Pastoral Counseling* 42:22–41.

Musick, Marc A. and John Wilson. 2003. "Volunteering and Depression: The Role of Psychological and Social Resources in Different Age Groups." *Social Science & Medicine* 56(2):259–69.

Musliner, Katherine L., Trine Munk-Olsen, William W. Eaton, and Peter P. Zandi. 2016. "Heterogeneity in Long-Term Trajectories of Depressive Symptoms: Patterns, Predictors and Outcomes." *Journal of Affective Disorders* 192:199–211.

Nagin, Daniel. 2005. *Group-Based Modeling of Development*. Harvard University Press.

Nagin, Daniel S. 1999. "Analyzing Developmental Trajectories: A Semiparametric, Group-Based Approach." *Psychological Methods* 4(2):139–57.

Nagin, Daniel S. and Candice L. Odgers. 2010. "Group-Based Trajectory Modeling (Nearly) Two Decades Later." *Journal of Quantitative Criminology* 26(4):445–53.

Needham, Belinda L. 2009. "Adolescent Depressive Symptomatology and Young Adult Educational Attainment: An Examination of Gender Differences." *Journal of Adolescent Health* 45(2):179–86.

Nolen-Hoeksema, Susan, Judith Larson, and Carla Grayson. 1999. "Explaining the Gender Difference in Depressive Symptoms." *Journal of Personality and Social Psychology* 77(5):1061–72.

Nonnemaker, James M., Clea A. McNeely, and Robert Wm Blum. 2003. "Public and Private Domains of Religiosity and Adolescent Health Risk Behaviors: Evidence from the National Longitudinal Study of Adolescent Health." *Social Science & Medicine* 57(11):2049–54.

Olfson, Mark, Steven C. Marcus, Benjamin Druss, Harold Alan Pincus, and Myrna M Weissman. 2003. "Parental Depression, Child Mental Health Problems, and Health Care Utilization." *Medical Care* 41(6):716.

Olson, Julie Skalamera and Robert Crosnoe. 2017. "Are You Still Bringing Me Down?: Romantic Involvement and Depressive Symptoms from Adolescence to Young Adulthood." *Journal of Health and Social Behavior* 58(1):102–15.

O'Neill, Suzanne C., Lawrence H. Cohen, Laura H. Tolpin, and Kathleen Cimbolic Gunthert. 2004. "Affective Reactivity to Daily Interpersonal Stressors as a Prospective Predictor of Depressive Symptoms." *Journal of Social and Clinical Psychology* 23(2):172–94.

Owens, Matthew, Jim Stevenson, Julie A. Hadwin, and Roger Norgate. 2012. "Anxiety and Depression in Academic Performance: An Exploration of the Mediating Factors of Worry and Working Memory." *School Psychology International* 33(4):433–49.

Pargament, Kenneth I. 1997. *The Psychology of Religion and Coping: Theory, Research, Practice*. New York: Guilford Press.

Park, Jisung and Soonhee Roh. 2013. "Daily Spiritual Experiences, Social Support, and Depression among Elderly Korean Immigrants." *Aging & Mental Health* 17(1):102–8.

Payman, Vahid and Bridget Ryburn. 2010. "Religiousness and Recovery from Inpatient Geriatric Depression: Findings from the PEJAMA Study." *Australian and New Zealand Journal of Psychiatry* 44(6):560–67.

Pearlin, Leonard I. 1999. "The Stress Process Revisited." Pp. 395–415 in *Handbook of the Sociology of Mental Health*, *Handbooks of Sociology and Social Research*, edited by C. S. Aneshensel and J. C. Phelan. Springer US. Retrieved November 16, 2016 (http://link.springer.com/chapter/10.1007/0-387-36223-1_19).

Peele, Stanton and Archie Brodsky. 2000. "Exploring Psychological Benefits Associated with Moderate Alcohol Use: A Necessary Corrective to Assessments of Drinking Outcomes?" *Drug and Alcohol Dependence* 60(3):221–47.

Peeters, Frenk, Nancy A. Nicolson, Johannes Berkhof, Philippe Delespaul, and Marten deVries. 2003. "Effects of Daily Events on Mood States in Major Depressive Disorder." *Journal of Abnormal Psychology* 112(2):203–11.

Poulin, Christiane, Denise Hand, Brock Boudreau, and Darcy Santor. 2005. "Gender Differences in the Association between Substance Use and Elevated Depressive Symptoms in a General Adolescent Population." *Addiction* 100(4):525–35.

Preston, Jesse L. and Faith Shin. 2017. "Spiritual Experiences Evoke Awe through the Small Self in Both Religious and Non-Religious Individuals." *Journal of Experimental Social Psychology* 70:212–21.

Putnam, Robert D. 2000. "Bowling Alone: America's Declining Social Capital." Pp. 223–34 in *Culture and Politics*, edited by L. Crothers and C. Lockhart. Palgrave Macmillan US. Retrieved September 21, 2016 (http://link.springer.com/chapter/10.1007/978-1-349-62397-6_12).

Radloff, Lenore Sawyer. 1977. "The CES-D Scale A Self-Report Depression Scale for Research in the General Population." *Applied Psychological Measurement* 1(3):385–401.

Raison, C. L. and A. H. Miller. 2013. "The Evolutionary Significance of Depression in Pathogen Host Defense (PATHOS-D)." *Molecular Psychiatry* 18(1):15–37.

Raudenbush, Stephen W. 2001. "Comparing Personal Trajectories and Drawing Causal Inferences from Longitudinal Data." *Annual Review of Psychology* 52(1):501–25.

Raudino, Alessandra, David M. Fergusson, and L. John Horwood. 2013. "The Quality of Parent/Child Relationships in Adolescence Is Associated with Poor Adult Psychosocial Adjustment." *Journal of Adolescence* 36(2):331–40.

Repetti, Rena L., Shelley E. Taylor, and Teresa E. Seeman. 2002. "Risky Families: Family Social Environments and the Mental and Physical Health of Offspring." *Psychological Bulletin* 128(2):330–66.

Rew, Lynn and Y. Joel Wong. 2006. "A Systematic Review of Associations among Religiosity/Spirituality and Adolescent Health Attitudes and Behaviors." *Journal of Adolescent Health* 38(4):433–42.

Ritsher, Jennifer E. B., Virginia Warner, Jeffrey G. Johnson, and Bruce P. Dohrenwend. 2001. "Inter-Generational Longitudinal Study of Social Class and Depression: A Test of Social Causation and Social Selection Models." *The British Journal of Psychiatry* 178(40):s84–90.

Rosenfield, Sarah, Mary Clare Lennon, and Helene Raskin White. 2005. "The Self and Mental Health: Self-Salience and the Emergence of Internalizing and Externalizing Problems." *Journal of Health and Social Behavior* 46(4):323–40.

Rushton, Jerry L., Michelle Forcier, and Robin M. Schectman. 2002. "Epidemiology of Depressive Symptoms in the National Longitudinal Study of Adolescent Health." *Journal of the American Academy of Child & Adolescent Psychiatry* 41(2):199–205.

Sallinen, Marjukka, Anna Rönkä, Ulla Kinnunen, and Katja Kokko. 2007. "Trajectories of Depressive Mood in Adolescents: Does Parental Work or Parent-Adolescent Relationship Matter? A Follow-up Study through Junior High School in Finland." *International Journal of Behavioral Development* 31(2):181–90.

Saraceno, Benedetto, Itzhak Levav, and Robert Kohn. 2005. "The Public Mental Health Significance of Research on Socio-Economic Factors in Schizophrenia and Major Depression." *World Psychiatry* 4(3):181–85.

Schieman, Scott, Alex Bierman, and Christopher G. Ellison. 2013. "Religion and Mental Health." Pp. 457–78 in *Handbook of the Sociology of Mental Health*, edited by C. S. Aneshensel, J. C. Phelan, and A. Bierman. New York, NY: Spring.

Schieman, Scott, Tetyana Pudrovska, and Melissa A. Milkie. 2005. "The Sense of Divine Control and the Self-Concept: A Study of Race Differences in Late Life." *Research on Aging* 27(2):165–96.

Schnabel, Landon. 2015. "How Religious Are American Women and Men? Gender Differences and Similarities." *Journal for the Scientific Study of Religion* 54(3):616–22.

Smith, Aaron. 2015. "U.S. Smartphone Use in 2015." *Pew Research Center: Internet, Science & Tech*. Retrieved May 2, 2016 (http://www.pewinternet.org/2015/04/01/us-smartphone-use-in-2015/).

Smith, Christian, Kari Christoffersen, Hilary Davidson, and Patricia Snell Herzog. 2011. *Lost in Transition: The Dark Side of Emerging Adulthood*. Oxford University Press, USA.

Smith, Timothy B., Michael E. McCullough, and Justin Poll. 2003. "Religiousness and Depression: Evidence for a Main Effect and the Moderating Influence of Stressful Life Events." *Psychological Bulletin* 129(4):614–36.

Steensland, Brian et al. 2000. "The Measure of American Religion: Toward Improving the State of the Art." *Social Forces* 79(1):291–318.

Stewart-Brown, Sarah L., Lynn Fletcher, and Michael E. J. Wadsworth. 2005. "Parent–child Relationships and Health Problems in Adulthood in Three UK National Birth Cohort Studies." *The European Journal of Public Health* 15(6):640–46.

Stice, Eric, Jennifer Ragan, and Patrick Randall. 2004. "Prospective Relations Between Social Support and Depression: Differential Direction of Effects for Parent and Peer Support?" *Journal of Abnormal Psychology* 113(1):155–59.

Stoolmiller, Mike, Hyoun K. Kim, and Deborah M. Capaldi. 2005. "The Course of Depressive Symptoms in Men from Early Adolescence to Young Adulthood: Identifying Latent Trajectories and Early Predictors." *Journal of Abnormal Psychology* 114(3):331–45.

Strawbridge, William J., Sarah J. Shema, Richard D. Cohen, and George A. Kaplan. 2001. "Religious Attendance Increases Survival by Improving and Maintaining Good Health Behaviors, Mental Health, and Social Relationships." *Annals of Behavioral Medicine* 23(1):68–74.

Tuck, Inez and Lorraine Anderson. 2014. "Forgiveness, Flourishing, and Resilience: The Influences of Expressions of Spirituality on Mental Health Recovery." *Issues in Mental Health Nursing* 35(4):277–82.

Tudor, Keith. 1996. *Mental Health Promotion: Paradigms and Practice*. Psychology Press.

Turner, Jonathan H. and Jan E. Stets. 2005. *The Sociology of Emotions*. Cambridge University Press.

Umberson, Debra and Jennifer Karas Montez. 2010. "Social Relationships and Health A Flashpoint for Health Policy." *Journal of Health and Social Behavior* 51(1 suppl):S54–66.

Underwood, Lynn G. 2011. "The Daily Spiritual Experience Scale: Overview and Results." *Religions* 2(1):29–50.

Underwood, Lynn G. and Jeanne A. Teresi. 2002. "The Daily Spiritual Experience Scale: Development, Theoretical Description, Reliability, Exploratory Factor Analysis, and Preliminary Construct Validity Using Health-Related Data." *Annals of Behavioral Medicine* 24(1):22–33.

Vaisey, Stephen. 2009. "Motivation and Justification: A Dual-Process Model of Culture in Action." *American Journal of Sociology* 114(6):1675–1715.

Van Voorhees, Benjamin W. et al. 2008. "Protective and Vulnerability Factors Predicting New-Onset Depressive Episode in a Representative of U.S. Adolescents." *Journal of Adolescent Health* 42(6):605–16.

Wade, Terrance J. and David J. Pevalin. 2004. "Marital Transitions and Mental Health." *Journal of Health and Social Behavior* 45(2):155–70.

Walkup, James and Sally K. Gallagher. 1999. "Schizophrenia and the Life Course: National Findings on Gender Differences in Disability and Service Use." *The International Journal of Aging and Human Development* 49(2):79–105.

Wang, Jichuan, Haiyi Xie, and James F. Fisher. 2011. *Multilevel Models: Applications Using SAS®*. Walter de Gruyter.

Wickrama, Thulitha and K. A. S. Wickrama. 2010. "Heterogeneity in Adolescent Depressive Symptom Trajectories: Implications for Young Adults' Risky Lifestyle." *Journal of Adolescent Health* 47(4):407–13.

Wiesner, Margit, Fred W. Vondracek, Deborah M. Capaldi, and Erik Porfeli. 2003. "Childhood and Adolescent Predictors of Early Adult Career Pathways." *Journal of Vocational Behavior* 63(3):305–28.

Wink, Paul and Julia Scott. 2005. "Does Religiousness Buffer Against the Fear of Death and Dying in Late Adulthood? Findings From a Longitudinal Study." *The Journals of Gerontology Series B: Psychological Sciences and Social Sciences* 60(4):P207–14.

Woodward, Lianne J. and David M. Fergusson. 2001. "Life Course Outcomes of Young People With Anxiety Disorders in Adolescence." *Journal of the American Academy of Child & Adolescent Psychiatry* 40(9):1086–93.

World Health Organization. n.d. "WHO | Depression." Retrieved November 14, 2016 (http://www.who.int/topics/depression/en/).

Xie, Haiyi, Robert Drake, and Gregory McHugo. 2006. "Are There Distinctive Trajectory Groups in Substance Abuse Remission over 10 Years? An Application of the Group-Based Modeling Approach." *Administration and Policy in Mental Health and Mental Health Services Research* 33(4):423–32.

Yang, Yang and Linda C. Lee. 2009. "Sex and Race Disparities in Health: Cohort Variations in Life Course Patterns." *Social Forces* 87(4):2093–2124.

Yaroslavsky, Ilya, Jeremy W. Pettit, Peter M. Lewinsohn, John R. Seeley, and Robert E. Roberts. 2013. "Heterogeneous Trajectories of Depressive Symptoms: Adolescent Predictors and Adult Outcomes." *Journal of Affective Disorders* 148(2–3):391–99.

Young, Jami F., Kathy Berenson, Patricia Cohen, and Jesenia Garcia. 2005. "The Role of Parent and Peer Support in Predicting Adolescent Depression: A Longitudinal Community Study." *Journal of Research on Adolescence* 15(4):407–23.