TRAJECTORIES OF MENTAL HEALTH AND THE IMPACT OF ECONOMIC WELL-BEING ACROSS MIDDLE AGED ADULTS

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ABSTRACT

TRAJECTORIES OF MENTAL HEALTH AND THE IMPACT
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Mental health is one of several important factors to sustain one's well-being, and as such, poor mental health can lead to significant problems in one's quality of life. Although mental illnesses are prevalent in middle-aged adults and the importance of mental health in general has been discussed in many studies, mental health across middle-aged adults has received less attention. Levels of depression have changed over time and lack of economic resources influences mental health. The purpose of this study is to examine trajectories of mental health among middle-aged adults, to investigate which factors influence the trajectories of mental health, and to explore the effects of economic well-being on mental health during middle age.

The National Longitudinal Survey of Youth 1979 (NLSY79), which is a nation-wide representative data set for individuals in the United States, was used for analysis. A sample of 834 individuals who discussed their mental health status at four points in time (34, 36, 40, and 50 years of age) was analyzed. The latent growth model was conducted using M-plus statistical package. The research questions are as follows: 1) What are the trajectories of mental health among middle aged-adults (34 to 50 years of age)? 2) Is economic well-being (net worth and employment) associated with mental health?

Major findings reported in this study were that the trajectories of mental health show non-linear change, with lowest levels of depression at 40 and higher levels of depression at 34, 36, and 50 years of age. Male, self-esteem, cognitive ability, health insurance, employment, and

net worth predicted lower intercepts of depression. In addition, even after including time-varying covariates, the trajectories of mental health still show non-linear change. Employment was associated with lower risks of depression at 34, 36, 40, and 50 years, and net worth was also associated with lower risks of depression at 34, 36, and 50 years.

This study confirms the trajectories of mental health among middle-aged American adults within longitudinal setting by using four waves. Compared to previous studies, which have been primarily conducted with a cross-sectional approach, this study contributes further evidence in understanding trajectories of mental health among middle-aged adults. In addition, the findings support the hypothesis that employment and net worth have a significant impact on mental health during middle age.

Middle age is a stage greatly influenced by economic resources as individuals become more responsible for their lives at an economic level and face economic challenges that can ultimately affect depression. Understanding the effects of economic well-being on depression among middle-aged adults helps to pinpoint a specific period of time for interventions to improve poor mental health. This period of time in life may thus require more attention and care before levels of depression begin to increase. The findings provide a rationale, which calls for increased job and job training opportunities, as well as educational programs regarding saving and wealth accumulation in order to improve poor mental health and achieve social justice. Furthermore, it provides grounds for social workers to further advocate for and protect individuals who suffer from mental health and have poor economic well-being.

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CHAPTER I. INTRODUCTION

A. Significance and Purpose of the Study

The purpose of this study is to examine trajectories of depression, investigate risk factors of the trajectories of mental health, and explore the effects of economic well-being on mental health among middle-aged adults. Mental health itself is an important issue among middle-aged adults because mental illnesses are prevalent in middle-aged adults (Al Jurdi, Rej, & Sajatovic, 2014; George, 2013). As levels of mental health have changed over the life course depending on individuals' varying experiences as well as socioeconomic status, trajectories of mental health have been well researched and documented. These studies, however, have primarily focused on mental health among older adults (eg., Xu, Liang, Bennett, Quiñones, & Ye, 2010; Yang, 2007), and little research has focused on identifying the trajectories of mental health for middle-aged adults. Given that middle age links young adulthood to older adulthood, and encompasses a variety of changes in roles and status, such as employment and marriage, which influence mental health, it is important to understand the changes of mental health during this period.

In particular, the condition of work for middle-aged adults is changing due to a fluctuating economy (Heinz, 2003). As a result, they have suffered from poor working conditions, making it difficult to find employment and maintain a stable job (Giandrea, Cahill, & Quinn, 2009; Munnell, Sass, Soto, & Zhivan, 2006). Given that the labor force participation rate is rapidly declining (Federal Interagency Forum on Aging-Related Statistics, 2012) and a competitive job market has been prevalent over the past couple of decades, such economic conditions might influence individuals' mental health. (Kahn & Pearlin, 2006). There is a large

body of research regarding the relationships between economic well-being and mental health (Kahn & Pearlin, 2006; McInerney, Mellor, & Nicholas, 2013; Sun, Hilgeman, Durkin, Allen, & Burgio, 2009; Szanton, Allen, Thorpe, Seeman, Bandeen-Roche, & Fried, 2008). However, most research has used cross-sectional design and few longitudinal studies have been conducted to examine the relationship (Watkins, 2012). Even though there have been attempts to conduct longitudinal studies for the relationship between economic well-being and mental health (eg., De Leon, Rapp, & Kasl, 1994; Kahn & Fazio, 2005; Krause, 1987; Lorant et al, 2007; Wickrama, Surjadi, Lorenz, Conger, & O'Neal, 2012; Wickrama, Kwag, Lorenz, Conger, & Surjadi, 2010), the research has limitations in tracking middle age (30s to 50s) as well as identifying the relationships during middle age. That is, little is known about the relationships between economic well-being and mental health during this time period. Furthermore, given that most studies explored the relationships among Europeans (eg., Ahnquist & Wamala, 2011; Levecque, Van Rossem, De Boyser, Van de Velde, & Bracke, 2011; Lorant et al., 2007), research looking at Americans is necessary to examine the relationships. Therefore, this study uses a nation-wide sample of Americans for a longitudinal study so that findings will contribute to understanding mental health trajectories for middle aged Americans as well as the relationships.

Benefits and risks in life continuously influence levels of hardships in the future (Shenk, Zablotsky, &Croom, 1998), and individuals, although born in the same year, may face varying degrees of inequality in their life (Lynch, 2003). For instance, positive or negative social and economic changes in one's life affect mental health (Elder & Johnson, 2003), and accumulated economic difficulties may influence mental health trajectories (Ferraro & Shippee, 2009). Previous research indicates that mental health is influenced by economic well-being, such as assets and employment (Frasquilho, de Matos, Santos, Gaspar, & Caldas de Almeida, 2016;

Meltzer, Bebbington, Brugha, Jenkins, McManus, & Stansfeld, 2010). However, most studies did not consider the life course perspective to understand the relationships between economic well-being and mental health and were conducted in cross-sectional settings. Therefore, this research will be conducted in consideration of the adult life course within longitudinal settings.

Given that few studies have been conducted to explore trajectories of mental health among middle aged adults and to examine the relationships between economic well-being and mental health over the adult life course, this study will examine the following: 1) What are the trajectories of depression among middle age adults (34 to 50 years of age)? 2) Is economic well-being (net worth and employment) associated with depression?

CHAPTER II. LITERATURE REVIEW

A. Theoretical Framework

1. Cumulative Inequality Theory

The cumulative inequality theory emphasizes accumulated benefits and challenges through individual interactions with "accumulation of risk, available resources, perceived trajectories, and human agency" (Ferraro & Shippee, 2009, p. 334) over the life course (Ferraro, Shippee, & Schafer, 2009). The theory focuses on advantages and disadvantages experienced by individuals over a life time (Ferraro, Shippee, & Schafer, 2009). For instance, negative experiences at economic levels, such as job displacement or unstable employment during one's 30s, may affect levels of economic well-being when they enter their 40s. This cycle will occur again once they reach their 50s. In other words, the CI demonstrates how inequalities in early stages of life and accumulated inequalities affect one's life course trajectories over time (Ferraro & Shippee, 2009). In particular, economic deficiency or disadvantages experienced in early life may affect physical and mental health over time (Ferraro, Schafer, & Wilkinson, 2016). The underlying concept of the CI highlights life course inequalities, and the theory emphasizes that individuals' economic status may change depending on income or employment (Wilkinson, 2016). Along with the different environments that each person experiences, they try to adjust to the situations over the life course by working with both the challenges and benefits that come about (Wilkinson, 2016). In other words, the CI indicates that people respond to advantages and disadvantages over time, and they tend to interact with the changing environment.

The CI suggests that inequality in one realm negatively affects other domains (Wilkinson, 2016) and draws on the life course inequality which influences mental health (Ferraro & Shippee, 2009). An individual experiencing disadvantages, such as reduced income

or loss of wealth, is vulnerable to further challenges (Ferraro & Shippee, 2009). Ferraro, Schafer, and Wilkinson (2016) argued that socioeconomic disadvantages significantly affect health problems over time. In other words, economic strains contribute to exacerbated mental health (Wilkinson, 2016). Furthermore, the CI implies that demographics and varying levels developmental processes cause inequalities over time (Ferraro & Shippee, 2009). It highlights the importance of which indicators cause the inequalities in health over the life course since people are faced with diverse events and situations throughout their life (Ferraro, Schafer, & Wilkinson, 2016). Thus, other factors, such as demographics and economic status, should be included in investigating mental health inequalities. The CI addresses inequalities at an economic level and its impacts on mental health. Therefore, the CI is an appropriate theoretical framework to address the effects of inequalities in economic well-being on mental health over the life course.

One of axiom of the CI is as follows: "Social systems generate inequality, which is manifested over the life course through demographic and developmental processes" (Ferraro & Shippee, 2009, p. 334). The basis of the CI theory suggests that social structures influence individuals' manners and relationships with people (Ferraro & Shippee, 2009). Inequalities are created through these processes and social systems. For instance, while two infants may have grown up in similar environments and share the same genes, they will exhibit different characteristics over their lifetime (Ferraro & Shippee, 2009), leading to inequalities in their lives. That is, individuals' experiences over time are important factors, which shape their distinctiveness (Ferraro & Shippee, 2009). Likewise, economic challenges or benefits over the life course may influence one's characteristics and inequality as it relates to mental health. Thus, the CI is useful in examining how the different economic characteristics across individuals shape inequality in their mental health.

The second axiom is as follows: "Disadvantage increases exposure to risk, but advantage increases exposure to opportunity" (Ferraro & Shippee, 2009, p. 335). Within the perspective of economic well-being, disadvantages include bankruptcy, unemployment, loss of income, or money owing, whereas advantages include accumulated assets, employment, investment, guaranteed pension, or better wages. These differentiations create a hierarchal social structure, which generates inequalities (Ferraro & Shippee, 2009). In other words, those who have suffered from economic difficulties are more likely to be at greater risks of mental health problems while whose who have economic advantages are less likely to have mental health problems. The third formulation is: "Life course trajectories are shaped by the accumulation of risk, available resources, and human agency" (Ferraro & Shippee, 2009, p. 335). The economic hardships mentioned in the second axiom can be addressed by individuals' resources. However, the levels of adaptability to such challenges are different for each individual. Thus, how people react to economic opportunities or risks with available resources and human agency is vital to shape the life course trajectories (Ferraro & Shippee, 2009). That is, one's ability to adjust to economic challenges, such as actively searching for work and efforts to save money rather than consumption, influences trajectories of mental health. Using these three axioms, the CI theory explains the relationships between economic well-being and mental health.

2. Adult Life Course Perspective

According to the adult life course perspective, adulthood can be divided by events and achievements occurring at different life stages (Mirowsky & Ross, 1992). Even though there is no specific age range to define early, middle, or later aged adults, generally, the late 20s or 30s after the end of one's education can be distinguished by employment, marriage, and raising

children based on changed roles and responsibilities (Arnett & Taber, 1994; Watkins, 2012). Following this, 40 years of age is marked by career development associated with work, work stress, job stability, and early retirement (Watkins, 2012). Since the proposed study addresses individuals aged from 30s to 50s, the adult life course perspective is used to explain the relationship between economic well-being and mental health among middle-aged adults.

The target population in the current study is middle-aged adults. The phenomenon that middle-aged adults may have reduced levels of economic well-being is not happenstance (Gendell, 2008). Before entering into late adulthood, middle-aged adults may experience disadvantages at economic levels at certain period of time in their lives, thereby influencing their levels of economic well-being. For instance, those aged from 50 to 64 are more likely to experience financial hardships through loss of investment as well as have difficulty in affording medical care in comparison with individuals aged 65 and older (Morin & Taylor, 2009). Those who experience these economic challenges are more likely to be at risk of depression (McInerney, Mellor, & Nicholas, 2013). By comparing findings from two waves, they found that experiencing an economic crisis, such as the 2008 stock market crash, contributes to higher levels of depression. That is, since sudden loss of wealth in life increases mental health problems, economic status influenced by the economic climate should be considered to understand mental health. In addition, adults who have suffered from depressive symptoms during adulthood may be likely to experience more mental illnesses when they enter into a different stage of life (Shrira, 2012). Even though the importance of the relationships between economic status and mental health during middle age has been pointed out, little is known about the trajectories of mental health among middle-aged adults and the impacts of economic well-being on mental health.

Given the previous research showing a U-shaped curve in mental health over the life

course (Mirowsky & Ross, 1999), this study seeks to identify whether middle-aged adults who present different characteristics and socioeconomic status compared to counterparts in other life stages (Elman, 2011; Uchitelle, 2007) show a similar curve or a different curve during middle age.

B. Mental Health

Mental health is one of many important factors to maintaining one's social well-being and economic growth (Ploubidis & Grundy, 2009). Under mental health, depression is one of the most common conditions. According to the Center for Epidemiological Studies-Depression (CES-D), the American Psychiatric Association's Diagnostic and Statistical Manual (DSM-IV), and the International Classification of Diseases (ICD-10), depression, as one of the symptoms of mental illness, affects health and daily life.

Available resources may change over time, and social and environmental changes across individuals influence different conditions at a particular life stage (Elder & Johnson, 2003). For instance, changes in roles or status among young adults in their late 20s influence the occurrence of depressive symptoms during early adulthood (Booth, Crouter, & Shanahan, 1999). Likewise, marital status and job security through employment affect levels of depressive symptoms during one’s 40s (Mirowsky, 1996). There has been a large body of research regarding trajectories of mental health over the life course. However, findings about the trajectories have been inconsistent across respondents' age spans and analysis approach. This chapter examines what has been found in previous studies regarding mental health trajectories.

1. Trajectories of Mental Health

A life course perspective is essential to better understand one's mental well-being because the aging process has a great effect on mental health (Ploubidis & Grundy, 2009). Trajectories of mental health have been shown to change over time depending on individuals' diverse experiences and their socioeconomic status (Mirowsky & Ross, 2010). Previous experiences, historical events, and social context influence levels of mental health at any stage of life (Mechanic & McAlpine, 2011).

In this study, middle-aged adults are defined as individuals ranging from 34 years of age to 50 years of age. By this time, individuals have developed heterogeneity of their attitudes and ability based on different socioeconomic statuses, races, life experiences, and the like (Mechanic & McAlpine, 2011). In a similar way, positive changes of roles and status through marriage or stable employment as well as accumulated wealth may serve as a buffer against poor mental health. On the other hand, negative changes at an economic level during the transition from middle age to older adulthood, such as loss of work, wealth, and early retirement might contribute to the prevalence of mental health problems (Mirowsky & Ross, 1992). These differences across individuals may contribute to the phenomenon; some suffer from serious mental health problems while others experience lower levels of mental disorders.

Generally, risks of mental health problems increase as individuals enter into a new life stage. Individuals after their 40s tend to have greater risks of depression compared to those in different life stages because they are preparing for retirement and feel uncomfortable confronting the new life events that follow retirement (Mirowsky & Ross, 2010). Along with the threats to mental health present as they enter middle age, younger adults are more likely than older adults to develop mental disorders (Mechanic, D. & McAlpine, 2011). However, the patterns of mental

health are still a controversial issue (George, 2013; Mechanic & McAlpine, 2011) because previous studies have reported confounding findings. According to previous research, trajectories of mental health can be classified into two different curves: linear and non-linear. These curves may be slightly different depending on the sample's age span or nationality used in the studies.

a. Non-linear Change

Mental health during early adulthood to older adulthood (18 to 90 years of age) has been represented by a U-shaped curve (Mirowsky & Ross, 2010). Individuals reported relatively higher prevalence of depression from 18 to 42 years of age and presented lower levels of depressive symptoms from 42 to 48 years of age. The levels of mental health then increased from 48 to 90 years of age. As such, the curve of individuals' mental health changes throughout the life course (Mirowsky & Ross, 2010). The study used Aging, Status and the Sense of Control (ASOC), a 6-year follow-up survey (1995–2001) of 2,592 adults who lived in the US and were randomly selected. Twelve birth cohorts were used, respectively, to estimate changes of mental health during the 6-year period. For example, the first cohort included individuals born in 1977 who were 18 at the start of the study and 24 at the end of the study. They were used to estimate changes of mental health from 18 to 24 years of age. The second cohort included those born in 1971 who were 24 at the beginning and 30 at the end, and their changes of mental health from 24 to 30 years of age were estimated. The same methods were applied to estimate changes of mental health among other cohorts. Combined findings from each cohort, indicating changes of mental health during 6 years period, showed a U-shaped curve over the life course. Even though this finding is meaningful to understand mental health trajectories, 12 different cohorts were used and each finding during the 6-year period from the different cohorts were combined to estimate changes of mental health over the life course. To precisely estimate mental health trajectories

over the life course, it is necessary to use the same participants to show their trajectories rather than using different samples. The findings are important to understand each stage during the 6-year period; however, the combined trajectories from the 12 different cohorts do not present an accurate trajectory over time and are less reliable to estimate mental health trajectories.

Kessler, Foster, Webster, and House (1992) also found a non-linear relationship between mental health and age. Two secondary data sets were used to identify changes of mental health over the life course. 3,617 of individuals aged 24 to 96 from Americans Changing Lives (ACL) and 13,017 of those aged 19 to 95 years from National Survey of Families and Households (NSFH) were analyzed separately. Linear and nonlinear ordinary least-squares regression equations based on cross-sectional approach were used to examine the relationship between age and depressive symptoms. Both findings from the two data sets indicated gradual decline of depressive symptoms from early 20s to 50 years of age with depressive symptoms increasing after 50 years of age. They mentioned that future studies should be conducted based on longitudinal settings because the findings in the study were interpreted based on a cross-sectional study. Cross-sectional studies only showed changes in the mean score of depression to estimate mental health trajectories. Using one point in time does not show changes of mental health over time because it simply represents the mean of depression scores by age. However, the longitudinal study makes it possible to estimate trajectories by testing variances of the latent growth factors (McArdle & Nesselroade, 2003). In addition, the longitudinal approach captures time-varying covariates that change at the different points in times, which is not available in the cross-sectional study. For these reasons, future studies should be conducted in a longitudinal approach to estimate mental health trajectories.

Miech and Shanahan (2000) found that depression over the life course showed non-

linear change. They used 2,031 adults aged 18 to 90 years from the Work, Family, and Well-Being Study and used the mean score of depression of five age groups (18-29, 30-44, 45-59, 60-74, and 75 years and over) in order to estimate changes of depression over time. Depression decreased in individuals until their mid 50s and then increased. In addition, they reported that higher education was negatively associated with depression over time, and physical health problems and economic strains were positively associated with depression. As the study was conducted in a cross-sectional design, the findings do not show trajectories of mental health from a longitudinal perspective because they used the mean score of depression to estimate changes of depression. Thus, they highlighted the importance of the life course perspective to understand how socioeconomic status influences mental health over time.

Blanchflower and Oswald (2008) found an inverted U-shaped curve of depression. They reported perplexing findings compared to the above studies, indicating that the incidence of depression was highest around 46 years of age. Depression had gradually increased from 16 to 46 and decreased from 46 to 70 years. That is, psychological well-being was at its lowest in individuals in their mid 40s. This result was based on regression equations, and the changes in depression were graphed by using the mean incidence of depression by age. They looked at 972,464 individuals from the United Kingdom Labour Force Survey data set. Even though this study used the mean score to estimate the changes of depression over time rather than using a longitudinal research design, the finding may be beneficial to understand mental health among Europeans. The finding from the Europeans who showed the inverted U-shaped curve should be understood within the context of Europe: geographical differences, different life styles, and demographics. In addition, different policies for mental health compared to those in United States might influence the inverted U-shaped curve.

b. Linear Change

On the other hand, Kessler et al (2010) reported that the patterns of mental health indicated a linear curve: the highest prevalence of major depressive episodes (MDE) from 18 to 34 years of age, a gradual decline from 35 to 64 years, and the lowest prevalence from 65 years and over. Cross-tabulations and mean comparisons across four age groups (18-34, 35-49, 50-64, and 65 years and over) were used to estimate the prevalence of MDE, and a multiple regression analysis was conducted to examine the relationship between prevalence of MDE and other variables. 9,282 participants from the National Comorbidity Survey Replication, which is a nation-wide survey of American adults (18 years or over), were looked at for analysis. In addition to the lifetime prevalence estimates of MDE, they found that demographics such as female, lower income, unemployment, and unmarried were associated with a higher risk of MDE and that effects of physical disorders on MDE decreased with age. Authors concluded that elderly individuals might be more likely than younger individuals to wisely address negative experiences and to accept physical disorders. This finding is inconsistent with those indicating a non-linear curve. In particular, other studies (eg., Miech & Shanahan, 2000; Mirowsky & Ross, 2010) reported that older adults showed highest levels of depression while findings from Kessler et al (2010) indicated the lowest prevalence of major depressive episodes. The findings might be limited because the study was conducted in cross-sectional settings and mean comparisons across four age groups were used to estimate the prevalence of MDE. Mental health trajectories in their study might show different results if a longitudinal approach were used. However, given that there are various results regarding trajectories of mental health, the findings from Kessler et al (2010) are still meaningful to understand mental health.

Yang (2007) reported that the trajectories of depressive symptoms among older adults

showed a linear curve. The depressive symptoms had gradually increased from 65 to 95 years of age. 3,782 elderly aged 65 to 95 collected from the North Carolina Established Populations for Epidemiologic Studies of the Elderly were used in this study. Three follow-up interviews were conducted to produce four waves, which make it possible to estimate and show the trajectories of depressive symptoms. The hierarchical linear model (HLM) was used for the longitudinal study. Females, non-marriage, lower income, economic challenges, physical disability, experience of negative life events (eg., loss of spouse), less social support, and decreases in religious participation were associated with depressive symptom trajectories. They mentioned that the findings in the study contribute to the previous findings from cross-sectional studies by showing the true aging effects rather than simply indicating the mean of depression scores by age at one point in time.

Xu, Liang, Bennett, Quiñones, and Ye (2010) also indicated that depression trajectories among adults aged 51 and over showed linear change and gradually increased. They used 17,196 respondents aged 51 to 91 from the Health and Retirement Study (HRS) and conducted hierarchical linear models (HLM) to estimate the depressive symptom trajectories. The findings indicated that household income, males, education, lower burden of diseases, and better functional status were associated with lower risks of depressive symptoms. In addition, they found ethnic differences in the trajectories of depressive symptoms: Hispanics showed the highest levels of depressive symptoms, however, they had a lower rate of increase over time. They mentioned that future studies are necessary to identify why Hispanics have an advantage in the rate of change in depression compared to other racial/ethnic groups. In addition, they pointed out that customized programs or interventions for different racial/ethnic groups are necessary to effectively deliver mental health services.

The linear curves in later life relate to the current study because patterns of mental health among older adults show trajectories after 50s. This study will show mental health trajectories from 30s to 50s and have a hypothesis that depression will increase after 40s. This is related to the linear curves in later life where depression will gradually increase. In addition, given that this research will be conducted in longitudinal settings, it will follow a similar analysis approach used in the studies regarding mental health in later life in order to estimate mental health trajectories.

c. Summary

In terms of studies exploring trajectories of mental health based on longitudinal settings, most studies have paid more attention to mental health during older adulthood (aged over 65 years) rather than other life stages (eg., Chao, 2011, Hong, Hasche, & Bowland, 2009; Yang, 2007; Xu, Liang, Bennett, Quiñones, & Ye, 2010). Most previous research showed consistent findings for trajectories of mental health past older adulthood: linear changes in later life. On the other hand, U-shaped curves were found to estimate mental health trajectories over the life course. However, the studies reporting the U-shaped curve had limitations in estimating the trajectories because of analyses, which were based on cross-sectional settings. In addition, there have been differences in age indicating lowest levels of depression during middle age. Mirowsky and Ross (2010) found that the lowest levels of depressive symptoms occur from 42 to 48 years of age while Miech and Shanahan (2000) presented the lowest level of depression around one's mid 50s. Kessler, Foster, Webster, and House (1992) reported that 50 years of age is the point for lowest levels of depression. Inconsistent with these findings, Blanchflower and Oswald (2008) found that psychological well-being was at its lowest in the mid 40s. That is, there have been confounding findings regarding mental health trajectories.

Most studies were conducted in cross-sectional settings. This is a limitation to estimate trajectories of mental health because the findings use the mean score of depression to estimate mental health trajectories. Therefore, the proposed study will be conducted in longitudinal settings to consider the limitations in previous studies. In addition, little is known about what factors influence mental health over time in previous studies, which focused on only trajectories of mental health. Thus, this study will examine the trajectories of mental health in consideration of risk factors influencing mental health.

2. Mental Health and Middle Age

Given that middle age links young adulthood to older adulthood, it is necessary to understand mental health among middle-aged adults in order to establish a relationship with findings from young adulthood and older adulthood. In previous studies, even though there have been differences in ages indicating lowest levels of depression, middle age might be regarded as the best period of time for mental health. For instance, individuals aged 42 to 48 presented the lowest levels of depression (Mirowsky & Ross, 2010), and the mid 50s were also the period of time for lowest levels of depression (Miech & Shanahan, 2000). Furthermore, 50 years of age indicated the lowest levels of poor mental health (Kessler, Foster, Webster, & House, 1992). Although most studies found that 40s to 50s are the period of time during which individuals were less likely to be at risk of depression, there was an opposite finding: individuals had lowest levels of psychological well-being in their mid 40s. As discussed previously, the finding might be related to the different characteristics present in European countries.

For middle-aged adults, Kim et al (2015) examined depressive symptom trajectory classes among Koreans aged 40 to 59 by using latent class trajectories analysis. Four distinctive

trajectory classes were found: minimal depressive symptoms, persistent-mild depressive symptoms, persistent- moderate depressive symptoms, and persistent-severe depressive symptoms. Even though they looked at middle-aged participants, they did not explore the patterns of change in depression. Green and Benzeval (2011) researched adult populations and revealed that depression trajectories showed a non-linear increase, however, their sample was limited to individuals living in Scotland, who are not representative of Americans. For Americans' trajectories of depression, Walsemann, Gee, and Geronimus (2009) looked at Americans for their sample, however, the study focused on ethnic differences in depression over time and did not reveal the trajectories of depression.

According to findings from Hatch, Jones, Kuh, Hardy, Wadsworth, and Richards (2007), economic difficulties and unemployment at 43 and/or 53 years of age were associated with greater risks of depression at 53. In addition, educational achievements by age 26 were also related to depression. They looked at participants in England, Scotland, and Wales, and found the results based on cross-sectional approach. There were a couple of other studies looking at Europeans. Buunk and Janssen (1992) used professionally employed men from the Netherlands whose age ranged from 26 to 55 and found that career concerns across individuals during middle age were associated with mental health problems. For Australian women aged 45 to 50, findings showed that low education and unemployment were related to poor mental health (Outram, Mishra, & Schofield, 2004). Based on these findings, they suggested policy changes advocating for increased support in education and employment before women reach middle adulthood. In regards to a study looking at Americans, Henretta, Grundy, Okell, and Wadsworth (2008) examined women's mental health in their 50s by using birth cohorts from 1931 to 1941 from a secondary data set, named the Health and Retirement Study (HRS). As a result of the cross-

sectional analysis, they found that income, owning a house, employment, and living with a partner had a positive effect on depression in their 50s while early childbearing and disability were associated with higher risks of depression. Pudrovska (2009) reported that having a deceased child was associated with higher depressive symptoms in late middle age (most respondents aged 53 to 54 years of age) and early old age (64 to 65 years old). They used two waves from the Wisconsin Longitudinal Study, and their sample included individuals born in 1939. They analyzed the data set based on random-effects pooled time-series models. The previous studies consistently indicate that socioeconomic status is an important factor influencing mental health among middle aged adults. However, these findings identified risk factors of poor mental health based on a cross-sectional approach so that the studies did not provide trajectories of mental health during middle age. On the other hand, in terms of the longitudinal settings, most previous longitudinal studies looked at Europeans or Asians for their sample and there are few empirical studies examining how the trajectories of mental health change among middle aged Americans.

Mirowsky and Ross (2010) reported that levels of depression gradually decrease during middle age. By looking at American adults with a 6-year follow-up survey, they showed changes of depression across birth cohorts aged 6. For instance, changes of depression during 30-36 years of age were estimated by looking at cohort born in 1965. Likewise, individuals born in 1959 show depression during 36-42 years, those born in 1953 for depression during 42- 48 years, and those born in 1947 for depression during 48-54 years. Levels of depression decrease from 30 to 42 years of age while it starts to rise around 42 years. That is, levels of depression among middle aged adults decline from the thirties, however it goes back up around the forties. Even though there are risk factors influencing poor mental health among middle-aged adults, it was pointed

out that middle age is the best period time of life for mental health because of improved economic well-being. For example, household income starts to go up from early adulthood and it reaches a peak at 50- 59 years. In addition, higher rates of full-time employment during middle age than those of early and older adulthood might also influence lower risks of depression. This study is beneficial to understand depression throughout middle age. However, the findings estimated changes of depression by combining each result from different cohorts. Therefore, it is necessary to examine trajectories of depression during middle age using one cohort based on a longitudinal approach.

Poor mental health among middle-aged adults is mainly related to economic factors, such as financial challenges and unemployment (Dooley, Prause, & Ham-Rowbottom, 2000; Mirowsky & Ross, 2001). This might be associated with characteristics of middle age, which most people begin to participate in the labor force market and to earn a living by themselves. For instance, professional men in their forties presented more mental health problems (McCrany, 1978; Perosa & Perosa, 1983), and individuals aged from 36 to 45 who experienced career interruptions showed a higher prevalence of depression. (Hunt & Collins, 1983). That is, economic status is one of the most important factors to understand trajectories of mental health among middle-aged adults. Therefore, this study will consider economic factors, and this will be explained in detail in the relationship between economic well-being and mental health.

3. Factors Associated with Mental Health

a. Gender

Females are more influenced by a sense of loss, helplessness, and hopelessness than males, and they reported a higher frequency of suffering from mental disorders than men.

(Rosenfield & Mouzon, 2013). The difference in mental health might be influenced by their economic status. For instance, females' lower wage in the labor market might result in more financial difficulties compared to males, leading them to be at greater risks of depression or anxiety (Elliott, 2001). In addition, burdens of household work and stresses from both the workplace and home contribute to greater risks of depression or anxiety across women (Meyer, Schwartz, & Frost, 2008). Furthermore, female workers are not only more vulnerable to job security than men but also those who do experience job insecurity are at risk for more depressive symptoms and loneliness (Kalil, Ziol-Guest, Hawkley, & Cacioppo, 2009). Generally, women are at a greater risk of financial hardships than men (Keith, 1993) as well as lower levels of wealth (Denton & Boos, 2007). As females might have lower levels of economic well-being than males, gender should be controlled to examine the effects of economic well-being on mental health.

As the labor participation rate among women has increased, household work is increasingly shared with spouses (Lennon & Limonic, 2009). However, women still do more work at home than men (Roxburgh, 2004). As a result, women are more likely than men to suffer from mental health problems due to their dual work roles in workplace and home (Meyer, Schwartz, & Frost, 2008). Added workloads from developmental events such as marriage, which occur during adulthood, influence the gender disparities in mental health. For example, housing and family events, such as raising children, lead to higher depression in women than men (Rosenfield & Mouzon, 2013). Given that females are more likely to be depressed compared to males due to changes of roles during middle age, this factor will be considered in this study.

b. Race/ethnicity

Race is one of many factors influencing mental health and racial/ethnic disparities

should be considered to understand mental health. Compared to Whites, African Americans and Hispanics were often untreated or received poor mental health services (Snowden, 2003). Both presented lower levels of using mental health services compared to non-Hispanic Whites (Dobalian & Rivers, 2008; Neighbors et al , 2007; Wang et al., 2005). In particular, Blacks used mental health services less frequently than Whites (Kim et al., 2013) and the rate of using services for health across Hispanics was low despite their high levels of need for services (Weisman et al., 2005). As a result, minority groups were generally more likely to be at risk of depressive symptoms than non-Hispanic White (Akincigil et al., 2012; Brennan, Vega, Garcia, Abad, & Friedman, 2005; Dunlop, Song, Lyons, Manheim, & Chang, 2003). On the other hand, some research demonstrated contradictory findings about ethnic disparities in mental health (Barrio et al., 2008; Miranda, McGuire, Williams, & Wang, 2008). Literature about Blacks' depression revealed inconsistent results: some indicating that Blacks may experience similar levels of depression as other groups (Dwight-Johnson, Unutzer, Sherbourne, Tang, & Wells, 2001) and others indicating lower levels of depression (Kessler et al., 2003; Zhang & Snowden, 1999).

Discrimination at an economic level, such as limited opportunity to participate in the labor force market across minorities, influences economic well-being, which then results in greater risks of mental health problems because those with financial burdens have difficulties in accessing mental health services. African Americans tend to have lower levels of economic well-being due to racial discrimination (Hughes, Kiecolt, & Keith, 2014; Hunt, 2007). They are less likely to be hired or to have job opportunities (Western, Bloome, Sosnaud, & Tach, 2012) due to employment discrimination (Bertrand & Mullainathan, 2004), leading them to have disadvantages in asset accumulation (Conley, 1999; Oliver & Shapiro, 2006). In addition,

Hispanics are more exposed to risks of chronic financial hardship due to limitations in employment (Aranda, 2006). As race/ethnicity acts as limitation to attaining higher economic well-being as it relates to mental health, this factor will be controlled to investigate the relationship between economic well-being and mental health.

Although there is a large body of literature for racial/ethnic disparities, few studies have examined racial/ethnic disparities in depression over the adult life course (Pettit & Western, 2004). Thus, investigating the impacts of race/ethnicity on depression at a particular life stage based on a longitudinal study is important (Watkins, 2012). In addition, this problem may become a big issue over time in terms of rapidly growing minority populations and determining priority in receiving mental health services.

c. Education

Individuals who have received higher education are less likely to have poor mental health in comparison with those without higher education (Lorant, Deliège, Eaton, Robert, Philippot, & Ansseau, 2003). Generally, females are still less educated than males, which results in lower rates of labor force participation and poor economic resources compared to males. As such, females might be more depressed than males due to a lower social status stemming from a lack of education (Lee, 2011). In other words, as education makes it easier for individuals to find stable job and decreases the likelihood of financial challenges, those who have not benefited from an education are therefore more likely to be at risk of depression (Dave, Rashad & Spasojevic, 2006; Eaton, Muntaner, & Bovasso, 2001). In addition to advantages at an economic level, education is related to better access to information and logical thinking, meaning that individuals with higher education are more likely to exhibit healthier behaviors (Lee, 2011). As a result, they might be at a lower risk of depression. However, there have been conflicting findings

regarding the effect of education on depression over time (Bauldry, 2015). As education is related to both economic well-being and mental health, this study will include education as covariate.

d. Cognitive Ability

As one of several general cognitive ability test, the Armed Forced Qualification Test (AFQT) measures cognitive ability (Franz et al., 2011). A handful of studies revealed that individuals with low cognitive ability in early life were more likely to be depressed in later life (Gale, Deary, Boyle, Barefoot, Mortensen, & Batty, 2008; Koenen, 2009; Zammit et al., 2004). In particular, Franz et al (2011) found that a low AFQT score in early adulthood (at 20 years of age) negatively influenced depressive symptoms in midlife (at 55 years of age) and was also a risk factor for exacerbating depression 35 years later. Cognitive ability might be indirectly linked to depression because it leads to a lower quality of job, lower wages, lower education, and more stressors (Bosma, van Boxtel, Kempen, van Eijk, & Jolles, 2007; Gale, Batty, & Deary, 2008; Gale, Deary, Boyle, Barefoot, Mortensen, & Batty, 2008; Weiss, Gale, Batty, & Deary, 2009). Individuals with lower intellectual abilities were more likely to have poor economic resources (Bosma, van Boxtel, Kempen, van Eijk, & Jolles, 2007). In other words, those with a lower cognitive ability tend to be employed at a low occupational level, and accompanying factors such as low wages, disadvantages in asset accumulation, and job dissatisfaction might influence low levels of economic well-being. Thus, they might face more challenges to attain even the minimum resources for life satisfaction compared to those with higher cognitive ability. As a result, they might be more likely to suffer from depression (Franz et al., 2011). Therefore, this factor will be controlled in this study.

e. Self-esteem

Self-esteem refers to values and beliefs about oneself as well as individual self-assessment (Bachman, O'Malley, Freedman-Doan, Trzesniewski, & Donnellan, 2011; Mann, Hosman, Schaalma, & De Vries, 2004). Individuals with low levels of self-esteem are more likely to experience poor mental health while those with higher self-esteem tend to have clear life goals and behave more productively (Donnellan, Trzesniewski, Robins, Moffitt, & Caspi, 2005; Flory, Lynam, Milich, Leukefeld, & Clayton, 2004; Robins, Tracy, & Trzesniewski, 2008; Trzesniewski et al., 2006), leading to less risks of mental health problems. For instance, individuals with higher self-esteem tend to be proud of themselves regardless of their performance feedback and not be ashamed of low performance (Brown & Marshall, 2006). They are more likely to adapt to a workplace even if they make mistakes while working, leading them to have better resilience and productivity. However, those with low self-esteem are more likely to suffer from work problems (Trzesniewski et al., 2006). As a result, individuals with high self-esteem might give a positive impression to their managers and colleagues, and they might also have more opportunities to be promoted than those with low self-esteem. These advantages can be beneficial to increase their economic well-being, leading them to suffer less from mental health problems.

Furthermore, those with low self-esteem pay more attention to how others judge them and are very vulnerable to criticism from others (Sowislo & Orth, 2013). These behaviors might negatively influence a developing self-esteem, which is an important factor to overcome challenges in life. Increases in self-esteem influence the ability to deal with emotional problems as well as reduce depression (Orth & Robins, 2013; Sowislo & Orth, 2013). In terms of changes of self-esteem, there have been several studies indicating that self-esteem gradually increases

from the 20s to the 30s (Kling, Hyde, Showers, & Buswell, 1999; Robins, Trzesniewski, Tracy, Gosling, & Potter, 2002). However, although self-esteem is one of several critical factors to understand mental health and its levels fluctuate, it is not considered when examining mental health during middle age. Therefore, this study will include self-esteem as a covariate to identify its impact on mental health.

f. Health Insurance

Even though rates of mental health service use are increasing, individuals with mental health problems still have unmet needs for mental health service (Roll, Kennedy, Tran, & Howell, 2013). Lack of health insurance leads to the unmet needs for mental health treatment (Mojtabai et al., 2011; Sareen et al., 2007). The high cost to use mental health services is a barrier to dealing with mental health problems for those without insurance (Mojtabai, 2005). Walker, Cummings, Hockenberry, and Druss (2015) revealed that those without insurance tended to receive less mental health services compared to those who have insurance while those who were insured showed higher receipt of mental health treatment. That is, individual economic status influences whether or not a person has health insurance and receives services for their mental health (Leach, Butterworth, & Whiteford, 2012). For instance, those who have sufficient financial assets might be more likely to receive benefits from private health insurance companies. In addition, the employed have their employment-based health insurance (Enthoven & Fuchs, 2006). As such, different economic status influences opportunities to gain benefits from health insurance if they have mental health problems.

People who were not able to receive mental health services due to higher cost from lack of insurance might continue to suffer from poor mental health. In particular, as those with mental health problems are more likely to be uninsured than those without mental health problems

(Garfield, Zuvekas, Lave, & Donohue , 2011; Rowan., McAlpine, & Blewett, 2013; Walker, Cummings, Hockenberry, & Druss, 2015), access to health insurance is an important factor to understand mental health. In terms of policies for mental health, mental health parity laws encourage insured individuals to receive mental health treatment by offering lower costs for mental health services (Walker, Cummings, Hockenberry, & Druss, 2015). However, this benefit is limited to insured people. In addition, forty six states established laws allowing individuals to easily access mental health services, however, the level of mental health coverage varies across the states and some of them might not have many benefits due to limited coverage (Walker, Cummings, Hockenberry, & Druss, 2015). Given that the high cost of mental health service use prevents individuals with mental health problems to receive treatment, having insurance as well as more benefits from insurance might be helpful to improve poor mental health.

g. Residence

Living in an urban versus a rural residence is one of the risk factors for depression (Breslau, Marshall, Pincus, & Brown, 2014). Generally, higher prevalence of depression was found in urban areas (Peen, Schoevers, Beekman, & Dekker, 2010). The relative higher rates of poverty in urban areas might explain why individuals living in urban areas were more depressed than those in rural areas (Marsella, 1998; Galea, Ahern, Nandi, Tracy, Beard, & Vlahov, 2007). Furthermore, unpleasant urban environmental features and atmosphere, such as community disorganization, also affect poor mental health (Galea, Freudenberg, & Vlahov, 2005). However, there is much research indicating no differences in urban and rural residence (Breslau, Marshall, Pincus, & Brown, 2014; Kessler et al., 1994; Romans, Cohen, & Forte, 2011). In particular, for middle-aged adults, Fujise et al (2016) revealed that there were no differences in the prevalence of depression between urban and rural areas. In fact, rural settings do not often have easy access

to medical services (Shucksmith, Roberts, Scott, Chapman, & Conway, 1996) so individuals living in those areas might have difficulty accessing and receiving mental health services even if they would like to use services. In other words, living in urban or rural areas might influence disparities in accessing public services for mental health (Fujise et al., 2016; McKenzie, Murray, & Booth; 2013). As such, urban-rural differences in depression have been a controversial issue (Kiani, Tyrer, Hodgson, Berkin, & Bhaumik, 2013).

On an economic level, urban areas might be more economically oriented compared to rural setting because most corporations are extensively located in urban settings. Thus, individuals living in urban areas are likely to have more job opportunities and be employed compared to counterparts in rural areas (Gao, Lu, & Sato, 2015). They might have lower stress levels from finding a job, and their wages might be also higher than those in rural areas (Shucksmith, Roberts, Scott, Chapman, & Conway, 1996). The economic benefits of living in urban areas might then play a role as a buffer against mental health problems stemming from lack of labor force participation.

h. Marital Status

As marriage provides a variety of benefits and happiness in life, married individuals are more likely to have better mental health compared to individuals who never marry (Marcussen, 2005; Simon, 2002). In particular, those who had depressive symptoms before marriage benefited more psychologically from marriage in comparison with those who were not depressed before marriage (Frech & Williams, 2007). Conversely, divorced and separated individuals are likely to have poor mental health (De Vaus, 2002). According to the martial resource model, married couples profit from marital resources: economic, social, and psychological resources (Uecker, 2012). For instance, they can work together to save money and accumulate their assets

faster than they would alone. That is, marriage is associated with an increase of economic resources (Waite, 2009).

The use of economic resources from marriage reduces levels of depression by decreasing stress from financial difficulties and increasing access to mental health services based on financial support (Liu, Elliott & Umberson, 2010). Economic well-being might increase due to benefits from marriage, and marriage influences mental health through the economic benefits. In addition, married individuals are less likely to experience stresses from breakups (Uecker, 2012) and more likely to support each other if they have troubles in their lives. These benefits fundamentally lead to greater levels of psychological well-being (Bierman, Fazio, & Milkie, 2006). However, early marriage might have a negative effect on mental health because those who marry early tend to have lower socioeconomic status (Uecker & Stokes, 2008). As a troubled marriage is one of the reasons that married couples experience stress (Coyne & DeLongis, 1986), it might lead to an overall dissatisfaction in life and poor mental health. On the other hand, gender influences mental health even in marriage: married females are more likely than married men to suffer from mental health problems (De Vaus, 2002).

C. Economic Well-being

Well-being can be defined as the satisfaction of basic needs acquired through the labor market (Sumner, 2006). That is, economic aspect is important to understanding individuals' well-being (Sumner, 2006). In particular, as these basic needs are met through economic activities (Sumner, 2006), understanding economic well-being factors in detail is critical to consider quality of life. Economic well-being is a broad concept which can include the following: economic hardships, difficulties, or challenges, such as trouble paying bills, individual

unsatisfied needs of economic resources, and inability to satisfy the basic household's needs (Council on Social Work Education, 2016; Mirowsky & Ross, 1999; Pearlin, Lieberman, Menaghan, & Mullan, 1981). Given that net worth includes accumulated and integrated wealth as long-term and employment ensures income in the short-term, economic well-being in this study refers to assets, debts, and employment. In particular, as individuals use household resources, such as financial and real assets, to maximize their well-being (Clark, 1989), assets or debts that individuals own is important in measuring their economic well-being.

The assets perspective regards economic well-being as a long-term and active process. Compared to income, net worth has long-term effects on economic well-being because it considers lifetime financial accumulation rather than a cross-sectional financial status (Sherrden, 1991). On the other hand, income refers to immediate financial resources for daily necessities, such as food, clothing, and housing (Sherrden, 1991). That is, even though both income and assets indicate financial resources, they are different in terms of time frames (Schreiner, 2004), and there is a distinction between income and assets (Oliver & Shapiro, 1995; Sherrden, 2015). In particular, as an economic resource, assets are more important than income for immediate consumption because it ensures security (Zhan, 2006). In addition, inequality in net worth accumulation has been more significant compared to income (Oliver & Shapiro, 1995) and net worth considers economic challenges in the past (Shapiro & Wolff, 2001). Thus, the role of net worth might be better to understand economic well-being than other economic factors in that it addresses lifetime effects (Oliver & Shaprio, 2006). As net worth indicates accumulation of wealth over time, individuals with greater wealth are less likely to end up in poverty. In addition, those who are employed are less likely to be in poverty compared to those who are unemployed. As such, net worth and employment might include characteristics of poverty and other economic

resources. Other economic well-being factors, such as income and poverty, were not be included in this study because of correlation and model fit issues.

Generally, the life course in previous generations, living in the twentieth century, can be predicted by the three different life stages: education in early life, work during middle age, and retirement in later life (Elman, 2011). However, as the structure of the economy has reshaped over time, the condition of work during the middle adult years is also changing due to a fluctuating economy (Heinz, 2003) and a decline in the labor force participation among adults under 40 (Gendell, 2008; Uchitelle, 2007). As a result, work patterns among middle-aged workers are different from those in other aged populations (Elman, 2011). The rates of job mobility and the transition from work to non-work are growing (Giandrea, Cahill, & Quinn, 2009) and the number of individuals with job tenure has reduced (Munnell, Sass, Soto, & Zhivan, 2006). As there is little opportunity to ensure job tenure for middle-aged adults, their job displacement also continues to increase (DiPrete, Goux, & Maurin, 2002). The job displacement often results in unemployment during middle-age life, which also leads to longer periods of time of unemployment before finding an alternative job as well as re-employment to lower level jobs (Couch, 1998). Even if those individuals are re-employed, the work shifts are shorter and income is often lower than their previous jobs (Chan & Stevens, 2001). As a result, middle-aged workers are more likely to feel stressed about their economic well-being because of unstable labor markets (Elman & Angela, 2002). In other words, these conditions may influence one's vulnerability to unemployment as well as limited net worth.

1. Net Worth

Wealth is defined as net worth, which is the value of assets minus debts (Oliver &

Shapiro, 2006) and refers to a combination of earnings and savings. Net worth has been given more attention as the key factor explaining socioeconomic disparities (Keister, 2000; Spilerman, 2000). More assets without debts positively influence economic well-being (Oliver & Shapiro, 2006). In other words, individuals with positive net worth tend to have financial security, allowing them to feel secure if they are suddenly faced with job displacement or interruption of income (Mossakowski, 2008). This might be related to its comprehensive characteristics including benefits from income and risks from poverty. In other words, assets and debts can be regarded as a final product of economic well-being.

In the last 20th century, there have been a variety of programs to help individuals to accumulate assets. For instance, diverse assets account programs were introduced to the policy structure. The programs include individual retirement accounts (IRAs), Roth IRAs, 401 (k)s, medical saving accounts, educational saving accounts, and state-managed college savings plans. In addition, people were encouraged to own their home through the home mortgage interest deduction since home ownership is the most effective way to accumulate wealth in the United States (Shapiro & Wolff, 2001). However, individuals may not qualify for such benefits depending on their past and current wealth. Those who already had significant wealth were more likely to accumulate their assets while those with few assets did not receive benefits from the assets programs. That is, even though there are a lot of programs for asset building to protect and increase assets, asset inequality has widened (Shapiro & Wolff, 2001).

As such, current public policies are only beneficial to those who have already accumulated wealth while poverty policy does not consider programs for asset accumulation for disadvantaged groups and low-income families (Shapiro & Wolff, 2001). Policy makers might have doubts regarding the poor's ability to save money and accumulate wealth (Shapiro & Wolff,

2001). However, the poor, do in fact, try to build assets and understand the value of savings (Sherraden, 2015). In spite of their efforts and perception toward acquisition, growth, and maintenance of net worth, wealth inequality in the United States has been increasing. For instance, overall wealth is slowly growing, however, the gap between bottom and top households is remarkable. In other words, the richest families control most of the wealth (Shapiro & Wolff, 2001). In addition, the proportion of households reporting zero or negative net worth has been increasing (Shapiro & Wolff, 2001). Therefore, it is necessary to consider policies to distribute wealth if we regard distribution of wealth as a distribution of power (Shapiro & Wolff, 2001).

Assets influence thinking based on economic stability and higher self-efficacy: long-term plans rather than short-term goals (Sherrden, 1991). As a result of this thinking and behaviors, assets have an effect on economic, social, and psychological status. For instance, individuals who have home ownership reported less financial challenges (Page-Adam & Vosler, 1997). They are able to invest themselves and improve human capital development for their future (Zhan, 2006). In particular, for women, single females with assets were able to support their families without suffering from poverty (Rocha, 1997), and accumulated assets had a positive impact on economic well-being among females who experienced marital disruption (Cho, 1999). That is, regardless of other economic resources, assets themselves increase economic security (McBride, Lombe, & Beverly, 2003). In terms of psychological status, assets allow individuals to develop higher self-efficacy and direction toward the future (Yamada & Sherraden, 1996). As a result, those who have sufficient assets tend to satisfy their needs (Rohe & Stegman, 1994) and do not fear for their future (McBride, Lombe, & Beverly, 2003). For social status, assets serve as a buffer against marital disruption (Page-Adams & Scanlon, 2001) and enhance family stability by reducing uncertainty, such as job losses (Sherraden, 2015). In

addition, individuals with sufficient assets may be more likely to spend more money and time on their education (Zhan, 2006). As such, assets influence all dimensions of our lives, improve the quality of life, and encourage individuals to work hard in order to maintain their current assets (Zhan, 2006).

Wealth has been given attention as one of the factors leading to increased inequality (Keister, 2000; Wolff, 2000). In particular, net worth affects the lives of low-income families because they have had disadvantages in accessing economic activities and less opportunity to accumulate their own assets. It turns then out that lack of asset accumulation restricts economic mobility across low-income individuals (Zhan, 2006). For instance, female-headed households were exposed to lower upward economic mobility, and single-mothers also experienced limited opportunities for their economic mobility due to lack of asset accumulation (Sherraden, 2015). However, if households are able to accumulate assets, assets might act as a buffer against the intergenerational transmission of poverty. Given the importance of assets, it is imperative to create a new welfare policies encouraging people to accumulate assets and to create a social environment for asset accumulation (Sherraden, 1990 & 2015).

As individuals start to acquire their own assets and debts during adulthood by entering the labor force (Oliver & Shapiro, 2006), the amount of the net worth may play an important role in influencing their levels of economic well-being. For instance, homeownership during adulthood provides a sense of stability in their lives (Mossakowski, 2008). As such, wealth is a key indicator to ensure comfort at an economic level.

2. Employment

If individuals are not employed, their daily lives and quality of life are threatened due to

lower psychological well-being. Unemployment has been linked to a sense of helplessness as well as mental illnesses, both of which discourage individuals from engaging in productive activities (Goldsmith & Darity, 1992). Unemployed individuals who feel helpless do not see any hope to change their situation around and also do not have enough time to develop themselves (Goldsmith, Veum, & William, 1996). In addition, joblessness was associated with a decrease of personal efficacy (Goldsmith, Veum, & Darity, 1996) and ultimately crushed self-esteem (Goldsmith, Veum, & William, 1996). Job insecurity stemming from potential unemployment leads to a sense of losing control in one's life and uncertainty of one's situation (Kalil, Ziol-Guest, Hawkley, & Cacioppo, 2009; Sverke, Hellgren, & Naswall, 2002), and loss of job leads to illness and even premature death (Cylus & Avendano, 2017). In addition to psychological and physical well-being, job security has greater effects on improving individuals' economic status rather than simply earning a lot of money at once because it reduces the uncertainty in their lives (New Economics Foundation, 2014). However, as individuals may be fired from the workplace or change jobs for various reasons, they may face the insecurity of finding a new job and suffer from depression as a result of long-term unemployment (Kim & von dem Knesebeck, 2016). In addition to the negative effects of unemployment, older retired men were negatively influenced by their spouses' continued employment than those whose spouse did not work (Szinovacz & Davey, 2004). Therefore, providing an opportunity of stability through employment increases workers' well-being and helps to maintain a family bond.

In addition to the influence of unemployment on the quality of daily life and well-being, it can also alter personality (Boyce, Wood, Daly, & Sedikides, 2015) and behaviors. The unemployed might have limited chances to express themselves, and this might negatively affect conscientiousness, openness, and social-based personalities (Boyce, Wood, Daly, & Sedikides,

2015). In particular, the length of time that individuals have been unemployed can lead to changes in personality (Kanfer, Wanberg, & Kantrowitz, 2001). For instance, individuals experiencing long-term unemployment are less likely to be motivated to find a job compared to those living with short-term unemployment. As a result, the unemployed individuals experience conflicts or difficulty communicating with family members (Buzzanell & Turner, 2003). Furthermore, the unemployed are stigmatized (Dougherty, Rick, & Moore, 2017) and the unemployment stigma might lead to a sense of inferiority and social isolation (Blau, Petrucci, & McClendon, 2013) as well as make it difficult to re-employ (Ayllón, 2013). In fact, those who already experienced unemployment in the past were less likely to be employed compared to those who were recently unemployed (Ayllón, 2013). In addition, the unemployed try to hide their unemployment because it is associate with downward social mobility (Dougherty, Rick, & Moore, 2017). As such, unemployment influences personality and behaviors in negative ways.

Even though employment plays a large role as a buffer against poor psychological well-being, levels of unemployment insurance benefits are not generous for Americans (Farber & Valletta, 2015). As part of the original Social Security Act, unemployment insurance (UI) was established in 1935 and has acted as a buffer against the interruption of income for recently and unwillingly unemployed people (DiNitto, 2011). Workers who are eligible for UI can receive benefits if they involuntarily leave their jobs (Tatsiramos & Ours, 2014). The unemployment insurance benefits in the past were provided for a maximum of 26 weeks covered by the states, and both federal and state governments support benefits for an extra 13 weeks depending on the economic situation (DiNitto, 2011). After The Great Regression of 2007 - 2009, a maximum duration of UI benefits increased to 99 weeks in late 2009 (Farber & Valletta, 2015). To receive benefits from unemployment insurance, individuals are requested to apply in person and show a

willingness to work again (DiNitto, 2011). As such, the social insurance contributes to stabilizing the economy and enables unemployed individuals to maintain their lives. However, the benefits are not automatically provided to unemployed people and they have to contact the unemployment agency in person for benefits. In other words, diverse conditions might be an obstacle to receive the benefits: involuntary unemployment, registration at the UI, active search for re-employment, and qualifying period for the benefits. In particular, some individuals with low education or less information on social insurance may not receive benefits.

Most unemployed people who were previously salaried or wageworkers did not receive unemployment insurance benefits. In fact, approximately more than 50 percent of individuals who were unemployed did not obtain benefits (DiNitto, 2011). The reason was that some of them had already used up benefits after failing to find a job after 26 weeks (DiNitto, 2011). Other reasons included issues of eligibility for benefits, short-term unemployment, or not trying to apply for it (DiNitto, 2011). Additionally, the underlying causes for people who did not receive benefits and continued to be unemployed were poor job skills or low job performance (DiNitto, 2011). Thus, to provide a fundamental solution, it is necessary to give them the opportunity to participate in a job training program via the unemployment insurance rather than simply providing benefits during unemployment. This may enhance their abilities and work skills and may then enable them to find stable employment.

All unemployed people should receive benefits from the unemployment insurance regardless of their income. However, lower-wage workers are less likely to gain benefits from the unemployment insurance due to ineligibility (United States Government Accountability Office, 2012). The lower-income workers have a part-time job or are intermittently employed and it, in turn, leads to lower rates of unemployment insurance receipt (United States

Government Accountability Office, 2012). Given that they are low-income families and more likely to be in poverty due to lack of job stability, they should have priority to receive the benefits. However, the eligibility of the current unemployment insurance system excludes them from the benefits. Therefore, additional measures are needed to support those people.

Some may cast doubt on the use of unemployment insurance from a moral perspective and on the efficiency of social insurance (Ashenfelter, Ashmore, & Deschênes, 2005). Even though states require the unemployed to report work-searches and use a strict verification of eligibility to reduce the abusive use of the program, the usefulness and productivity of unemployment insurance is still controversial (Ashenfelter, Ashmore, & Deschênes, 2005). However, unemployment insurance is fundamentally beneficial for job searching behaviors and does not lead to abuse of the system if the benefit level is appropriately adjusted (Chetty, 2008). Although unemployment insurance is not a fundamental program for the unemployed, nor does it provide benefits in the long term, the role is vital to stabilize the economy and it allows households to carry on in their lives even during challenging economic times (DiNitto, 2011; United States Government Accountability Office, 2007). Unemployment benefits balance the loss of income for a short term and allow the unemployed to maintain their daily life (Cylus & Avendano, 2017). In fact, unemployment benefit programs have a positive effect on preventing or reducing health illnesses stemming from job loss (Cylus & Avendano, 2017). As a result of these positive effects and following the Great Depression, the United States has attempted to extend UI benefit availability (Farber & Valletta, 2015). However, while extending unemployment insurance, it is also necessary to consider individuals with low education and poor job skills since they have limited opportunities to access the benefits.

Underemployment, referring to part-time unemployment, should be considered to

understand employment. Individuals who are underemployed are those who are employed during a survey period while, at the same time, making themselves available and willing to work extra hours (Ek & Holmlund, 2015). In other words, even though they are employed, they are not able to work as much as they would like. They use the part-time employment as a cornerstone to find full-time jobs (Ek & Holmlund, 2015). This phenomenon might have negative effects on both employers and employees in terms of time and cost. Employers have to find an alternative worker to substitute the workers who quit the job and train them while employees spend time to find a full-time job. Therefore, it is imperative to create policies that reduce the part-time employment and encourage workers to find a job that they enjoy without having to work other jobs that they may not enjoy.

D. Relationship between Mental Health and Economic Well-being

Individuals who suffer from lack of economic resources or limited opportunities to be employed are more likely to experience a sense of uncertainty and hopelessness for their present and future compared to those who do not. As a result of insecurity in their lives, they tend to be at greater risks of mental health problems. A large body of empirical studies support this assumption: experiences of financial hardships were associated with mental illnesses such as depression and anxiety (Angel, Frisco, Angel, & Chiriboga, 2003; Ferraro & Su, 1999; Kahn & Fazio, 2005; Kahn & Pearlin, 2006; Keith, 1993; Krause, Jay, & Liang, 1991; Mirowsky & Ross, 2001; Pudrovska, Schieman, Pearlin, & Nguyen, 2005; Sun, Hilgeman, Durkin, Allen, & Burgio, 2009; Szanton, Thorpe, & Whitfield, 2010). Most research prior to the past two decades has also indicated that economic strain was associated with depressive symptoms or anxiety (De Leon, Rapp, & Kasl, 1994). In other words, individuals with chronic economic difficulties were at risk

of poor mental health (Lever, Pinol, & Uralde, 2005; Madianos, Economou, Alexiou, & Stefanis, 2011; Wickrama, Surjadi, Lorenz, Conger, & O'Neal , 2012). Those who experienced economic decline were more likely to be at risk of depression (Almeida et al., 2012) due to reduced wealth (McInerney, Mellor, & Nicholas, 2013). In particular, recent experiences of economic challenge, rather than past experiences in the life course, are more closely associated with depressive symptoms (Kahn & Pearlin, 2006).

Changes in daily life and social circumstances that individuals experience, such as work conditions, influence mental health in positive or negative manners (Friedli, 2009). Adulthood is a period of time during which many individuals frequently suffer from economic challenges as they leave their parents and become financially independent. As a result, they are more likely to experience depressive symptoms during adulthood. If middle- aged workers can accumulate wealth over time and own their house, it makes it possible for them to have financial security and a sense of resilience to unstable economic conditions and unexpected unemployment, leading them to have less mental health problems (Mossakowski, 2008). In addition, individuals who experience longer durations of poverty are more likely to be at risk of depression (McDonough, & Berglund, 2003). As such, a concept of time framework should be considered to understand mental health. For instance, curves of mental health during middle age change over time (Blanchflower & Oswald, 2008; Mirowsky & Ross, 1999) and changes in roles and transitions to a new life stage, such as earning a living wage through employment, affect mental health. Individuals might experience different duration of economic burden at different life stages (Elwér, Hammarström, Strandh, & Gustafsson, 2015). That is, individuals experience economic advantages/disadvantages at different points in time, and these benefits and risks might influence mental health. Even though middle age, which ranges from the 30s to 50s in this study, is a life

stage during which people experience various changes at an economic level, little is known about which economic factors influence mental health at a particular life stage. Therefore, this study examines the impact of economic well-being on mental health among middle aged adults.

During the developmental period of adulthood, positive changes of roles and status, career development, and wealth are beneficial to maintain mental health. For instance, stable conditions around 40 years of age stemming from marriage and employment may contribute to the lowest levels of depressive symptoms (Mirowsky & Ross, 1992; Mirowsky, 1996). As they transition from middle age to later life while experiencing loss of work, wealth, and early retirement, individuals may struggle with mental health problems (Mirowsky & Ross, 1992). As such, economic well-being, which refers to job security and wealth, influences mental health throughout middle age.

Experiences of financial hardships from unemployment may negatively affect mental health over time (Lever, Pinol, & Uralde, 2005; Madianos, Economou, Alexiou, & Stefanis, 2011; Wickrama, Surjadi, Lorenz, Conger, & O'Neal , 2012). As work systems have changed from mass production to flexible production (Vallas, 1999), the shift mainly influences middle-aged individuals who are approximately 40 to 59 years old, and the changes affect their work arrangements and the qualifications or skills required for employment (Heinz, 2003). As a result, middle aged workers report that they are not prepared for the flexible economy and are faced with an unstable labor market (Johnson, Kawachi, & Lewis, 2009). Dynamic changes over the life course, such as a loss of job, lead to a higher prevalence of depression and poor mental health (Kendler, Karkowski, & Prescott, 1999; Kessler, 1997). Therefore, the life course perspective is important to understand one's health and healthy working lives (Amick, McLeod, & Bültmann, 2016). The individual's working life course as it relates to mental health has been

shaped by labor market experiences (Amick, McLeod, & Bültmann, 2016). For instance, individuals who have earned more money and held stable jobs may be more likely to access resources, which are beneficial to their mental health, leading to lower levels of depression. Conversely, people who experience decreased ranks in their social standing tend to be frustrated and suffer from emotional distress as well as be at risk of depression (Jackson, 1962; Lenski, 1954; Nicklett & Burgard, 2009). In other words, those who have been unemployed or have received fewer benefits may experience higher levels of depression stemming from the limitations in their lives (Dressler, 1988; Murphy et al., 1991; Tiffin, Pearce, & Parker, 2005). Furthermore, individuals struggling with debt are less likely to have access to resources for their mental health problems while those who have assets tend to be at a lower risk of mental illnesses (Meltzer et al., 2010; Ssewamala, Han, & Neilands, 2009). As such, economic well-being in this study, referring to levels of economic challenges by lack of assets, amount of debt, and unemployment, should be considered to understand mental health over the life course.

Disadvantages from labor market experiences and transitions can negatively influence health (Amick, McLeod, & Bültmann, 2016). Economic strains greatly increase levels of stressors as well as pose threats to daily life and basic needs (Kahn & Pearlin, 2006). In particular, financial strains early in life impede the acquisition of social and economic resources as well as negatively affect health in later life (Link & Phelan, 1995). However, the extent of economic hardships may vary over time. For instance, financial challenges may decrease at a certain point of adulthood, and less than 20 percent of individuals after 35 reported financial strain (Kahn & Pearlin, 2006). Given that middle age may be the most productive period of all of the life stages because it is the first time for many people to be officially employed and earn a steady income, individual might have different levels of economic well-being at each point in

time over the life course. On the other hand, older age (eg., over 65 years of age) is associated with poor economic well-being, such as loss of work, reduced income, and financial challenges (Bierman, 2014; Plagnol, 2011; Siminski & Yerokhin, 2012). As individuals age, they are more likely to suffer from economic challenges in their daily lives. Along with changing levels of economic well-being over time, the effects of economic well-being may affect mental health across the life course. That is, poor economic situations may influence higher risks of depression while those who have experienced fewer economic challenges may be less likely to be depressed.

Health and well-being are influenced by various contexts, which an individual has experienced over time, and different life trajectories stemmed from advantages and challenges (Kuh, Power, Blane, & Bartley, 2003). As individuals' experiences related to engagement in the labor market at various moments during adulthood, ranging from late 20s to late 50s, may differ depending on individuals' abilities and skills (Watkins, 2012), their mental health may also differ depending on the different experiences in the work force. In other words, experiences in the work force during middle age may influence different levels of mental health. For instance, poor economic conditions during middle age, such as lack of wealth, may increase the prevalence of mental health problems (Watkins, Walker, & Griffith, 2010; Mossakowski, 2008).

1. Employment and Mental Health

Eisenberg and Lazarsfeld (1938) and Bakke (1934) first described the relationship between employment and mental health, indicating that unemployment results in reduced psychological well-being. After the pioneer studies, a large body of research has supported the argument: employment has been found to serve as a buffer against poor mental health (McKee-Ryan, Song, Wanberg, & Kinicki, 2005; Mezuk, Bohnert, Ratliff, & Zivin, 2011; Paul & Moser,

2009; Stankunas, Kalediene, Starkuviene, & Kapustinskiene, 2006). That is, unemployment was associated with depression (Kim & von dem Knesebeck, 2016). In particular, individuals who are unemployed progressively suffer from depression while the risk of depression rapidly decreases if they have a job (Warr & Jackson, 1985). As the duration of unemployment increases, individuals who are still actively seeking work tend to experience feelings of defenselessness (Goldsmith, Veum, & Darity, 1995). Given that approximately half of the unemployed decide to stop seeking jobs and often leave the labor force, which is known as the "discouraged worker" effect (Goldsmith, Veum, & Darity, 1995), their depression levels may continue to increase after unemployment (Clark & Summers, 1979) because they believe that society will exclude them from the labor market.

As such, job insecurity leads to a sense of losing control in one's life or uncertainty of one's situation (Kalil, Ziol-Guest, Hawkley, & Cacioppo, 2009), and the uncertainty and unstable income among unemployed individuals can lead to depression (Mejía, Settersten, Odden, & Hooker, 2016). In fact, the unemployed who have experienced limited opportunities to find a job and failed to obtain the jobs are more likely to experience feelings of helplessness (Seligman & Maier, 1967). As a result, they might be at greater risks of mental health problems. In addition, job insecurity from the possibility of unemployment, which can lead to an unstable income, is associated with poor mental health (Kalil, Ziol-Guest, Hawkley, & Cacioppo, 2009; Meltzer et al., 2010; Sverke, Hellgren, & Naswall, 2002). If someone does not suffer from mental health problems after unemployment, this is because they have alternative resources that substitute benefits from employment (Jahoda, 1984). With respect to older adults (eg., over 65 years) who are more likely to experience job loss through retirement, unemployment among the elderly correlated with more mental health diagnoses (McInerney & Mellor, 2012). In particular, older

females who experience unstable employment are more likely to experience depressive symptoms and loneliness (Kalil, Ziol-Guest, Hawkley, & Cacioppo, 2009).

Effects of employment are evident before and after finding a job, particularly for males. Returning to work has a positive impact on mental health among males (Huber, Lechner, & Wunsch, 2010) while males with job loss were likely to be hospitalized due to mental health problems and also more likely to take antidepressants (Kuhn, Lalive, & Zweimüller, 2009). As a result, they have higher rates of mortality (Sullivan & von Wachter, 2009; Eliason & Storrie, 2009). However, a contrasting finding was also found: the absence of negative effects of unemployment on mental health among Germans (Schmitz, 2011). The confounding result might be related to environments in Germany, which offer health insurance for those who lose their jobs with an extended duration of unemployment benefits (Schmitz, 2011). Therefore, social and economic policies regarding employment benefits should be considered to understand the relationship between employment and mental health. In the case of the United States, where programs for unemployment benefits are not as good as those in Germany, the negative effects of unemployment on mental health might still be evident (Schmitz, 2011).

Unemployment reduces the opportunity to participate in social and cultural activities (Broom et al., 2006) as well as influences downward social mobility (Strully, 2009). As a result, the unemployed are more likely to lose their social network and social identity (Jahoda, 1982). The isolation from society discourages the unemployed to be less involved in communities. In particular, given that human beings are social animals, their loss of social activities results in more stress, leading to poor mental health.

In terms of longitudinal studies, Schaufeli and VanYperen (1992) indicated that psychological distress among young unemployed adults had increased during the unemployment.

They also found that individuals who were less stressed were more likely to be employed compared to those with higher levels of distress. In a follow-up study in the Netherlands, re-employment reduced the prevalence of depression compared to those who were continuously unemployed (Carlier et al., 2013). In meta-analyses, Paul and Moser (2009) utilized meta-analytically derived estimates to estimate repeated measure effect sizes in order to explore changes in mental health depending on changes in employment. They indicated that the employed reported a decrease in distress somewhere between the baseline point and the second measurement point. Additionally, levels of distress between the first and the second measurement point decreased if individuals found a job. Schaufeli and VanYperen (1992) used two different samples: one group aged 21-35 in 1986 and another group aged 23-53 in 1987, and the samples were respondents living in the Netherlands. Likewise, Carlier et al (2013) looked at individuals in the Netherlands, and the age span of the respondents ranged from 18 to 65. A study conducted by Paul and Moser (2009) also included Germans as the sample. Previous longitudinal studies did not look at Americans.

2. Net Worth and Mental Health

As a measure of economic well-being, individuals' assets and debts should be considered to understand individuals' mental health. Researchers acknowledge limitations of past studies, which did not consider net worth (Drentea & Reynolds, 2012). Previous studies have pointed out the importance of wealth while conducting research regarding relationships between mental health and socioeconomic status (Braveman et al., 2005; Laaksonen, Rahkonen, Marikainen, & Lahelma, 2005; Pollack et al., 2007). As a result, the importance of net worth (wealth and debt) has been growing and these factors should be included to understand mental health (Drentea &

Reynolds, 2012). In this study, net worth will be measured by summing all assets values and subtracting all debts across individuals.

As the amount of debt of Americans has steadily increased (Garcia, 2007), those with a lot of debt might experience more distress and uncertainty for their future, which then leads to more stresses, anger, and irritability (Drentea & Reynolds, 2012). In particular, given that stressors from debt result in cumulative disadvantage (Ferraro & Shippee, 2009), being in debt limits one's ability to deal with poor mental health (Drentea & Reynolds, 2012). In other words, they are not able to adjust to a sudden financial interruption and to maintain their social networks (Cockerham, 2005), and those who have less wealth are more likely to put their mental health at risk. In particular, as rates of individuals in debt are higher across young adults (eg., 20s and 30s) (Drentea, 2000; McCloud & Dwyer, 2011), net worth should be considered to understand the trajectories of mental health among adults.

Drentea and Reynolds (2012) illustrated how individuals with debts were likely to have poor psychological health. In other words, being in debt has ties to depression (Meltzer et al, 2010) and is negatively associated with mental health (Zurlo, Yoon, & Kim, 2014). In addition, debt makes collecting retirement income more difficult (Loonin & Renuart, 2007). As a result, the elderly over 65 are left with insufficient funds and have trouble accessing essential resources to maintain their quality of life (Zurlo, Yoon, & Kim, 2014). That is, the accumulation of debt influences economic well-being and affects mental health of middle-aged adults as well as the elderly.

On the other hand, assets help an individual to attain economic security as well as develop a positive attitude toward their daily life (Zhan, 2006). Individuals who feel that they have sufficient economic resources tend to not have poor mental health (Ssewamala, Han, &

Neilands, 2009). In other words, asset ownership may be beneficial to avoid mental health problems (Ssewamala, Han, & Neilands, 2009; Zimmerman & Katon, 2005). For instance, American workers who were not wealthy before the Great Regression of 2008, were more likely suffer from depressive symptoms in comparison with those who were wealthy (Riumallo-Herl, Basu, Stuckler, Courtin, & Avendano, 2014). As such, debts and assets play a significant role in changes of mental health.

The effects of assets on mental health can be expanded to the intergenerational relationships between parental assets and children's mental health. Ssewamala, Han, and Neilands (2009) found that household assets act as a buffer against children's mental health problems. Since asset ownership provides a sense of comfort and encouragement that individuals are able to accomplish their goals, children who have sufficient economic resources in their family feel that they have no barriers stopping them from attaining a good education, leading them to have less mental health problems (Ssewamala, Han, & Neilands, 2009). Along with this finding, other studies also support the relationship between parental assets and psychological well-being among their children (Sherraden, 1990). Household wealth acts as a buffer against poor mental health not only for adults but also for children.

In terms of previous studies' samples and findings, most research was not representative of middle-aged adults. Drentea and Reynolds (2012) used older adults who were residents in Miami-Dade County. Even though their target sample was not adults nor was it a nationally representative population, they found that indebtedness was more associated with mental health than any other factors of SES. This finding supports the importance of considering net worth, including assets and debts. Zurlo, Yoon, and Kim (2014) also used older adults as their sample, whose average age was 68, and addressed only debts rather than considering both assets and

debts. In addition, they conducted a cross-sectional analysis to identify the relationship between debts and mental health. They reported that those with more debts were more likely to be at risk of mental health problems. Meltzer et al (2010) included adults by looking at individuals aged 16 to 64, however, the respondents were living in England. Even though they indicated that debts played a role as a buffer against poor mental health, their analysis was also based on a cross-sectional approach and the findings were not focused on middle-aged adults. In addition, they also only addressed debts and did not consider assets. As such, samples of previous studies cannot be representative of a nation-wide population in the United States nor of middle-aged adults. In addition, most studies conduct research based on a cross-sectional approach. The current study uses a nation-wide sample of Americans and focuses on middle-aged adults. This research extends cross-sectional findings by showing relationships between net worth and mental health during middle age.

CHAPTER III. RESEARCH DESIGN AND METHOD

A. Research Data

The primary data source for this study is the National Longitudinal Survey of Youth 1979 (NLSY79), which was conducted by the U.S. Department of Labor. The NLSY 79 is a nation-wide representative data set of 12,686 participants living in the U.S. whose age ranged from 14 to 22 back in 1979, when the survey was first conducted. The NLSY79 participants have been re-interviewed annually from 1979 through 1994 and biennially since then. The initial response rate was approximately 90 percent with retention rates over 90 percent in the first 16 waves, and the rates in subsequent waves were over 80 percent. The NLSY79 had measured depression in 1992, 1994, and again at two more points when respondents turned 40 and 50 years old, respectively. To explore effects of economic well-being on mental health during middle age, the sample should include those who provided information regarding their levels of depression when they were 50 years old. In addition, to conduct a longitudinal study, it is necessary to have at least three points measuring depression (Singer & Willett, 2003). Since there were four points in time measuring depression, the sample of the current study consists of respondents who reported levels of depression in 1992, 1994, at 40, and 50 years of age. Depression, when respondents turned 50, was measured across 1,645 participants and consisted of 4 age groups ranging from 19 to 22 in 1979. If the four age groups were selected for the final sample, there would be missing values. For instance, if 19, 20, 21, and 22 year-old participants were included, there would be missing values from over 70% of total responses in terms of depression in 1992. Likewise, depression measured in 1994 would have missing values of more than 50 %. Therefore, the final sample consisted of 834 individuals from the 21 year-old group in 1979, which is the largest group of respondents from any group in terms of measuring depression when they turned

50. Four points in time will be used: 34, 36, 40, and 50 years of age. In other words, the data set includes cohorts ranging in age from 34 to 50. In terms of the distance of measuring the points, developments in statistical packages, such as Mplus and R package, overcome limitations regarding the assumption that observed time points should be equal distant in time (Rosseel, 2012). For instance, previous studies using other statistics packages did not support the research including variables measured in 1992, 1994, 1998, 2008 while using the Mplus package makes it possible to conduct research with unequal distances in time. Respondents consisted of 372 males and 462 females, and those who were not interviewed (non-interview) or refused to interview were excluded in the study. The minimum sample size for SEM is not determined. A small sample size was acceptable for analysis (Bearden, Sharma, & Teel, 1982; Bollen, 1989; Iacobucci, 2010) and a sample size between 100 and 150 was also considered acceptable for SEM analysis (Ding, Velicer, & Harlow, 1995). Therefore, this study meets the minimum requirement for the sample size.

B. Research Questions

1. What are the trajectories of mental health among middle aged adults (34 to 50 years of age)?

H_1: The trajectories of mental health among middle-aged adults (34 to 50 years of age) show a non-linear change.

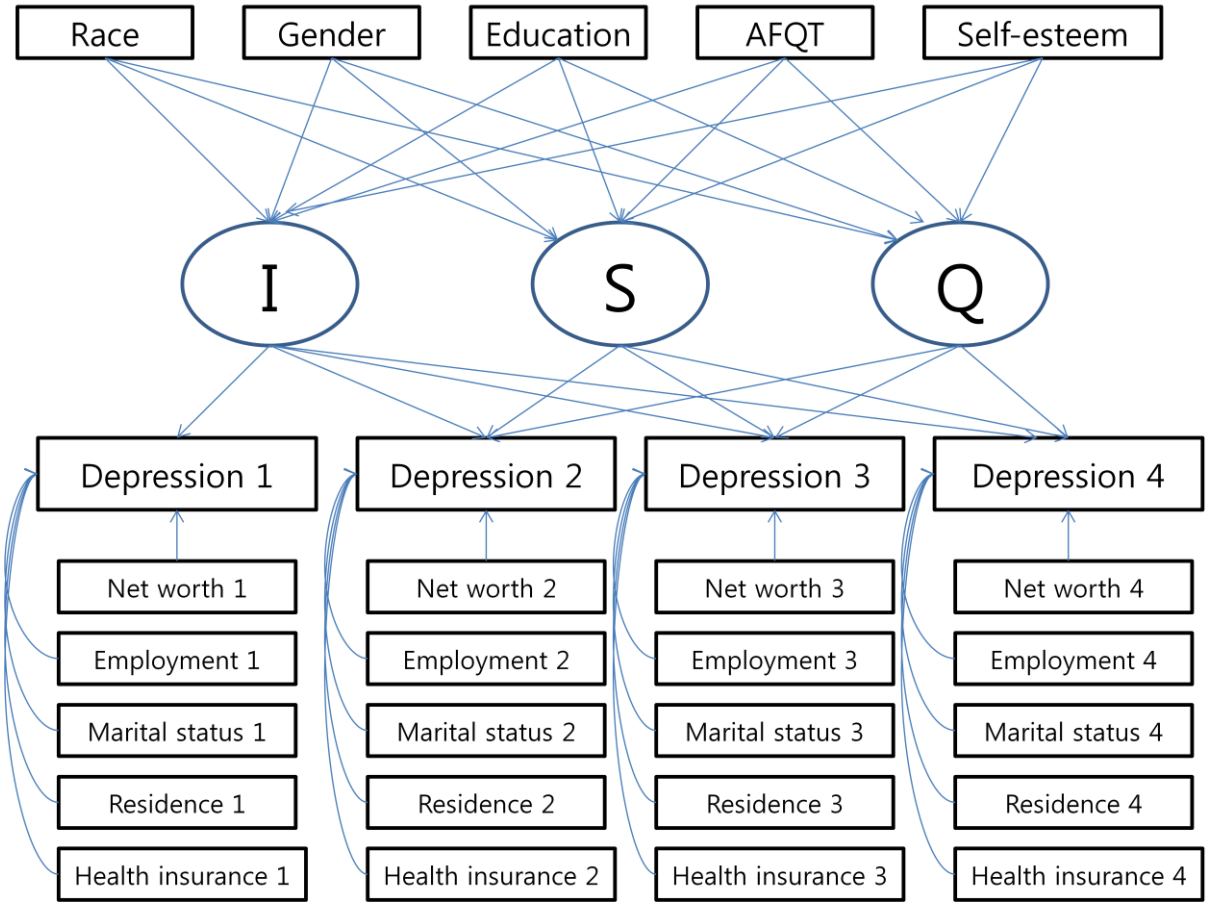
2. Is economic well-being (net worth and employment) associated with mental health?

H_1: The economic well-being (net worth and employment) is associated with mental health.

C. Conceptual Framework

Figure 1.

Research framework



D. Analysis

Statistical Package for the Social Sciences (SPSS) version 22.0 was used to prepare, manage, and describe data. M-plus version 7 was used to model longitudinal data and to analyze the growth trajectories of mental health and relationship between economic well-being and mental health. The proposed study used the Latent Growth Model (LGM), which is a variant of structural equation modeling (SEM) that demonstrates change and its shape over time (Duncan,

Duncan, & Strycker, 2011). As this study uses a secondary/publically available data set and does not contain any private identifiable information, the research is deemed non-human subject study. Additionally, the Institutional Review Board (IRB) at Michigan State University confirmed that this study does not seek to obtain information regarding human subjects (#x17-751e).

1. Rationale for Using Latent Growth Models

The growth model allows researchers to examine trajectories of populations by analyzing individuals to explain differences of changes across those individuals over time. It is possible to explain individuals' differences over time by entering factors influencing the change (Collins & Sayer, 2001; Raudenbush & Bryk, 2002; Singer & Willett, 2003). There are two methodological approaches to analyze growth model for a longitudinal study. One of the ways is to use Multilevel Growth Model (MGM), which was developed based on Hierarchical Linear Model (HLM) (Raudenbush & Bryk, 2002), introduced by educational research areas. The second method is called the Latent Growth Model (LGM), which was developed based on the Structural Equation Model (SEM), initiated by psychometrics. The model includes various types of latent variables (McArdle & Epstein, 1987; Muthen, 1997), which indicate individuals' differences of changes over time including either linear or quadratic slopes (Meredith & Tisak, 1990) as well as intercept (initial status) and differences across individuals (error terms). Even though each model has both advantages and disadvantages in conducting a longitudinal study (Curran, 2003; Wendorf, 2002; Zhang & Willson, 2006), findings from two models converge into similar results and some methodological researchers have found that the models have the same structure from a mathematics perspective (Curran, 2003; MacCallum, Kim, Malarkey, & Kiecolt-Glaser, 1997; Muthen, 1997).

The LGM is statistically comparable with the Hierarchical Linear Model (HLM) in terms of estimating fixed and random effects. The LGM makes it possible to provide separate parameter estimates relatively easily (Duncan, Duncan, Strycker, 2011). The LGM provides parameter estimates that illustrate different growths and other changes at each point in time. That is, the LGM provides parameter estimates of the individual effects of economic well-being on mental health at different points in time.

The latent growth models (LGM) estimate individual differences in growth trajectories in longitudinal data by conducting hypothesis tests regarding the variances of the latent growth factors (McArdle & Nesselroade, 2003). In addition, the LGM makes it possible to capture time-varying covariates that change at the different points in time (34, 36, 40, and 50 years). In this study, the time-varying covariates include economic well-being (net worth and employment), health insurance, marital status, and residence. The latent growth model allows researchers to evaluate the initial status (intercept) and longitudinal impact (growth across time) of economic well-being on mental health.

The general equation for the latent growth curve models is as follows:

$$MH\ \ (t)_n = A_0[t]\cdot g_{0n} + A_1[t]\cdot g_{1n} + A_2[t]\cdot g_{2n} + ... + A_k[t]\cdot g_{kn} + e_{nt}\ ,$$

where $MH(t)_n$ is the depression score for individual n at time t, g_{0n} is the depression score for person n on the initial measurement occasion (i.e., at 34 years), e_{nt} is the time-specific residual for individual n, and $A_0[t]$, $A_1[t]$, $A_2[t]$, … , $A_k[t]$ are shape coefficients that define an individual's shape of growth over time, such as linear, quadratic, latent basis, exponential, etc.; and each coefficient captures a particular aspect of how an individual changes over time. For most cases, the vector $A_0[t]$ is defined as all elements in the vector being equal to one (i.e. $A_0 = [1, 1, 1, \dots , 1]$) (Ram & Grimm, 2007).

Based on the general equation, the current study modifies the equation for the purposes of this study. The equation used in this research is as follows:

a. Conditional quadratic LGM with time-invariant covariates

$$y_{ti} = \eta_{0i} + \eta_{1i}a_t + \eta_{2i}a_t^2 + \varepsilon_{ti}, \quad \varepsilon_{ti} \sim N(0, \sigma^2)$$

$$\eta_{0i} = \eta_{00} + \sum_k \gamma_{0k}x_{ki} + \zeta_{0i}$$
$$\eta_{1i} = \eta_{10} + \zeta_{1i}$$
$$\eta_{2i} = \eta_{20} + \zeta_{2i}$$

y_{ti}: the ith individual's observed value of depression at t point in time
η_{0i}: the ith individual's intercept of the growth factor,
η_{1i}: the ith individual's linear slope of the growth factor,
η_{2i}: the ith individual's quadratic slope of the growth factor
a_t: the fixed linear time points of all individuals
a_t^2: the fixed quadratic time points of all individuals
η_{00}: the grand mean of the intercept of the growth factor,
η_{10}: the grand mean of the linear slope of growth factor,
η_{20}: the grand mean of the quadratic slope of growth factor
ζ_{0i}: the individual difference of the intercept of the growth factor,
ζ_{1i}: the individual difference of the linear slope of the growth factor,
ζ_{2i}: the individual difference of the quadratic slope of the growth factor
ε_{ti}: error term
x_{ki}: time-invariant covariates (race, gender, education, AFQT, and self-esteem)
γ_{0k}: Effect of time-invariant covariates (race, gender, education, AFQT, and self-esteem)

b. Conditional quadratic LGM with time-variant covariates

$$y_{ti} = \eta_{0i} + \eta_{1i}a_t + \eta_{2i}a_t^2 + \sum_j \sum_t \beta_{jt}z_{jti} + \varepsilon_{ti},$$
$$\eta_{0i} = \eta_{00} + \sum_k \gamma_{0k}x_{ki} + \zeta_{0i}$$
$$\eta_{1i} = \eta_{10} + \zeta_{1i}$$
$$\eta_{2i} = \eta_{20} + \zeta_{2i}$$

y_{ti}: the ith individual' the observed value of depression at t point in time
η_{0i}: the ith individual's intercept of the growth factor,
η_{1i}: the ith individual's linear slope of the growth factor,
η_{2i}: the ith individual's quadratic slope of the growth factor
a_t: the fixed linear time points of all individuals
a_t^2: the fixed quadratic time points of all individuals

η_{00}: the grand mean of the intercept of the growth factor,
η_{10}: the grand mean of the linear slope of growth factor,
η_{20}: the grand mean of the quadratic slope of growth factor
ζ_{0i}: the individual difference of the intercept of the growth factor,
ζ_{1i}: the individual difference of the linear slope of the growth factor,
ζ_{2i}: the individual difference of the quadratic slope of the growth factor
ε_{ti}: error term
x_{ki}: time-invariant covariates (race, gender, education, AFQT, and self-esteem)
γ_{0k}: Effect of time-invariant covariates (race, gender, education, AFQT, and self-esteem)
β_{jt}: Effects of jth time-variant covariates at t point in time
z_{jti}: ith individual's jth time-variant covariates at t point in time (net worth, employment, marital status, health insurance, and residence)

2. Missing Values

Missing data is very common in a longitudinal study. For missing data, the most commonly and widely used assumption is missing at random, abbreviated as MAR (Little & Rubin, 2002). It refers to a condition that missing-ness itself depends on observed values but not on the unobserved values (Little & Rubin, 2002). Thus, this study assumes the missing values as MAR. For SEM used in this study, FIML (Full Information Maximum Likelihood) was conducted by Mplus.

3. Estimation Option

Given the possible multivariate non-normality in the measures of dependent variables, it is necessary to check the normality of depression. The absolute values of skewness and kurtosis should be between +2 and -2 to prove normal distribution (Gravetter & Wallnau, 2014; Trochim & Donnelly, 2006). In terms of depression, the values of skewness meet the conditions while the values of kurtosis did not. Thus, we might assume that the variables were found to not have a normal distribution (Kline, 2011). In particular, the values of kurtosis of depression at 34, 36, and 40 years of age were higher than 2, respectively (2.33, 2.38, and 3.10). The Robust Maximum

Likelihood estimations (MLR) were used to address the normal distribution issue and to calculate parameters. All models are estimated with Mplus.

4. Data Preparation

Prior to conducting analysis, all missing values used in the study were recoded as -1 to -9. To determine which covariates should be included in the structural equation model, a series of bivariate correlations were conducted and a variety of attempts to estimate the best model were conducted based on a parsimonious rule. As a result, net worth, employment, gender, race, education, self-esteem, Armed Forced Qualification Test (AFQT), marital status, health insurance, and residence were included in the final structural equation model. In terms of depression, the NLSY79 provided computed scores for the depression rather than providing each item. That is, even though CES-D seven items measured the depression, researchers did not obtain the separate items. As a result, the Confirmatory Factor Analysis, tests the reliability and validity of the observed variables by using each item, is not available for the depression (Schreiber, 2008). Even though the CFA is not available in this study, the CESD measurement has been identified as a reliable scale (Radloff, 1977).

5. Measures

Depression. The Center for Epidemiologic Studies Depression Scale (CES-D) measures levels of depression in this study. This scale consists of seven items which are rated on a four-point Likert-type scale with response options ranging from 0 "rarely or none of the time (< 1 day)" to 3 "most or all of the time (5-7 days)." In terms of items of the CES-D, "I did not feel like eating; my appetite was poor", "I had trouble keeping my mind on what I was doing", "I felt

depressed", "I felt that everything I did was an effort", "My sleep was restless", "I felt sad", and "I could not get going" were included. The NLSY79 provides a computed depression score by summing all items with higher scores indicating more depressed (range 0 to 21). Depression at four points in time (34, 36, 40, and 50 years of age) was measured by the same scale: CES-D seven items. The CES-D is highly correlated with other measurements for depression (Radloff, 1977). (range = 0 to 21; Mean at 34 years of age = 4.16 and SD = 4.14; Mean at 36 years of age = 3.80 and SD = 4.08; Mean at 40 years of age = 3.28 and SD = 4.06; Mean at 50 years of age = 4.61 and SD = 5.02).

Time varying variable

Net worth. Respondents reported their assets and debts, and the total family net worth amount was computed by summing all asset values and subtracting all debts. The NLSY 79 data set provides the net worth with imputed missing assets and debt values, and the top 2 percent of all values are topcoded, which means that those ranked in the higher top 2% of total net worth were excluded because of the possibility of recognition. Respondents were asked to report if they had an asset or debt and then asked the particular value with 15 mid-level groups of questions. The categories are as follows: home value, mortgages, other residential debt, value and debt of farm/business/real estate, market value and debt of vehicles, value of stocks/bonds/mutual funds, value of CDs, value of trusts, value of IRAs, value of 401k and 403bs, value of cash savings, value of other assets such as jewelry/collections, and value of all other debts such as credit cards/student loans. To sum up, net worth was computed based on the following formulation:

Net worth = home value - mortgage - property debt + cash saving + stocks/bonds + trusts + business assets - business debt + car value - car debt + possessions - other debt + IRAs + 401Ks + CDs.

At four points in time (eg., 1992, 1994, 1998, and 2008), the same coding processes were conducted and net worth variables were computed and created for each year. This study uses the computed net worth from the NLSY79. Raw values of net worth indicate actual dollars, and the values were long digit numbers, which present an enormous gap among those of other variables. Given that the net worth is a ratio variable, it is possible to divide the values. Thus, this study uses the modified net worth variable divided by 10000. (Mean at 34 years of age = 6.90 and SD = 16.41; Mean at 36 years of age = 7.52 and SD = 15.44; Mean at 40 years of age = 9.64 and SD = 18.64; Mean at 50 years of age = 16.04 and SD = 26.89).

Employment. Respondents reported their employment status by answering one of the following conditions: "Employed, unemployed, out of labor force, or in active forces." In this study, two categories of employed and in active forces were regarded as employment while the remaining (unemployed and out of labor force) were considered unemployment. In other words, the respondents were classified into two groups: those who were employed (coded = 1) and those who were not (coded=0). At four points in time, respondents answered the same questions, and same coding processes were conducted to measure employment.

Health insurance. Respondents answered yes/no to the following questions: "Are you covered by any kind of private or government health or hospitalization plans or health maintenance organization (HMO) plans?" Examples of health and hospitalization insurance plans include Blue Cross, Blue Shield, Medicaid/Medi-Cal/Medical assistance/welfare/medical services. If respondents had received benefits from the insurances, their answer was yes, which was coded into 1 while no was coded as 0. In 1992, 1994, 1998, and 2008, the same questions and answering options were offered to respondents, and the same coding processes were conducted for each year.

Marital status. Respondents were asked their marital status as follows: never married, married/present spouse, or others. Individuals who had married or had spouses were classified into marriage, which was coded as 1, while others and never married were coded as 0 (non-marriage). The same question was asked to individuals each year (eg., 1992, 1994, 1998, 2008), and the same processes were conducted to code the marital status.

Residence. Respondents were queried about their residence with two options: urban and rural areas. Those who lived in urban areas were coded as 1 while those living in rural areas were coded as 0. For each year (eg., 1992, 1994, 1998, 2008), the same questions were provided to respondents and the same coding processes were conducted for each year.

Time-invariant covariates: gender, race, education, Armed Forced Qualification Test (AFQT), and self-esteem.

In terms of gender, males were coded as 1 while females were coded as 0. For race, the NLSY79 provides three categories for race/ethnicity: Non-Hispanic Whites, Blacks, and Hispanics. The current study uses two categories: Whites (coded=1) and non-Whites (coded=0) who make up Blacks and Hispanics because sample sizes for Hispanics are too small to estimate parameter. Individuals who received post-college education were classified into higher education (coded=1) while others were classified into non-higher education (coded=0). Originally, respondents were asked to answer one of the following categories: "none, high school, Associate/Junior college(AA), Bachelor of Arts Degree(BA), Bachelor of Science(BS), Master's degree, Doctoral degree, Professional degree, or others." Higher education included Associate/Junior college(AA), Bachelor of Arts Degree(BA), Bachelor of Science(BS), Master's degree, Doctoral degree, and Professional degree while the remaining were considered as non-higher education. AFQT indicates a cognitive ability by measuring their word knowledge,

paragraph comprehension, arithmetic reasoning, mathematics knowledge, etc.. This score was calculated from the Armed Services Vocational Aptitude Battery (ASVAB) tests, and the majority of respondents took this test in 1980. The scores have been renormed twice based on updated standards in 1989 and 2006, and this study used the final version. Self-esteem was measured by the Rosenberg Self-Esteem Scale. The Rosenberg Self-Esteem Scale consists of 10 items with a four-point Likert-type scale ranging from 0 (strongly disagree) to 3 (strongly agree). Five items were reversed prior to using the scale for analysis. All items were summed with higher scores indicating higher self-esteem.

6. Preliminary Analyses

Descriptive analyses, an independent t-test, and Analysis of Variance (ANOVA) were conducted before performing the structural equation model. Table 1 shows gender disparities in depression, net worth, and covariates.

7. Model Specification

Model estimation is one step to conduct structural equation modeling, evaluating the fit indices and parameter estimates (Kline, 2011). The model testing for this study was conducted to find out the best model explaining the trajectories of mental health. To determine model fit and how well the proposed model matches the data, goodness-of-fit statistics should be investigated. Several types of fit index were reported in this study, including absolute and relative fit indices, because a single fit index cannot represent an overall good model and only explains a certain part of the overall model (Kline, 2011). For the absolute fit, chi-square was used to identify an adequate model fit ($p > .05$), presenting the null hypothesis, explaining that the model fits the

data, is not rejected (Bollen, 1989). However, as the chi-square is influenced by sample size, relative fit indices were required for a study with large sample size (Kline, 2011). Thus, the Comparative Fit Index (CFI), Tucker-Lewis Fit Index (TLI), and Root Mean Square Error of Approximation (RMSEA), which consider the sample size, were reported to determine adequate model fit (Fan, Thompson, & Wang, 1999). The range of CFI is from 0 to 1 with a higher score indicating an adequate model fit, and CFI values > .90 means a well fitting model (Hu & Bentler, 1999). The range of values of CFI could not be below 0 or above 1 due to its normed nature (Hooper, Coughlan, & Mullen, 2008). "The Non-Normed Fit Index (NNFI, also known as the TLI) has its non-normed nature so that TLI could fall outside of the 0 to 1 range " (Marsh, Balla, & Hau, 1996, p. 318; Hooper, Coughlan, & Mullen, 2008, p. 55; Sharma, Mukherjee, Kumar, & Dillon, 2005). RMSEA is associated with residual, and ranges 0 to 1 with a lower RMSEA value indicating a better model fit. According to Browne and Cudeck (1992), RMSEA values are defined as follows: a lower value than .05 is a close fit, less than .08 is a reasonable fit, and a higher value than .1 is not an adequate model fit. After conducting all of model testing suggested in the above, the quadratic change was identified as the best-justified model for this study. Even though researchers used Mplus to obtain the model estimation, the quadratic model can be inferred from the changes of mean of depression at four points in time (Table 1). The mean scores of depression show a v-shaped curve, leading to the quadratic model. Parameter estimates that were significant at .05 were regarded as statistically significant, and researchers interpreted the parameter estimates. To determine the quadratic model, indicating non-linear change, a linear model (Level/Shape) was first conducted to estimate the growth trajectories of mental health, and fit indices of the model were not acceptable to estimate the trajectories ($\chi^2(6) = 44.43$, $p = .00$, CFI = .89, TLI = .89, and RMSEA =.07). However, a non-linear model

(Intercept/Slope/Quadratic) explains the trajectories of mental health better with an appropriate model index ($\chi^2(4) = 1.27$, p =.87, CFI = 1.00, TLI = 1.01, and RMSEA =.00). This process will be explained in depth again in the results section.

Based on a series of the above processes, the final model was identified. However, additional concerns about the current model might exist. Income and wealth are strongly correlated (Shapiro & Wolff, 2001), and this is consistent with the current study (r = .59, r = .61, r = .59). Due to the high correlation between two variables, model fit in the conditional model, including both income and net worth as a baseline, was not acceptable: TLI= .88. Furthermore, the conditional model considering time-varying covariates cannot estimate the trajectories of mental health. The current model index is also better than that of this model. In addition, as net worth includes all products through earnings and savings from all economic activities (Shapiro & Wolff, 2001) and it considers lifetime economic accumulation compared to income as immediate resources, this study focuses on net worth by excluding income. In regards to whether or not poverty is included, both conditional models considering time-invariant covariates and time-varying covariates could not estimate the trajectories of mental health if poverty is included. Therefore, poverty was excluded based on the parsimonious rule (Singer & Willett, 2003).

In terms of time-invariant covariates, self-esteem and AFQT were not measured at four points in time. Therefore, these variables cannot be used as time-varying covariates. On the other hand, as it is available to use net worth, employment, marital status, residence, and health insurance at four points in time, the five variables were used as time-varying variables. For additional covariates, family size was also available at each point, but there was no significant relationship between family size and mental health. Thus, this variable was excluded based on the parsimonious rule (Singer & Willett, 2003). Physical health might influence mental health,

however, this factor was excluded because of limitation of data set. Physical health was only measured at 40 and 50 years of age, thus, it is not available at 34 and 36 years of age. Generally, since a longitudinal study pursues a parsimonious model (Singer & Willett, 2003), the model with fewer variables is regarded as the best model compared to a model with more variables as long as the model explains associations with acceptable model fit information. Based on this rule, the final model was identified through a series of the above processes.

CHAPTER IV. RESULTS

A. Descriptive Statistics

Descriptive statistics of variables used in this study are summarized in table 1. Scores of depression decreased between 34 and 40 years of age while scores increased between 40 and 50 years of age. Males made up 44.6% (n=372) of the total sample and females constituted 55.4% (n=462).

As gender differences in mental health are evident in previous studies and in this study, table 1 was described by gender. At all four points in time (eg., 34, 36, 40, and 50 years of age), females were more likely to be at greater risks of depression compared to males. In terms of economic well-being, males indicated higher rates of employment in comparison with females at each point in time. However, there is no gender difference in net worth because net worth is a household net worth. Males are more likely to be married compared to females at 34, 36, 40, and 50 years. Interestingly, gender disparities in having health insurance at 34 and 36 do not exist while rates of health insurance among females when they were 40 and 50 years of age are higher than those among males. Males show higher levels of self-esteem compared to females while there are no gender disparities in education and cognitive ability.

Table 1.

Descriptive statistics

Variable	Male (n=372) % or mean (SD)	Female (n=462) % or mean (SD)	Total (n=834)	N	Range	*p*
34 years of age						
Depression	3.46 (3.56)	4.72 (4.48)	4.16 (4.14)	807	0-21	***
Net worth	6.80 (16.15)	6.98 (16.63)	6.90 (16.41)	785	(-20.09) 91.12	
Urban area	80.0%	80.6%	80.3%	783	0-1	
Marriage	60.8%	55.4%	57.8%	813	0-1	+
Employment	87.6%	71.8%	78.8%	813	0-1	***
Health insurance	80.9%	83.8%	82.5%	813	0-1	
36 years of age						
Depression	2.94 (3.32)	4.49 (4.48)	3.80 (4.08)	799	0-21	***
Net worth	7.68 (15.64)	7.39 (15.30)	7.52 (15.44)	817	(-8.00) 91.24	
Urban area	78.2%	78.8%	78.5%	773	0-1	
Marriage	65.6%	54.9%	59.7%	801	0-1	**
Employment	88.3%	68.2%	77.2%	802	0-1	***
Health insurance	80.4%	83.7%	82.3%	801	0-1	
40 years of age						
Depression	2.64 (3.56)	3.80 (4.36)	3.28 (4.06)	828	0-21	***
Net worth	9.18 (17.35)	10.01 (19.64)	9.64 (18.64)	824	(-6.05) 129.12	
Urban area	67.9%	66.0%	66.9%	770	0-1	
Marriage	63.4%	54.9%	58.7%	786	0-1	*
Employment	89.5%	76.6%	82.3%	786	0-1	***
Health insurance	79.2%	84.5%	82.1%	784	0-1	*
50 years of age						
Depression	3.88 (4.93)	5.21 (5.02)	4.61 (5.02)	834	0-21	***

Table 1. (cont'd)

Net worth	16.55 (28.49)	15.63 (25.56)	16.04 (26.89)	833	(-5.73) 173.18	
Urban area	73.6%	77.1%	75.5%	780	0-1	
Marriage	60.5%	51.9%	55.8%	834	0-1	*
Employment	83.0%	73.0%	77.5%	787	0-1	**
Health insurance	82.7%	86.8%	85.0%	833	0-1	+
Demographics (34 years of age)						
Education	35.3%	34.6%	34.9%	748	0-1	
Whites	48.9%	50.9%	50.0%	834	0-1	
AFQT	41.34 (30.36)	39.05 (28.79)	40.07 (29.50)	792	0-100	
Self-esteem	23.71 (4.36)	22.99 (4.18)	23.31 (4.27)	748	6-30	*

Note. +p < .10. *p < .05. **p < .01. ***p < .001.

Note. The real values of net worth should be multiplied by 10000.

Figure 2.

Sample mean and estimated mean of depression in the LS model

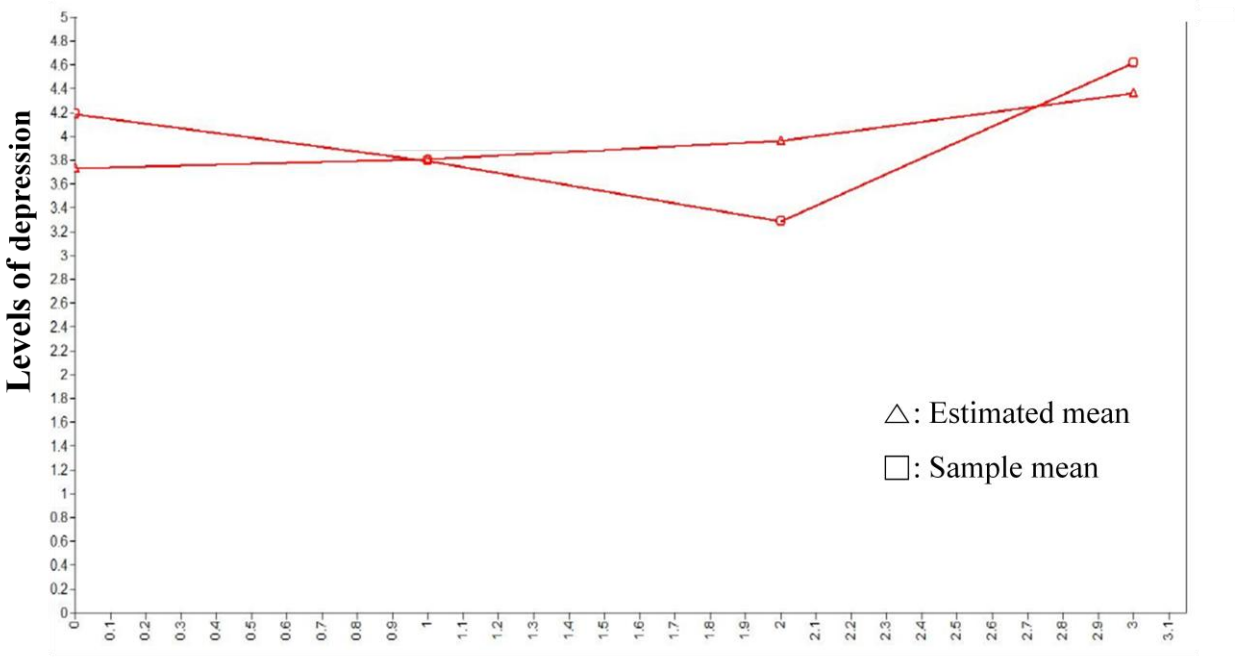
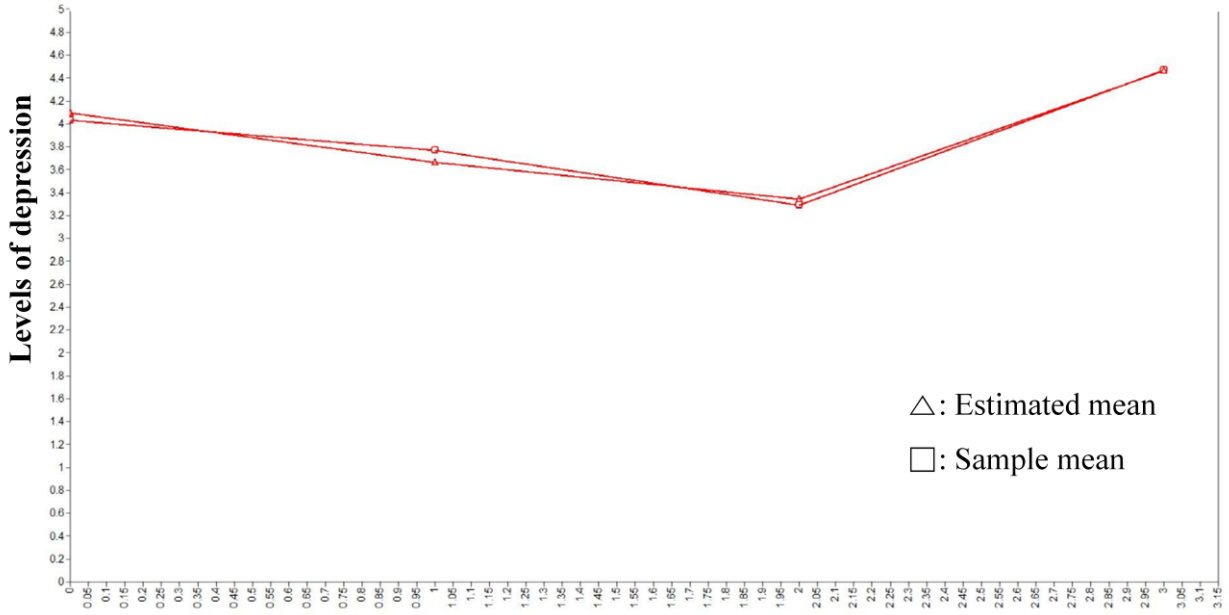


Figure 3.

Sample mean and estimated mean of depression in the ISQ model



B. Trajectories of Mental Health

Research question 1. What are the trajectories of mental health among middle-aged adults (34 to 50 years of age)?

H_1: The trajectories of mental health among middle-age adults (34 to 50) show a non-linear change.

Unconditional models of mental health were analyzed to identify patterns of mental health over time. Table 2 shows a linear change using the Level and Shape (LS) model. In terms of model fit information, chi square (χ^2), comparative fit index (CFI), Tucker-Lewis index (TLI), and root mean square error of approximation (RMSEA) values were used to estimate the appropriateness of the unconditional model of mental health. The values were found: chi square $\chi^2(6)$ = 44.43, p =.00 comparative fit index (CFI) = .89, Tucker-Lewis index (TLI) = .89, and root mean square error of approximation (RMSEA) =.07. Among the model index, the value of RMSEA was over .05, which is a reasonable fit rather than a close fit (lower than .05), to estimate the trajectories of mental health. Chi-square was significant, indicating that we cannot retain null hypothesis, which explains the model fits the data. Values of CFI and TLI were also lower than .90, which means that the model was not acceptable. In addition, given that depression decreased gradually from 34 to 40 years of age and then increased from 40 to 50 as shown in table 1, the quadratic model (ISQ) might be better to estimate the trajectories of mental health in the unconditional model. In the quadratic model (ISQ), Chi square (χ^2), comparative fit index (CFI), Tucker-Lewis index (TLI), and root mean square error of approximation (RMSEA) values were found to be 1.27 (4) (p= .87), 1.00, 1.01, and .000, respectively. According to explanations about model fits (Browne & Cudeck, 1992; Hu & Bentler, 1999; Kline, 2011), the quadratic model provided the best fit explaining the trajectories of mental health compared to the

LS model. In particular, as shown in Figure 2 and 3, which present the estimate means of depression and raw mean of depression over time, the ISQ model is better to estimate the trajectories of depression because the gap between estimated mean and raw mean of depression in the ISQ model is small compared to that in the LS model. According to the estimated mean of depression in figure 3, we are able to conclude that the trajectories of mental health present a quadratic change, which refers to non-linear change.

As shown in table 2, there are significant individual differences on initial status while there are no individual differences on linear slope and quadratic slope. That is, the null hypothesis about the initial status was rejected while null hypotheses for linear slope and quadratic slope were retained.

: H_1: var(initial status) $\neq$ 0, H_1: var(linear slope) $\neq$ 0, H_1: var(quadratic slope) $\neq$ 0.

Table 2.

Unconditional models

Parameter estimates (unstandardized forms) of the latent growth model for depression

Latent growth model	Growth parameter			Goodness-of-fit indexes					
	Estimate	t value		χ^2	df	p value	CFI	TLI	RMSEA
Unconditional model (LS)				44.43	6	0.00	0.89	0.89	0.07
Means									
Level	3.74	31.96	***						
Shape	0.74	3.37	**						
Variances									
Level	7.06	9.28	***						
Shape	9.58	4.01	***						
Unconditional model (ISQ)				1.27	4	0.87	1.00	1.01	0.00
Means									
Initial status	4.21	30.35	***						
Linear slope	-0.26	-6.52	***						
Quadratic slope	0.02	7.91	***						
Variances									
Initial status	8.50	7.45	***						
Linear slope	0.14	1.21							
Quadratic slope	0.00	0.73							

Note. The t values greater than 1.96 in magnitude indicate a parameter estimate that is significantly different from zero.
Note. +p < .10. *p < .05. **p < .01. ***p < .001.

C. Risk Factors of Mental Health Trajectories

To identify risk factors of mental health trajectories, time-invariant covariates were included: gender, education, marital status, AFQT, residence, self-esteem, health insurance, employment, and net worth. As shown in the table 3, the fit indices of the LGC model considering time-invariant covariates were appropriate, $\chi^2(14) = 9.65$, $p = .79$, CFI = 1.00, TLI = 1.03, and RMSEA =.00. The conditional model also shows that there are significant individual differences on initial status, while there are no individual differences on linear slope or quadratic slope. Since there are no individual differences on the linear slope or quadratic slope, among the latent growth factors of depression, the initial status has a significant association with covariates while there is no significant associations between covariates and the linear slope and quadratic slope. Males were negatively associated with the latent initial level of depression. Individuals who showed higher self-esteem and cognitive ability were negatively associated with the latent initial level of depression. In addition, health insurance was negatively associated with the latent initial levels of depression. In terms of economic well-being, both employment and net worth predicted lower intercepts of depression.

Table 3.

Conditional model with time-invariant covariates

Parameter estimates (unstandardized forms) of the latent growth model for depression

Latent growth model	Growth parameter			Goodness-of-fit indexes					
	Estimate	t-value		χ^2	df	p-value	CFI	TLI	RMSEA
Conditional model				9.7	14	0.79	1.00	1.03	0.00
Initial status	5.60	5.74	***						
Linear slope	0.08	0.72							
Quadratic slope	0.00	0.31							
Intercept on									
Male	-1.07	-3.76	***						
White	0.24	0.64							
Marriage	-0.23	-0.74							
Education	-0.01	-0.03							
Urban area	-0.19	-0.45							
Self-esteem	-0.15	-3.89	***						
AFQT	-0.01	-2.21	*						
Health insurance	-1.17	-2.74	**						
Employment	-0.98	-2.36	*						
Net worth	-0.02	-2.42	*						
Linear slope on									
Male	0.07	0.85							
White	0.15	1.28							
Marriage	-0.05	-0.53							
Education	0.03	0.30							
Urban area	-0.05	-0.39							

Table 3. (cont'd)

Self-esteem	0.01	1.03
AFQT	0.00	-0.66
Health insurance	-0.10	-0.77
Employment	0.20	1.68
Net worth	0.00	0.18
Quadratic slope on		
Male	0.01	1.00
White	-0.01	-1.21
Marriage	0.00	0.92
Education	0.00	0.10
Urban area	0.00	0.27
Self-esteem	0.00	-1.49
AFQT	0.00	0.50
Health insurance	0.01	0.64
Employment	-0.01	-1.64
Net worth	0.00	-0.56

Note. The t values greater than 1.96 in magnitude indicate a parameter estimate that is significantly different from zero.
Note. +p < .10. *p < .05. **p < .01. ***p < .001.

D. Effects of Economic Well-being on Mental Health

Research question 2. Is economic well-being (net worth and employment) associated with mental health?

H_1: The economic well-being (net worth and employment) is associated with mental health.

To track longitudinal changes in economic well-being and other covariates and to consider the change rates of the variables (Hong, Hasche, & Bowland, 2009), estimating latent factors of initial status, linear change, and quadratic change was conducted in consideration of time-varying covariates. As the prior analysis indicated that there were no significant differences on linear change or quadratic change, this model also presented no significant differences on linear change or quadratic change even after entering the time-varying covariates. In other words, there are individual differences on the intercept while there are no individual differences on the linear slope or quadratic slope. Furthermore, the trajectories of mental health show non-linear change even after considering longitudinal changes of variables used in this model. In regards to the goodness-of fit indices of this model, chi square (χ^2), comparative fit index (CFI), Tucker-Lewis index (TLI), and root mean square error of approximation (RMSEA) values were found to be 88.97 (69) (p = .051), .96, .94, and .00, respectively (table 4). Much like the previous model considering time-invariant covariates, the intercept has a significant association with covariates while there is no significant associations between covariates and the linear slope/quadratic slope. Males predicted lower intercepts of depression. Those with higher self-esteem showed lower levels of depression initially.

In terms of the associations between economic well-being and depression, employment was associated with lower risks of depression. In other words, individuals who were employed were less likely to be depressed at all four points in time compared to those who were

unemployed. However, the influence of employment on depression at 40 years of age was lower than the impact at 50 years of age. Net worth was also associated with depression at 34, 36, and 50 years. Interestingly, net worth did not influence depression at 40 years of age. Compared to other points in time, overall impacts of covariates and economic well-being on depression at 40 years were weaker. On the other hand, the effects of both net worth and employment on depression at 50 years of age were much stronger than the impacts at other points in time. In terms of other covariates influencing depression, living in urban areas was associated with lower levels of depression at 40 and 50 years of age. Health insurance was negatively related to depression at 36 years.

Table 4.

Conditional model with time-varying covariates

Parameter estimates (unstandardized forms) of the latent growth model for depression

Latent growth model	Growth parameter			Goodness-of-fit indexes					
	Estimate	t-value		χ^2	df	p-value	CFI	TLI	RMSEA
Conditional model				88.97	69	0.05	0.96	0.94	0.00
Initial status	6.54	6.09	***						
Linear slope	0.21	1.65							
Quadratic slope	0.00	1.15							
Intercept on									
Male	-1.05	-3.24	**						
White	0.35	0.81							
Education	0.00	-0.01							
Self-esteem	-0.16	-3.68	***						
AFQT	-0.01	-1.58							
Linear slope on									
Male	0.13	1.29							
White	0.08	0.61							
Education	-0.03	-0.25							
Self-esteem	0.01	0.91							
AFQT	0.00	-0.96							
Quadratic slope on									
Male	-0.01	-1.24							
White	0.00	-0.50							
Education	0.01	0.62							

Table 4. (cont'd)

Self-esteem	0.00	-1.37	
AFQT			
First point in time (34 years of age)			
Depression on marriage	-0.16	-0.46	
Depression on urban area	-0.20	-0.42	
Depression on health insurance	-0.72	-1.41	
Depression on employment	-1.37	-2.87	**
Depression on net worth	-0.01	-2.20	*
Second point in time (36 years of age)			
Depression on marriage	-0.22	-0.76	
Depression on urban area	-0.19	-0.52	
Depression on health insurance	-0.72	-1.73	+
Depression on employment	-1.14	-3.00	**
Depression on net worth	-0.02	-2.06	*
Third point in time (40 years of age)			
Depression on marriage	0.13	0.42	
Depression on urban area	-0.58	-1.71	+
Depression on health insurance	-0.69	-1.38	
Depression on employment	-0.85	-1.80	+
Depression on net worth	-0.01	-0.51	
Fourth point in time (50 years of age)			
Depression on marriage	0.14	0.37	
Depression on urban area	-0.84	-1.88	+
Depression on health insurance	-0.73	-1.16	
Depression on employment	-2.21	-3.85	***

Table 4. (cont'd)

Depression on net worth	-0.02	-4.50	***

Note. The t values greater than 1.96 in magnitude indicate a parameter estimate that is significantly different from zero.
Note. +p < .10. *p < .05. **p < .01. ***p < .001.

CHAPTER V. DISCUSSION

The purpose of this study was to examine the trajectories of mental health among middle-aged adults and to investigate which factors influence these trajectories. Furthermore, this study seeks to pinpoint the effects of economic well-being on mental health during middle age. This study also fills some knowledge-gaps regarding trajectories of mental health among middle-aged adults and impacts of economic well-being on mental health over middle age, which have been rarely addressed in previous studies.

A. Trajectories of Mental Health

This study confirms the trajectories of mental health among middle-aged American adults within longitudinal settings by using four waves and a nation-wide sample provided by NLSY79. This approach brings forward additional evidence in understanding trajectories of mental health among middle-aged adults living in United States. The findings support the hypothesis that the trajectories of mental health show non-linear change, which is consistent with previous studies examining the trajectories of mental health (Kessler, Foster, Webster, & House, 1992; Miech & Shanahan, 2000; Mirowsky & Ross, 2010). The trajectories of depression in this study show a V-shaped curve: higher levels of depression at 34 and 50 years of age and the lowest levels of depression at 40 years. Even after including time-varying covariates, the trajectories of mental health show non-linear change.

Previous studies reported that trajectories of mental health showed two different curves: linear and non-linear. Linear curves has primarily been found in later life (Yang, 2007; Xu, Liang, Bennett, Quiñones, & Ye, 2010). This suggested that levels of depression among older adults aged 65 and over gradually increased over time. On the other hand, non-linear change has

been found over the life course. According to previous studies, individuals reported the lowest levels of depression during 40s and 50s while they showed higher levels of depression during 30s and after 60s (Kessler, Foster, Webster, & House,1992; Miech & Shanahan, 2000; Mirowsky & Ross, 2010). Even though these studies identified patterns of mental health, most studies were conducted in cross-sectional settings while a longitudinal approach has mainly addressed the trajectories of mental health among older adults rather than middle-aged adults (eg., Chao, 2011, Hong, Hasche, & Bowland, 2009; Yang, 2007; Xu, Liang, Bennett, Quiñones, & Ye, 2010).

For middle aged adults, there were studies regarding mental health trajectories based on a longitudinal approach (eg., Green & Benzeval, 2011; Kim et al., 2015). However, the samples from such research were those living in countries other than the U.S. Even though middle-aged Americans were used in several studies (eg., Henretta, Grundy, Okell, & Wadsworth, 2008; Pudrovska, 2009; Walsemann, Gee, & Geronimus, 2009), most studies were conducted in a cross-sectional approach, which has limitations in estimating trajectories of mental health (Kessler, Foster, Webster, & House, 1992; Miech & Shanahan, 2000), and did not focus on mental health trajectories. In other words, an important contribution is that this study used the Latent Growth Model based on a longitudinal approach and the findings in this study provide further evidence to understanding trajectories of mental health by considering the limitations in the previous studies.

This study, compared to previous studies, reveals differences in age indicating the lowest levels of depression during middle age. Previous research have reported as follows: lowest levels of depressive symptoms from 42 to 48 years of age (Mirowsky & Ross, 2010), around the mid-50s (Miech & Shanahan, 2000), and 50 years of age (Kessler, Foster, Webster, & House (1992). However, findings in this study show that depression gradually increases after 40

years. This sheds light on the importance of much earlier interventions or programs for mental health.

The findings indicating that the lowest levels of depression at 40 years of age might be related to a stable marital status and job security through employment (Mirowsky, 1996). Those in their 40s might feel more comfortable compared to individuals in their 30s and 50s as they feel less strained by social and economic resources. On the other hand, relatively higher levels of depression at 34 and 50 years of age compared to those of 40 years might be associated with challenges occurring as one enters a new life stage, which can often be stressful. In particular, the 30s are a stage of life filled with new experiences, such as leaving home, marriage, and transitions from student to worker. The 50s is a stage of new challenges, including preparation of retirement, rapid aging and changes in physical health. These life events might then influence higher depression during the 30s and 50s compared to that of 40s.

Findings from this study differ from other research indicating trajectories of mental health showing an inverted U-shaped curve: the incidence of depression gradually increased from age 16 to 46, with the highest around 46 years of age, and then decreased from age 46 to 70 (Blanchflower & Oswald, 2008). This may be because the population in this study is limited to adults aged 34 to 50 instead of estimating trajectories of mental health over the life course. In addition, the population used in this study included American adults from the National Longitudinal Survey of Youth 1979 (NLSY79). However, Blanchflower and Oswald (2008) looked at those living in the United Kingdom. Given the differing demographic characteristics, geographical differences, and the varying life styles and policies in England, the diverse characteristics compared to those in the United States might influence their findings. Furthermore, as a mean score was used to estimate the changes of depression, this might limit

their findings as well.

B. Risk Factors of Mental Health Trajectories

This study found that economic well-being and demographics influenced the initial status of mental health, which is one of latent growth factors of mental health. Females are more likely to be at a greater risk of the latent initial level of depression compared to males, which is consistent with previous studies reporting that females are more depressed than males (Elliott, 2001; Rosenfield & Mouzon, 2013). Generally, given that women have more responsibilities in the home after marriage, such as raising children and doing household chores, in addition to stress from the workplace (Meyer, Schwartz, & Frost, 2008), they may continuously present higher levels of depression compared to men. The associations between self-esteem and mental health, and cognitive ability and mental health have been noted in a large body of studies (Donnellan, Trzesniewski, Robins, Moffitt, & Caspi, 2005; Robins, Tracy, & Trzesniewski, 2008; Gale, Deary, Boyle, Barefoot, Mortensen, & Batty, 2008; Koenen et al., 2009), and this study confirms the findings for middle-aged adults by indicating that these factors were associated with the latent initial level of depression. Given that the initial point is 34 years of age, individuals are encouraged to develop both their self-esteem and cognitive abilities before entering into middle age. This study reported that individuals with health insurance are less likely to be depressed in comparison to those without insurance. This might be because those who lack insurance have more difficulty accessing mental health services (Mojtabai et al., 2011).

In terms of economic well-being, individuals who were employed and have more net worth accumulation tend to have a lower initial status of depression. This finding is consistent with previous studies, suggesting that employment serves as a buffer against poor mental health

(Mezuk, Bohnert, Ratliff, & Zivin, 2011; Paul & Moser, 2009) and that net worth is negatively associated with mental health problems (Drentea & Reynolds; 2012; Zurlo, Yoon, & Kim, 2014). This finding confirms that economic well-being is also one of several important factors to reduce mental health problems for middle-aged adults and influences trajectories of depression. In other words, employment and higher net worth in early adulthood is critical to maintain healthy levels of mental health during middle age.

In addition, given that little attention has been given to the relationship between mental health and net worth as a measure of economic well-being, the findings in this study contribute to understanding the effects of net worth on mental health. As net worth reflects long-term effects about economic well-being compared to income (Sherrden, 1991) and is regarded as accumulated wealth (Zhan, 2006), this supports the Cumulative Inequality theory, which states that accumulated benefits and challenges at an economic level over the life course influence mental health (Ferraro & Shippee, 2009; Ferraro, Shippee, & Schafer, 2009). In other words, individuals who have accumulated more assets and have less debt are likely to be at lower risks of depression compared to those who have limited assets and higher debt.

C. Effects of Economic Well-being on Mental Health

Findings from the conditional model considering time-varying covariates are consistent with previous studies, indicating that economic well-being, such as employment and net worth, is associated with mental health (Drentea & Reynolds, 2012; Kim & von dem Knesebeck, 2016; Paul & Moser 2009; Zurlo, Yoon, & Kim, 2014). Compared to previous studies, this study identifies the effects of economic well-being on mental health at four points in time during middle age. In terms of employment, it is associated with depression at 34, 36, 40, and 50 years

of age. The finding provides further empirical evidence that providing opportunities for jobs is always important during middle age in order to curb poor mental health. Previous studies showed the association at one point in time and did not show the effects of employment on mental health for each age. However, the findings support the hypothesis that employment has a significant impact on mental health during middle age by including responses at four points in time within a single model. Since employment allows one to earn a living, individuals who are have stable employment feel a sense of security in their lives, thus reducing risks of depression. If they are unemployed and unable to earn a living, this will be the biggest challenge to their quality of life. That is why employment is crucial to maintaining mental health during middle age. The phenomenon in which older adults who retire and stop earning money and subsequently suffer from depression might be related to that loss of employment

Net worth is associated with depression at 34, 36, and 50 years of age. This finding provides further empirical evidence regarding the effects of net worth on mental health during middle age. Previous studies showed that net worth was associated with mental health at one point in time based on cross-sectional settings, however, The findings in this study show that net worth affects mental health at three points in time within a single model. Consistent with the CI theory, which states that accumulated advantages at an economic level influence mental health (Ferraro & Shippee, 2009; Ferraro, Shippee, & Schafer, 2009), the finding confirms the CI theory by showing that net worth, referring to accumulated assets in consideration of debts, affects mental health during middle age. Interestingly, net worth at 40 years of age was not associated with mental health. This might be related to characteristics of that time period, which is influenced by family support and self-development. Even though their net worth gradually increases, the main focus of individuals in their 40s is to support children or invest in their self-

development. Thus, they might focus more on maintaining job security through employment to support their family or work on themselves rather than focus solely on saving money. In particular, given that the household consumption consistently grows until individuals reach their 50s or prior to retirement, wealth accumulation might not be a primary interest in one's 40s. However, as they reach a certain age around the 50s or 60s for retirement and think about plans after retirement, net worth affects their mental health because accumulated wealth becomes a main resource to maintaining their lives following the loss of jobs.

D. Implications

As the 40s is a bridge between the lowest levels of depression and a gradual increase of depression, social workers should be aware of changes of mental health among middle aged-adults and spend more time and resources to encourage those individuals to prepare for changes in mental health. In addition, prevention programs for mental health should be more focused on middle age because this stage of life is a turning point for mental health problems.

Given that economic well-being influences the initial status of mental health at 34 years of age, providing more opportunities for employment and education to save money should be more focused on young adults. The findings support policies providing more jobs to adults. In addition, to improve mental health problems over time, education or programs that help individuals develop self-esteem and increase their cognitive ability might be more effective if it is provided to those before they reach middle age. Furthermore, it is necessary to provide more customized and specialized interventions and services for women's mental health problems. The programs and services should consider their dual stresses from household work and the labor force. Policy makers should revise laws to protect those who do not have insurance to address

mental health problems in order to reduce the negative effects of non-health insurance on mental health over a long period of time.

In addition, as employment is one of many important factors to reduce mental health problems, this study encourages supported employment, which provides services for adults with mental disorders or co-occurring mental disorders, to help them to acquire and maintain competitive employment (Marshall et al., 2014). This program includes mental health services as well as helps them to rehabilitate into communities and search for jobs (Marshall et al., 2014). The goal of this program is to assist those who suffer from mental disorders and help them become gainfully employed. From the program, those who received the benefits reported higher rates of competitive employment, satisfaction with their job, and higher earnings (Marshall et al., 2014). As employment is negatively associated with poor mental health and the supported employment has been shown to be a positive effect, this program should be given more consideration and should be expanded to provide services to middle-aged adults with mental health problems. In addition, the findings emphasize the importance of job training for employment in order to improve poor mental health and achieve social justice as well as provide a rationale that social workers should protect and advocate for those who have poor economic well-being.

Given that net worth influences mental health during middle age, educational programs regarding savings and wealth accumulation, provided by community centers, should be encouraged to middle-aged adults. The information learned might then help them to better accumulate wealth and avoid debt, leading to lower levels of depression.

E. Limitations

The findings should be interpreted within the context of limitations. First of all, the sample is limited because of the characteristics from the secondary data set. To estimate trajectories of mental health from 34 to 50 year of age, most respondents from the total sample were excluded because they had not yet reached 50 years of age and could not answer questions about their mental health at 50 years. Future studies should include more respondents as participants age and they can report their mental health at 50 years.

Secondly, due to correlation problems among economic factors, this study uses two factors as a measure of economic well-being. However, these factors may not be representative of economic well-being, therefore, additional economic factors may need to be considered in future study.

Thirdly, even though depression in this study was measured by CES-D, which is commonly used in most studies, the measurement is a self-reported scale. Respondents might subjectively evaluate their own mental health without an objective standard. Thus, the answers might have some biases and this may influence the process to estimate mental health trajectories.

Fourth, this study only shows trajectories of mental health and did not consider economic well-being trajectories. Thus, it is not possible to compare how the trajectories of economic well-being affect the mental health trajectories. Future studies should first identify trajectories of economic well-being and then examine the effects of economic well-being trajectories on mental health trajectories.

Fifth, this study did not include certain covariates which influence mental health, due to limitations of the secondary data set. For instance, physical health should be included in understanding mental health, however, this variable was not available at 34 and 36 years of age.

For this reason, this study did not include physical health. Likewise, other potential variables that were not included in this study should be considered in future studies.

Sixth, this study hypothesizes that economic well-being affects mental health. However, the causal relationship between economic well-being and mental health may change depending on a researcher's perspective. For instance, individuals who have suffered from mental health problems may be more likely to be unemployed and have lower net worth. Therefore, researchers should be aware of this confounding causal relationship.

Lastly, even though the findings are telling, many interesting questions remain unanswered. If researchers gears an advanced statistic skill regarding how to examine moderating or moderating effects in the longitudinal settings, the next logical step is to explore a moderator or mediator in the relationship between economic well-being and mental health. Future studies may identify gender, race, and education disparities in the relationships.

REFERENCES

REFERENCES

Akincigil, A., Olfson, M., Siegel, M., Zurlo, K. A., Walkup, J. T., & Crystal, S. (2012). Racial and ethnic disparities in depression care in community-dwelling elderly in the United States. *American Journal of Public Health, 102,* 319-328. doi:10.2105/ajph.2011.300349

Ahnquist, J., & Wamala, S. P. (2011). Economic hardships in adulthood and mental health in Sweden. the Swedish National Public Health Survey 2009. *BMC Public Health*, *11*(1), 1-11.

Al Jurdi, R. K., Rej, S., & Sajatovic, M. (2014). Aging with serious mental illness: An overview and implications for service delivery. *Generations, 38*(3), 14-22.

Almeida, O. P., Pirkis, J., Kerse, N., Sim, M., Flicker, L., Snowdon, J., ... & Alfonso, H. (2012). Socioeconomic disadvantage increases risk of prevalent and persistent depression in later life. *Journal of affective disorders*, *138*(3), 322-331.

Amick, B. C., McLeod, C. B., & Bültmann, U. (2016). Labor markets and health: an integrated life course perspective. *Scandinavian Journal of Work, Environment & health*, *42*(4), 346-353.

Angel, R. J., Frisco, M., Angel, J. L., & Chiriboga, D. A. (2003). Financial strain and health among elderly Mexican-origin individuals. *Journal of Health and Social Behavior, 44*, 536-551. doi:10.2307/1519798

Aranda, M. P. (2006). Social work with older Latinos: A mental health perspective. In B. Berkman (Ed.), *Handbook of social work in aging* (pp. 283-291). New York: Oxford University Press.

Arnett, J., & Taber, S. (1994). Adolescence terminable and interminable: When does adolescence end? *Journal of Youth and Adolescence*, *23*, 517-537.

Ashenfelter, O., Ashmore, D., & Deschênes, O. (2005). Do unemployment insurance recipients actively seek work? Evidence from randomized trials in four US states. *Journal of Econometrics*, *125*(1-2), 53-75.

Ayllón, S. (2013). Unemployment persistence: Not only stigma but discouragement too. *Applied Economics Letters, 20*, 67–71. doi:10.1080/13504851.2012.681020

Bachman, J. G., O'Malley, P. M., Freedman-Doan, P., Trzesniewski, K. H., & Donnellan, M. B. (2011). Adolescent self-esteem: Differences by race/ethnicity, gender, and age. *Self and Identity*, *10*(4), 445-473.

Bakke, E. (1934). *The Unemployed Man*. New York: Dutton.

Barrio, C., Palinkas, L. A., Yamada, A. M., Fuentes, D., Criado, V., Garcia, P., & Jest, D. V. (2008). Unmet needs for mental health services for Latino older adults: Perspectives from consumers, family members, advocates, and service providers. *Community Mental Health Journal*, *44*, 57-74.

Bauldry, S. (2015). Variation in the protective effect of higher education against depression. *Society and Mental Health*, *5*(2), 145-161.

Bearden, W. O., Sharma, S., & Teel, J. E. (1982). Sample size effects on chi-square and other statistics used in evaluating causal models. *Journal of Marketing Research, 19*, 425−430.

Bertrand, M., & Mullainathan, S. (2004). Are Emily and Greg more employable than Lakisha and Jamal? A field experiment on labor market discrimination. *The American Economic Review, 94*, 991-1013.

Bierman, A. (2014). Reconsidering the relationship between age and financial strain among older adults. *Society and Mental Health*, *4*(3), 197-214.

Bierman, A., Fazio, E. M., & Milkie, M. A. (2006). A multifaceted approach to the mental health advantage of the married: Assessing how explanations vary by outcome measure and unmarried group. *Journal of Family Issues*, *27*(4), 554-582.

Blanchflower, D. G., & Oswald, A. J. (2008). Is well-being U-shaped over the life cycle?. *Social Science & Medicine*, *66*(8), 1733-1749.

Blau, G., Petrucci, T., & McClendon, J. (2013). Correlates of life satisfaction and unemployment stigma and the impact of length of unemployment on a unique unemployed sample. *Career Development International*, *18*(3), 257-280.

Bollen, K.A. (1989). *Structural equations with latent variables.* New York: John Wiley & Sons, Inc.

Booth, A., Crouter, A. C., & Shanahan, M. J. (1999). *Transitions to adulthood in a changing economy: No work, no family, no future?*. Westport, CT: Praeger.

Bosma, H., van Boxtel, M. P., Kempen, G. I., van Eijk, J. T., & Jolles, J. (2007). To what extent does IQ explain socio-economic variations in function?. *BMC Public Health*, *7*(1), 1-10.

Boyce, C. J., Wood, A. M., Daly, M., & Sedikides, C. (2015). Personality change following unemployment. *Journal of Applied Psychology*, *100*(4), 991-1011.

Braveman, P. A., Cubbin, C., Egerter, S., Chideya, S., Marchi, K. S., Metzler, M., & Posner, S. (2005). Socioeconomic status in health research: One size does not fit all. *JAMA, 294*, 2879-2888.

Brennan, M., Vega, M., Garcia, I., Abad, A., & Friedman, M. B. (2005). Meeting the mental health needs of elderly Latinos affected by depression: Implications for outreach and service provision. *Care Management Journals*, *6*(2), 98-106.

Breslau, J., Marshall, G. N., Pincus, H. A., & Brown, R. A. (2014). Are mental disorders more common in urban than rural areas of the United States?. *Journal of Psychiatric Research, 56*, 50-55.

Broom, D. H., D'souza, R. M., Strazdins, L., Butterworth, P., Parslow, R., & Rodgers, B. (2006). The lesser evil: bad jobs or unemployment? A survey of mid-aged Australians. *Social Science & Medicine, 63*(3), 575-586.

Brown, J. D., & Marshall, M. A. (2006). The three faces of self-esteem. In M. Kernis (Ed.), *Self-esteem: Issues and answers* (pp. 4-9). New York: Psychology Press.

Browne, M. W., & Cudeck, R. (1992). Alternative ways of assessing model fit. *Sociological Methods and Research, 21*, 230-258.

Buunk, B. P., & Janssen, P. P. (1992). Relative deprivation, career issues, and mental health among men in midlife. *Journal of Vocational Behavior, 40*(3), 338-350.

Buzzanell, P. M., & Turner, L. H. (2003). Emotion work revealed by job loss discourse: Backgrounding-foregrounding of feelings, construction of normalcy, and (re)instituting of traditional masculinities. *Journal of Applied Communication Research, 31*, 27–57. doi:10.1080/00909880305375

Carlier, B. E., Schuring, M., Lötters, F. J., Bakker, B., Borgers, N., & Burdorf, A. (2013). The influence of re-employment on quality of life and self-rated health, a longitudinal study among unemployed persons in the Netherlands. *BMC Public Health, 13*(1), 1-7.

Chan, S., & Stevens, A., H. (2001). Job loss and employment patterns of older workers. *Journal of Labor Economics, 19*(2), 484-521.

Chao, S. F. (2011). Assessing social support and depressive symptoms in older Chinese adults: a longitudinal perspective. *Aging & Mental Health, 15*, 765-774, doi:10.1080/13607863.2011.562182.

Chetty, R. (2008). Moral hazard versus liquidity and optimal unemployment insurance. *Journal of Political Economy, 116*(2), 173-234.

Cho, E. (1999). *The effects of assets on the economic well-being of women after marital disruption* (Working Paper). St Louis: Center for Social Development, Washington University.

Clark, R. L. (1989). Economic well-being of the elderly: Theory and measurement. *Journal of Cross-Cultural Gerontology*, *4*(1), 19-34.

Clark, K. B., Summers, L. H. (1979). Labor market dynamics and unemployment: A reconsideration. *Brookings Papers on Economic Activity, 1*, 13-72.

Cockerham, W. (2005). Health lifestyle theory and the convergence of agency and structure. *Journal of Health and Social Behavior*, *46*(1), 51-67.

Collins, L. M., & Sayer, A. G. (2001). *New methods for the analysis of change*. Washington, DC: American Psychological Association.

Conley, D. (1999). *Being black, living in the red: Race, wealth, and social policy in America*. Berkeley, CA: University of California Press.

Coyne, J. C., & DeLongis, A. (1986). Going beyond social support: The role of social relationships in adaptation. *Journal of Consulting and Clinical Psychology*, *54*(4), 454-460.

Couch, K. A. (1998). Late life job displacement. *The Gerontologist*, *38*(1), 7-17.

Council on Social Work Education.(2016). Retrieved from February 2nd, 2016, from http://www.cswe.org/CentersInitiatives/EconWellBeing.aspx

Curran, P. J. (2003). Have multilevel models been structural equation models all along?. *Multivariate Behavioral Research*, *38*(4), 529-569.

Cylus, J., & Avendano, M. (2017). Receiving unemployment benefits may Have positive effects on the health of the unemployed. *Health Affairs*, *36*(2), 289-296.

Dave, D., Rashad, I., & Spasojevic, J. (2006). The effects of retirement on physical and mental health outcomes, *NBER Working Paper Series, Working Paper 12123,* National Bureau of Economic Research:Cambridge, Mass.

De Leon, C. F. M., Rapp, S. S., & Kasl, S. V. (1994). Financial strain and symptoms of depression in a community sample of elderly men and women: a longitudinal study. *Journal of Aging and Health*, *6*(4), 448-468.

Denton, M., & Boos, L. (2007). Gender inequality in the wealth of older Canadians. *Social and Economic Dimensions of an Aging Population Research Papers, 169,* McMaster University. Retrieved from http://ideas.repec.org/p/mcm/sedapp/169.html

De Vaus, D. (2002). Marriage and mental health. *Family Matters*, (62), 26-32.

Ding, L., Velicer, W. F., & Harlow, L. L. (1995). Effects of estimation methods, number of

indicators per factor, and improper solutions on structural equation modeling fit indices. *Structural Equation Modeling: A Multidisciplinary Journal*, *2*(2), 119-143.

DiNitto, D. M. (2011). *Social welfare: Politics and public policy*. Boston: Allyn & Bacon.

DiPrete, T. A., Goux, D., & Maurin, E. (2002). Internal labor markets and earnings trajectories in the post-Fordist economy: An analysis of recent trends. *Social Science Research*, *31*(2), 175-196.

Donnellan, M. B., Trzesniewski, K. H., Robins, R. W.,Moffitt, T. E., & Caspi, A. (2005). Low self-esteem is related to aggression, antisocial behavior, and delinquency. *Psychological Science, 16*(4), 328–335.

Dobalian, A., & Rivers, P. A. (2008). Racial and ethnic disparities in the use of mental health services. *The Journal of Behavioral Health Services and Research, 35,* 128-141.

Dooley, D., Prause, J., & Ham-Rowbottom, K. A. (2000). Underemployment and depression: longitudinal relationships. *Journal of Health and Social Behavior*, 421-436.

Dougherty, D. S., Rick, J. M., & Moore, P. (2017). Unemployment and social class stigmas. *Journal of Applied Communication Research*, *45*(5), 495-516.

Drentea, P., & Reynolds, J. R. (2012). Neither a borrower nor a lender be: The relative importance of debt and SES for mental health among older adults. *Journal of Aging and Health, 24,* 673–695. doi:10.1177/0898264311431304

Drentea, P. (2000). Age, debt and anxiety. *Journal of Health and Social Behavior, 41*, 437- 450.

Dressler, W. W. (1988). Social consistency and psychological distress. *Journal of Health and Social Behavior*, *29*(1), 79-91.

Duncan, T. E., Duncan, S. S., Strycker, L. A. (2011). *An introduction to latent variable growth curve modeling: Concepts, issues, and applications*. Mahwah, NJ: Erlbaum.

Dunlop, D. D., Song, J., Lyons, J. S., Manheim, L. M., & Chang, R. W. (2003). Racial/ethnic disparities among preretirement adults, *American Journal of Public Health, 93*(11), 1945-1952.

Dwight-Johnson, M., Unutzer, J., Sherbourne, C., Tang, L.Q., & Wells, K.B. (2001). Can quality improvement programs for depression in primary care address patient preferences for treatment? *Medical Care, 39,* 934-940.

Eaton, W., Muntaner, C., & Bovasso, G. (2001). Socioeconomic status and depression. *Journal of Health and Social Behavior*, *42*, 277–293.

Eisenberg, P. & Lazarsfeld, P.F. (1938). The psychological effects of unemployment.

Psychological Bulletin, 35, 358-390.

Ek, S., & Holmlund, B. (2015). Part-time unemployment and optimal unemployment insurance. *International Tax and Public Finance*, *22*(2), 201-223.

Elder, G. H., & Johnson, M. K. (2003). The life course and aging: Challenges, lessons, and new directions. In R. A. Settersten. *Invitation to the life course: Towards new understandings of later life* (pp. 49-81). New York: Baywood Publishing Company.

Elliott, M. (2001). Gender differences in causes of depression. *Women & Health, 33* , 163- 177.

Elman, C. (2011). The midlife years: Human capital and job mobility. In R. A. Settersten & J. L. Angel, *Handbook of sociology of aging* (pp. 245-261). New York, NY: Springe.

Eliason, M., Storrie, D. (2009). Does job loss shorten life? *The Journal of Human Resources, 4*, 277–302.

Elman, C., & Angela, M. O. (2002). Perceived job insecurity and entry into work-related education and training among adult workers. *Social Science Research*, *31*(1), 49-76.

Elwér, S., Hammarström, A., Strandh, M., & Gustafsson, P. E. (2015). Life course models of economic stress and poor mental health in mid-adulthood: Results from the prospective Northern Swedish Cohort. *Scandinavian Journal of Public Health*, *43*(8), 833-840.

Enthoven, A. C., & Fuchs, V. R. (2006). Employment-based health insurance: Past, present, and future. *Health Affairs*, *25*(6), 1538-1547.

Fan, X., Thompson, B., & Wang, L. (1999). Effects of sample size, estimation methods, and model specification on structural equation modeling fit indexes. *Structural Equation Modeling, 6,* 56-83.

Farber, H. S., & Valletta, R. G. (2015). Do extended unemployment benefits lengthen unemployment spells? Evidence from recent cycles in the US labor market. *Journal of Human Resources*, *50*(4), 873-909.

Federal Interagency Forum on Aging-Related Statistics. (2012). Older Americans 2012: Key Indicators of Well-Being. Federal Interagency Forum on Aging-Related Statistics. Washington, DC: U.S. Government Printing Office. Retrieved from http://www.agingstats.gov/agingstatsdotnet/Main_Site/Data/Data_2012.aspx

Ferraro, K. F., Schafer, M. H., & Wilkinson, L. R. (2016). Childhood disadvantage and health problems in middle and later life: Early imprints on physical health?. *American Sociological Review*, 81(1). 107-133. doi:10.1177/0003122415619617.

Ferraro, K. F., & Shippee, T. P. (2009). Aging and cumulative inequality: How does inequality get under the skin? *The Gerontologist*, 49, 333–343.

doi:10.1093/geront/gnp034

Ferraro, K. F., Shippee, T. P., & Schafer, M. H. (2009). Cumulative inequality theory for research on aging and the life course. In V. L. Bengtson, D. Gans, N. M. Putney, & M. Silverstein (Eds.), *Handbook of theories of aging* (pp. 413-433). New York, NY: Springer.

Ferraro, K. F., & Su, Y.-P. (1999). Financial strain, social relations, and psychological distress among older people: A cross-cultural analysis. *The Journals of Gerontology, Series B: Psychological Sciences and Social Sciences*, *54*, 3-15. doi:10.1093/geronb/54B.1.S3

Fiest, K. M., Currie, S. R., Williams, J. V., & Wang, J. (2011). Chronic conditions and major depression in community-dwelling older adults. *Journal of Affective Disorders*, *131*(1), 172-178.

Flory, K., Lynam, D., Milich, R., Leukefeld, C., & Clayton, R. (2004). Early adolescent through young adult alcohol and marijuana use trajectories: Early predictors, young adult outcomes, and predictive utility. *Development and Psychopathology, 16*(1), 193–213.

Franz, C. E., Lyons, M. J., O'brien, R., Panizzon, M. S., Kim, K., Bhat, R., ... & Kremen, W. S. (2011). A 35-year longitudinal assessment of cognition and midlife depression symptoms: the Vietnam Era Twin Study of Aging. *The American Journal of Geriatric Psychiatry*, *19*(6), 559-570.

Frasquilho, D., de Matos, M. G., Santos, T., Gaspar, T., & Caldas de Almeida, J. M. (2016). Unemployment as a source of mental distress to individuals and their family: Unemployed parents' perceptions during the economic recession. *International Journal of Social Psychiatry*, *62*(5), 477-486.

Frech, A., & Williams, K. (2007). Depression and the psychological benefits of entering marriage. *Journal of Health and Social Behavior*, *48*(2), 149-163.

Friedli, L. (2009). *Mental health, resilience and inequalities*. Copenhagen, Denmark: WHO Regional Office for Europe.

Fujise, N., Abe, Y., Fukunaga, R., Nakagawa, Y., Nishi, Y., Koyama, A., & Ikeda, M. (2016). Comparisons of prevalence and related factors of depression in middle-aged adults between urban and rural populations in Japan. *Journal of Affective Disorders*, *190*, 772-776.

Gale, C. R., Batty, G. D., & Deary, I. J. (2008). Locus of control at age 10 years and health outcomes and behaviors at age 30 years: the 1970 British Cohort Study. *Psychosomatic Medicine*, *70*(4), 397-403.

Gale, C. R., Deary, I. J., Boyle, S. H., Barefoot, J., Mortensen, L. H., & Batty, G. D. (2008). Cognitive ability in early adulthood and risk of 5 specific psychiatric disorders in middle age: the Vietnam experience study. *Archives of General Psychiatry*, *65*(12), 1410-1418.

Galea, S., Ahern, J., Nandi, A., Tracy, M., Beard, J., & Vlahov, D. (2007). Urban neighborhood poverty and the incidence of depression in a population-based cohort study. *Annals of Epidemiology*, *17*(3), 171-179.

Galea, S., Freudenberg, N., & Vlahov, D. (2005). Cities and population health. *Social Science & Medicine*, *60*(5), 1017-1033.

Gao, H., Lu, M., & Sato, H. (2015). Inclusive urban employment: How does city scale affect job opportunities for different people?. *Asian Economic Papers*, *14*(2), 98-128.

Garcia, J. A. (2007). Borrowing to make ends meet: The rapid growth of credit card debt in America. New York, NY: Dēmos Publication Series.

Garfield, R. L., Zuvekas, S. H., Lave, J. R., & Donohue, J. M. (2011). The impact of national health care reform on adults with severe mental disorders. *American Journal of Psychiatry*, *168*(5), 486-494.

Gendell, M. (2008). Older workers: Increasing their labor force participation and hours of work. *Monthly Labor Review*, *131*, 41-54.

George, L.,K. (2013). Life-course perspective on mental health. In C. S. Aneshensel, J. C. Helan & A. Bierman (Eds.), *Handbook of the Sociology of Mental Health* (pp. 585-602). New York: Kluwer Academic/Plenum Publishers.

Giandrea, M. D., Cahill, K. E., & Quinn, J. F. (2009). Bridge jobs a comparison across cohorts. *Research on Aging*, *31*(5), 549-576.

Goldsmith, A. H., & Darity, W. (1992). Social psychology, unemployment exposure and equilibrium unemployment. *Journal of Economic Psychology*,*13*(3), 449-471. doi:10.1016/0167-4870(92)90004-Q

Goldsmith, A. H., Veum, J. R., & Darity, W. (1996). The psychological impact of unemployment and joblessness. *The Journal of Socio-Economics*, *25*(3), 333-358.

Goldsmith, A. H., Veum, J. R., & Darity, W. (1995). Are being unemployed and being out of the labor force distinct states?: A psychological approach. *Journal of Economic Psychology*, *16*(2), 275-295.

Goldsmith, A. H., Veum, J. R., & William, D. (1996). The impact of labor force history on self-esteem and its component parts, anxiety, alienation and depression. *Journal of Economic Psychology*, *17*(2), 183-220.

Gravetter, F., & Wallnau, L. (2014). Essentials of statistics for the behavioral sciences (8th ed.). Belmont, CA: Wadsworth.

Green, M. J., & Benzeval, M. (2011). Ageing, social class and common mental disorders: longitudinal evidence from three cohorts in the West of Scotland. Psychological Medicine, 41(3), 565-574.

Hatch, S. L., Jones, P. B., Kuh, D., Hardy, R., Wadsworth, M. E., & Richards, M. (2007). Childhood cognitive ability and adult mental health in the British 1946 birth cohort. *Social Science & Medicine, 64*(11), 2285-2296.

Heinz, W. R. (2003). From work trajectories to negotiated careers: The contingent work life course. In J.T. Mortimer & M. J. Shanahan. *Handbook of the life course (*pp. 185- 204). New York: Kluwer Academic/Plenum Publishers.

Henretta, J. C., Grundy, E. M., Okell, L. C., & Wadsworth, M. E. (2008). Early motherhood and mental health in midlife: a study of British and American cohorts. *Aging and Mental Health, 12*(5), 605-614.

Hong, S. I., Hasche, L., & Bowland, S. (2009). Structural relationships between social activities and longitudinal trajectories of depression among older adults. *The Gerontologist*, *49*(1), 1-11.

Hooper, D., Coughlan, J., & Mullen, M. (2008). Structural equation modelling: Guidelines for determining model fit. *Electronic Journal of Business Research Methods, 6*(1), 53-60.

Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling, 6*, 1-55.

Huber, M., Lechner, M., & Wunsch, C. (2011). Does leaving welfare improve health? Evidence for Germany. *Health Economics*, *20*(4), 484-504.

Hughes, M., Kiecolt, K. J., & Keith, V. M. (2014). How racial identity moderates the impact of financial stress on mental health among African Americans. *Society and Mental Health, 4*(1), 38-54.

Hunt, M. O. (2007). African American, Hispanic, and White beliefs about Black/White inequality, 1977-2004. *American Sociological Review*, *72*(3), 390-415.

Hunt, J. W., & Collins, R. R. (1983). Managers in midcareer crisis. Sydney: Wellington Press.

Iacobucci, D. (2010). Structural equations modeling: Fit Indices, sample size, and advanced topics. *Journal of Consumer Psychology*, *20*, 90-98. doi:10.1016/j.jcps.2009.09.003

Jackson, E. F. (1962). Status consistency and symptoms of stress. *American Sociological Review*, 27(4), 469-480.

Johnson, R. W., Kawachi, J., & Lewis, E. (2009). Older workers on the move: Recareering in later life. Washington, D.C.: AARP Public Policy Institute.

Jahoda, M. (1984). Social institutions and human needs: A comment on Fryer and Payne. *Leisure Studies*, *3*(3), 297-299.

Jahoda, M. (1982). *Employment and unemployment: a social-psychological analysis*. Cambridge University Press, Cambridge.

Kahn, J. R., & Fazio, E. M. (2005). Economic status over the life course and racial disparities in health. *The Journals of Gerontology, Series B: Psychological Sciences and Social Sciences, 60,* 76–84. doi:10.1093/geronb/60.Special_Issue_2.S76

Kahn, J. R., & Pearlin, L. I. (2006). Financial strain over the life course and health among older adults. *Journal of Health and Social Behavior, 47,* 17-31. doi:10.1177/002214650604700102

Kalil, A., Ziol-Guest, K. M., Hawkley, L. C., & Cacioppo, J. T. (2009). Job insecurity and change over time in health among older men and women. *The Journals of Gerontology Series B: Psychological Sciences and Social Sciences*, *65B*(1), 81-90, doi:10.1093/geronb/gbp100

Kanfer, R., Wanberg, C. R., & Kantrowitz, T. M. (2001). Job search and employment: A personality-motivational analysis and meta-analytic review. *Journal of Applied Psychology, 86,* 837–855.

Keister, L. A. (2000). Wealth in America: Trends in Wealth Inequality. Cambridge, UK: Cambridge University Press.

Keith, V. M. (1993). Gender, financial strain, and psychological distress among older adults. *Research on Aging*, *15*, 123-147. doi:10.1177/0164027593152001

Kendler, K. S., Karkowski, L. M., & Prescott, C. A. (1999). Causal relationship between stressful life events and the onset of major depression. *American Journal of Psychiatry*, *156*(6), 837-841.

Kessler, R. C., Birnbaum, H., Bromet, E., Hwang, I., Sampson, N., & Shahly, V. (2010). Age differences in major depression: Results from the National Comorbidity Survey Replication (NCS-R). *Psychological Medicine, 40,* 225–237.

Kessler, R. C., Berglund, P., Demler, O., Jin, R., Koretz, D., Merikangas, K. R., ... & Wang, P. S. (2003). The epidemiology of major depressive disorder: results from the National

Comorbidity Survey Replication (NCS-R). *Jama*, *289*(23), 3095-3105.

Kessler, R. C. (1997). The effects of stressful life events on depression. *Annual Review of Psychology, 48,* 191-214. doi:10.1146/annurev.psych.48.1.191

Kessler, R. C., McGonagle, K. A., Zhao, S., Nelson, C. B., Hughes, M., Eshleman, S., ... & Kendler, K. S. (1994). Lifetime and 12-month prevalence of DSM-III-R psychiatric disorders in the United States: results from the National Comorbidity Survey. *Archives of General Psychiatry*, *51*(1), 8-19.

Kessler, R. C., Foster, C., Webster, P. S., & House, J. S. (1992). The relationship between age and depressive symptoms in two national surveys. *Psychology and Aging, 7*(1), 119-126.

Kiani, R., Tyrer, F., Hodgson, A., Berkin, N., & Bhaumik, S. (2013). Urban–rural differences in the nature and prevalence of mental ill-health in adults with intellectual disabilities. *Journal of Intellectual Disability Research, 57*(2), 119-127.

Kim, E. Y., Kim, S. H., Ha, K., Lee, H. J., Yoon, D. H., & Ahn, Y. M. (2015). Depression trajectories and the association with metabolic adversities among the middle-aged adults. *Journal of Affective Disorders*, *188*, 14-21.

Kim, G., Parton, J. M., DeCoster, J., Bryant, A. N., Ford, K. L., & Parmelee, P. A. (2013). Regional variation of racial disparities in mental health service use among older adults. *The Gerontologist*, *53*(4), 618-626.

Kim, T. J., & von dem Knesebeck, O. (2016). Perceived job insecurity, unemployment and depressive symptoms: a systematic review and meta-analysis of prospective observational studies. *International Archives of Occupational and Environmental Health*, *89*(4), 561-573.

Koenen, K. C., Moffitt, T. E., Roberts, A. L., Martin, L. T., Kubzansky, L., Harrington, H., ... & Caspi, A. (2009). Childhood IQ and adult mental disorders: a test of the cognitive reserve hypothesis. *American Journal of Psychiatry*, *166*(1), 50-57.

Kline, R. B. (2011). *Principles and practice of structural equation modeling* (3rd ed.). New York, NY: Guilford Press.

Kling, K. C., Hyde, J. S., Showers, C. J., & Buswell, B. N. (1999). Gender differences in self-esteem: A meta-analysis. *Psychological Bulletin, 125*(4), 470-500.

Krause, N., Jay, G., & Liang, J. (1991). Financial strain and psychological well-being among the American and Japanese elderly. *Psychology and Aging, 6*, 170-181. doi:10.1037/0882-7974.6.2.170

Kuh, D., Power, C., Blane, D., & Bartley, M. (2003). Socioeconomic pathways between childhood and adult health. In D. L. Kuh & Y. Ben-Shlomo (Eds.), *A life course*

approach to chronic disease epidemiology: Tracing the origins of ill health from early to adult life (2nd ed., pp. 371-395). Oxford, England: Oxford University Press.

Kuhn, A., Lalive, R., Zweimüller, J., 2009. The public health costs of job loss. *Journal of Health Economics, 28* (6), 1099–1115.

Laaksonen, M., Rahkonen, O., Marikainen, P., & Lahelma, E. (2005). Socioeconomic position and self-rated health: the contribution of childhood socioeconomic circumstances, adult socioeconomic status and material resources. *American Journal of Public Health, 95*, 1403-1409.

Leach, L. S., Butterworth, P., & Whiteford, H. (2012). Private health insurance, mental health and service use in Australia. *Australian & New Zealand Journal of Psychiatry*, *46*(5), 468-475.

Lee, J. (2011). Pathways from education to depression. *Journal of Cross-cultural Gerontology*, *26*(2), 121-135.

Lennon, M. C., & Limonic, L. (2009). Work and unemployment as stressors. In T. L. Scheid & T. N. Brown (Eds.), *A handbook for the study of mental health: Social contexts, theories, and systems* (pp. 213–225). New York: Cambridge University Press.

Lenski, G. E. (1954). Status crystallization: a non-vertical dimension of social status. *American sociological review*, *19*(4), 405-413.

Lever, J. P., Pinol, N. L., & Uralde, J. H. (2005). Poverty, psychological resources and subjective well-being. *Social Indicators Research, 73*, 375-408.

Levecque, K., Van Rossem, R., De Boyser, K., Van de Velde, S., & Bracke, P. (2011). Economic hardship and depression across the life course the impact of welfare state regimes. *Journal of Health and Social Behavior*, *52*(2), 262-276.

Link, B. G., & Phelan, J. (1995). Social conditions as fundamental causes of disease. *Journal of Health and Social Behavior, 36*, 80-94.

Little, R. J. A. & Rubin, D. B. (2002). *Statistical analysis with missing data.* A John Wiley & Sons, Inc., Hoboken, NJ, USA.

Liu, H., Elliott, S., & Umberson, D. J. (2010). Marriage in young adulthood. In J. E. Grant and M. N. Potenza, *Young adult mental health* (pp. 169-180). New York: Oxford University Press.

Loonin, D., & Renuart, E. (2007). The life and debt cycle: The growing debt burdens of older consumers and related policy recommendations. *Harvard Journal on Legislation*, *44*, 167-203.

Lorant, V., Croux, C., Weich, S., Deliège, D., Mackenbach, J., & Ansseau, M. (2007). Depression and socio-economic risk factors: 7-year longitudinal population study. *The British Journal of Psychiatry, 190*(4), 293-298.

Lorant, V., Deliège, D., Eaton, W., Robert, A., Philippot, P., & Ansseau, M. (2003). Socioeconomic inequalities in depression: a meta-analysis. *American Journal of Epidemiology, 157*(2), 98-112.

Lynch, S. M. (2003). Cohort and life-course patterns in the relationship between education and health: A hierarchical approach. *Demography, 40*, 309-331.

MacCallum, R. C., Kim, C., Malarkey, W. B., & Kiecolt-Glaser, J. K. (1997). Studying multivariate change using multilevel models and latent curve models. *Multivariate Behavioral Research, 32*(3), 215-253.

Madianos, M., Economou, M., Alexiou, T., & Stefanis, C. (2011). Depression and economic hardship across Greece in 2008 and 2009: Two cross-sectional surveys nationwide. *Social Psychiatry and Psychiatric Epidemiology*, *46*(10), 943-952.

Mann, M. M., Hosman, C. M., Schaalma, H. P., & De Vries, N. K. (2004). Self-esteem in a broad-spectrum approach for mental health promotion. *Health Education Research, 19*(4), 357-372.

Marcussen, K. (2005). Explaining differences in mental health between married and cohabiting individuals. *Social psychology quarterly*, *68*(3), 239-257.

Marsella, A. J. (1998). Urbanization, mental health, and social deviancy: A review of issues and research. *American Psychologist*, *53*(6), 624-634.

Marsh, H. W., Balla, J. R., & Hau, K. T. (1996). An evaluation of incremental fit indices: A clarification of mathematical and empirical properties. In G.A. Marcoulides & R. E. Schumacker (Eds), *Advanced structural equation modeling: Issues and techniques* (pp. 315-353). Mahwah, NJ: Erlbaum.

Marshall, T., Goldberg, R. W., Braude, L., Dougherty, R. H., Daniels, A. S., Ghose, S. S., ... & Delphin-Rittmon, M. E. (2014). Supported employment: assessing the evidence. *Psychiatric Services*, *65*(1), 16-23.

McArdle, J. J., & Nesselroade, J. R. (2003). Growth curve analysis in contemporary psychological research. In J. A. Schinka, W. F. Velicer & I. B. Weiner. *Handbook of psychology* (pp. 447-482). Hoboken, NJ: John Wiley & Sons, Inc..

McArdle, J. J., & Epstein, D. (1987). Latent growth curves within developmental structural equation models. *Child Development, 58,* 110-133.

McBride, A. M., Lombe, M., & Beverly, S. (2003). The effects of individual development

account programs: Perceptions of participants. *Social Development Issues, 25*, 59-73.

McCloud, L., & Dwyer, R. (2011). The fragile American: Hardship and financial troubles in the 21st century. *Sociological Quarterly, 52,* 13-25.

McCrany, E. J. (1978). Neurotic problems in middle age. *Psychosomatics, 19,* 106-112.

McDonough, P., & Berglund, P. (2003). Histories of poverty and self-rated health trajectories. *Journal of Health and Social Behavior, 44,* 198-214.

McInerney, M., & Mellor, J. M. (2012). Recessions and seniors' health, health behaviors, and healthcare use: Analysis of the Medicare Current Beneficiary Survey. *Journal of Health Economics*, 31, 744–751. doi:10.1016/j.jhealeco.2012.06.002

McInerney, M., Mellor, J. M., & Nicholas, L. H. (2013). Recession depression: Mental health effects of the 2008 stock market crash. *Journal of Health Economics, 32*, 1090-1104. doi:10.1016/j.jhealeco.2013.09.002

McKee-Ryan, F., Song, Z., Wanberg, C. R., & Kinicki, A. J. (2005). Psychological and physical well-being during unemployment: A meta-analytic study. *Journal of Applied Psychology*, *90*(1), 53-76.

McKenzie, K., Murray, A., & Booth, T. (2013). Do urban environments increase the risk of anxiety, depression and psychosis? An epidemiological study. *Journal of Affective Disorders*, *150*(3), 1019-1024.

Mechanic, D. & McAlpine, D., D. (2011). Mental health and aging: A life-course perspective. In R. A. Settersten & J. L. Angel, *Handbook of sociology of aging* (pp. 263-278). New York, NY: Springe.

Mejía, S. T., Settersten, R. A., Odden, M. C., & Hooker, K. (2016). Responses to financial loss during the Great Recession: An examination of sense of control in late midlife. *The Journals of Gerontology Series B: Psychological Sciences and Social Sciences, 71*(4), 734-744. doi: 10.1093/geronb/gbv054.

Meltzer, H., Bebbington, P., Brugha, T., Jenkins, R., McManus, S., & Stansfeld, S. (2010). Job insecurity, socio-economic circumstances and depression. *Psychological Medicine*, *40*, 1401-1407. doi:10.1017/S0033291709991802

Meredith, W., & Tisak, J. (1990). Latent curve analysis. *Psychometrika*, *55*(1), 107-122.

Meyer, I. H., Schwartz, S., & Frost, D. M. (2008). Social patterning of stress and coping: Does disadvantaged social statuses confer more stress and fewer coping resources? *Social Science & Medicine, 67 ,* 368–379.

Mezuk, B., Bohnert, A.S.B., Ratliff, S., & Zivin, K. (2011). Job strain, depressive symptoms, and drinking behavior among older adults: results from the health and retirement study. *The*

Journals of Gerontology, Series B: Psychological Sciences and Social Sciences, 66(4), 426-434, doi:10.1093/geronb/gbr021

Miech, R. A., & Shanahan, M. J. (2000). Socioeconomic status and depression over the life course. *Journal of Health and Social Behavior, 41*(2), 162-176.

Miranda, J., McGuire, T.G., Williams, D.R., & Wang, P. (2008). Mental health in the context of health disparities. *American Journal of Psychiatry, 165,* 1102-1108.

Mirowsky, J., & Ross, C. E. (2010). Well-being across the life course. In T. L. Scheid & T. N. Brown (Ed.), *A handbook for the study of mental health: Social contexts, theories, and systems* (pp. 361-383). New York: Cambridge University Press.

Mirowsky, J., & Ross, C. E. (2001). Age and the effect of economic hardship on depression. *Journal of Health and Social Behavior*, *42*, 132-150. doi:10.2307/3090174

Mirowsky, J. & Ross, C., E. (1999). Well-being across the life course. In A.V. Horwitz & T.L. Scheid, *Handbook for the study of mental health* (pp. 328–347). Cambridge: Cambridge University Press.

Mirowsky, J. (1996). Age and the gender gap in depression. *Journal of Health and Social Behavior*, *37*(4), 362-380.

Mirowsky, J., & Ross, C. E. (1992). Age and depression. *Journal of Health and Social Behavior, 33*(3), 187-205.

Mojtabai, R., Olfson, M., Sampson, N. A., Jin, R., Druss, B., Wang, P. S., ... & Kessler, R. C. (2011). Barriers to mental health treatment: results from the National Comorbidity Survey Replication. *Psychological Medicine, 41*(8), 1751-1761.

Mojtabai, R. (2005). Trends in contacts with mental health professionals and cost barriers to mental health care among adults with significant psychological distress in the United States: 1997–2002. *American Journal of Public Health*, *95*(11), 2009-2014.

Mossakowski, K. N. (2008). Dissecting the influence of race, ethnicity, and socioeconomic status on mental health in young adulthood. *Research on Aging, 30,* 649-671.

Munnell, A. H., Sass, S. A., Soto, M., & Zhivan, N. (2006). Has the displacement of older workers increased?. Chestnut Hill, MA: Center for Retirement Research at Boston College.

Murphy, J. M., Olivier, D. C., Monson, R. R., Sobol, A. M., Federman, E. B., & Leighton, A. H. (1991). Depression and anxiety in relation to social status: A prospective epidemiologic study. *Archives of General Psychiatry*, *48*(3), 223-229.

Muthén, B. (1997). Latent variable modeling of longitudinal and multilevel data. *Sociological Methodology*, *27*(1), 453-480.

Neighbors, H. W., Caldwell, C., Williams, D. R., Nesse, R., Taylor, R. J., Bullard, K. M., … Jackson, J. S. (2007). Race, ethnicity, and the use of services for mental disorders. Results from the National Survey of American Life. *Archives of General Psychiatry, 64*, 485-494.

New Economics Foundation. (2014). *Well being in four policy area report.* London, UK. Retrieved from http://b.3cdn.net/nefoundation/ccdf9782b6d8700f7c_lcm6i2ed7.pdf

Nicklett, E. J., & Burgard, S. A. (2009). Downward social mobility and major depressive episodes among Latino and Asian-American immigrants to the United States. *American journal of epidemiology*, *170*(6), 793-801.

Oliver, M., L & Shapiro, T., M. (2006). *Black wealth/White wealth: A new perspective on racial inequality.* New York: Routledge.

Oliver, M. L., & Shapiro, T. M. (1995). *Black wealth/White wealth: A new perspective on racial inequality.* New York: Routledge.

Orth, U., & Robins, R. W. (2013). Understanding the link between low self-esteem and depression. *Current Directions in Psychological Science*, *22*(6), 455-460.

Outram, S., Mishra, G. D., & Schofield, M. J. (2004). Sociodemographic and health related factors associated with poor mental health in midlife Australian women. *Women & Health*, *39*(4), 97-115.

Page-Adams, D., & Vosler, N. (1997). *Homeownership and well-being among bluecollar workers. (Working Paper No. 97-5).* St Louis: Center for Social Development, Washington University

Paul, K. I., & Moser, K. (2009). Unemployment impairs mental health: Meta-analyses. *Journal of Vocational behavior*, *74*(3), 264-282.

Pearlin, L. I., Lieberman, M. A., Menaghan, E. G., & Mullan, J. T. (1981). The stress process. *Journal of Health and Social Behavior*, *22*, 337-356.

Peen, J., Schoevers, R. A., Beekman, A. T., & Dekker, J. (2010). The current status of urban-rural differences in psychiatric disorders. *Acta Psychiatrica Scandinavica*, *121*(2), 84-93.

Pettit, B., & Western, B. (2004). Mass imprisonment and the life course: Race and class inequality in U.S. incarceration. *American Sociological Review, 69,* 151-169

Perosa, S. L., & Perosa, L. M. (1983). The midcareer crisis. *Vocational Guidance Quarterly,32,* 69-79.

Plagnol, A. C. (2011). Financial satisfaction over the life course: The influence of assets and liabilities. *Journal of Economic Psychology*, *32*(1), 45-64.

Ploubidis, G. B., & Grundy, E. (2009). Later-life mental health in Europe: A country-level comparison. *The Journals of Gerontology Series B: Psychological Sciences and Social Sciences, 64*(5), 666-676.

Pollack, C. E., Chideya, S., Cubbin, C., Williams, B., Dekker, M., & Braveman, P. A.(2007). Should health studies measure wealth? A systematic review. *American Journal of Preventative Medicine, 33*, 250-264.

Pudrovska, T. (2009). Parenthood, stress, and mental health in late midlife and early old age. *The International Journal of Aging and Human Development, 68*(2), 127-147.

Pudrovska, T., Schieman, S., Pearlin, L. I., & Nguyen, K. (2005). The sense of mastery as a mediator and moderator in the association between economic hardship and health in late life. *Journal of Aging and Health*, 17, 634–660. doi:10.1177/0898264305279874

Radloff, L. S. (1977). The CES-D scale: A self-report depression scale for research in the general population. *Applied Psychological Measurement, 1*(3), 385-401.

Ram, N., & Grimm, K. (2007). Using simple and complex growth models to articulate developmental change: Matching theory to method. *International Journal of Behavioral Development, 31*(4), 303-316.

Raudenbush, S. W., & Bryk, A. S. (2002). *Hierarchical linear models: Applications and data analysis methods* (2nd Ed). CA: Sage.

Riumallo-Herl, C., Basu, S., Stuckler, D., Courtin, E., & Avendano, M. (2014). Job loss, wealth and depression during the Great Recession in the USA and Europe. *International Journal of Epidemiology, 43*, 1508-1517. doi:10.1093/ije/dyu048

Robins, R. W., Tracy, J. L., & Trzesniewski, K. L. (2008). Naturalizing the self. In O. P. John, R. W. Robins, & L. A. Pervin (Eds.), *Handbook of personality: Theory and research* (3rd ed., pp. 421–447). New York, NY: Guilford Press.

Robins, R. W., Trzesniewski, K. H., Tracy, J. L., Gosling, S. D., & Potter, J. (2002). Global self-esteem across the life span. *Psychology and Aging, 17*(3), 423-434.

Rocha, C. (1997). Factors that contribute to eonomic well-being in female headed households. *Journal of Social Service Research, 23*(1), 1-17.

Rohe, W., & Stegman, M. (1994). The effects of homeownership on the self-esteem, perceived control and life satisfaction of low-income people. *Journal of the American Planning Association, 60*(2), 173-184.

Roll, J. M., Kennedy, J., Tran, M., & Howell, D. (2013). Disparities in unmet need for mental health services in the United States, 1997–2010. *Psychiatric Services, 64*(1), 80-82.

Romans, S., Cohen, M., & Forte, T. (2011). Rates of depression and anxiety in urban and rural

Canada. *Social psychiatry and Psychiatric Epidemiology*, *46*(7), 567-575.

Rosenfield, S., & Mouzon, D. (2013). Gender and mental health. In C. S. Aneshensel, J. C. Phelan & A. Bierman (Eds), *Handbook of the sociology of mental health* (pp. 277- 296). New York: Springer.

Rosseel, Y. (2012). Lavaan: An R package for structural equation modeling and more. Version 0.5–12 (BETA). *Journal of statistical software*, *48*(2), 1-36.

Rowan, K., McAlpine, D. D., & Blewett, L. A. (2013). Access and cost barriers to mental health care, by insurance status, 1999–2010. *Health Affairs*, *32*(10), 1723-1730.

Roxburgh, S. (2004). 'There just aren't enough hours in the day': The mental health consequences of time pressure. *Journal of Health and Social Behavior, 45* , 115–131.

Sareen, J., Jagdeo, A., Cox, B. J., Clara, I., ten Have, M., Belik, S. L., ... & Stein, M. B. (2007). Perceived barriers to mental health service utilization in the United States, Ontario, and the Netherlands. *Psychiatric Services*, *58*(3), 357-364.

Schaufeli, W. B., & VanYperen, N. W. (1992). Unemployment and psychological distress among graduates: A longitudinal study. *Journal of Occupational and Organizational Psychology*, *65*(4), 291-305.

Schmitz, H. (2011). Why are the unemployed in worse health? The causal effect of unemployment on health. *Labour Economics*, *18*(1), 71-78.

Schreiber, J. B. (2008). Core reporting practices in structural equation modeling. *Research in Social and Administrative Pharmacy 4(2)*, 83-97.

Schreiner, M. (2004). *Measuring Savings. (Working Paper No. 04-08)*. St Louis: Center for Social Development, Washington University.

Simon, R. W. (2002). Revisiting the relationships among gender, marital status, and mental health. *American journal of sociology*, *107*(4), 1065-1096.

Sharma, S., Mukherjee, S., Kumar, A., & Dillon, W. R. (2005). A simulation study to investigate the use of cutoff values for assessing model fit in covariance structure models. *Journal of Business Research*, *58*(7), 935-943.

Shapiro, T. M., & Wolff, E. N. (2001). *Assets for the poor: The benefits of spreading asset ownership*. New York: Russell Sage Foundation.

Shenk, D., Zablotsky, D.,&Croom, M. (1998). Thriving older African American women: Aging after Jim Crow. *Journal of Women and Aging*, *10*, 75-95.

Shrira, A. (2012). The effect of lifetime cumulative adversity on change and chronicity in depressive symptoms and quality of life in older adults. *International*

Psychogeriatrics, *24*(12), 1988-1997.

Shucksmith, M., Roberts, D., Scott, D., Chapman, P. & Conway, E. (1996). Disadvantage in rural areas: A report to the rural development commission. The Arkleton Centre for Rural Development Research.

Sherraden, M. (2015). *Assets and the poor: A new American welfare policy*. New York, NY: Routledge.

Sherraden, M. (1990). Stakeholding: Notes on a theory of welfare based on assets. *Social Service Review*, *64*(4), 580-601.

Siminski, P., & Yerokhin, O. (2012). Is the age gradient in self-reported material hardship explained by resources, needs, behaviors, or reporting bias?. *Review of Income and Wealth*, *58*(4), 715-741.

Singer, J. D., & Willet, J. B. (2003). *Applied longitudinal data analysis: Modeling change and event occurrence.* New York, NY: Oxford University Press.

Seligman, M. E., Maier, S. F. (1967). Failure to escape traumatic shock. *Journal of Experimental Psychology*, *74*, 1-9.

Snowden, L. R. (2003). Bias in mental health assessment and intervention: Theory and evidence. *American Journal of Public Health*, *93*(2), 239-243.

Sowislo, J. F., & Orth, U. (2013). Does low self-esteem predict depression and anxiety? A meta-analysis of longitudinal studies. *Psychological Bulletin, 139*(1), 213-240.

Spilerman, S. (2000). Wealth and stratification processes. *Annual Review of Sociology, 26,* 97-524.

Spoelstra, S., Given, B., von Eye, A., & Given, C. (2010). Fall risk in community-dwelling elderly cancer survivors: A predictive model for gerontological nurses. *Journal of Gerontological Nursing, 36,* 52-60. doi:10.3928/00989134-20100108-01

Ssewamala, F. M., Han, C. K., & Neilands, T. B. (2009). Asset ownership and health and mental health functioning among AIDS-orphaned adolescents: Findings from a randomized clinical trial in rural Uganda. *Social Science & Medicine*, *69*(2), 191-198.

Stankunas, M., Kalediene, R., Starkuviene, S., & Kapustinskiene, V. (2006). Duration of unemployment and depression: A cross-sectional survey in Lithuania. *BMC Public Health*, *6*, 1-9. doi:10.1186/1471-2458-6-174.

Strully, K. W. (2009). Job loss and health in the US labor market. *Demography*, *46*(2), 221- 246.

Sullivan, D., von Wachter, T. (2009). Job displacement and mortality: an analysis using administrative data. *Quarterly Journal of Economics, 124* (3), 1265–1306.

Sumner, A. (2006). Economic well-being and non economic well-being. In M. McGillivray & M. Clarke, *Understanding human well-being* (pp.54-73). New York: United Nations University Press.

Sun, F., Hilgeman, M. M., Durkin, D. W., Allen, R. S., & Burgio, L. D. (2009). Perceived income adequacy as a predictor of psychological distress in Alzheimer's caregivers. *Psychology and Aging*, *24*, 177–183. doi:10.1037/a0014760

Sverke, M., Hellgren, J., & Naswall, K. (2002). No security: A meta-analysis and review of job insecurity and its consequences. *Journal of Occupational Health Psychology*, *7*, 242-264.

Szanton, S. L., Allen, J. K., Thorpe, R. J., Seeman, T., Bandeen-Roche, K., & Fried, L. P. (2008). Effect of financial strain on mortality in community-dwelling older women. *The Journals of Gerontology Series B: Psychological Sciences and Social Sciences*, *63*(6), S369-S374.

Szanton, S. L., Thorpe, R. J., & Whitfield, K. (2010). Lifecourse financial strain and health in African-Americans. *Social Science & Medicine*, *71*, 259-265. doi:10.1016/j.socscimed.2010.04.001

Szinovacz, M. E., & Davey, A. (2004). Honeymoons and joint lunches: Effects of retirement and spouse's employment on depressive symptoms. *The Journals of Gerontology Series B: Psychological Sciences and Social Sciences*, *59*(5), 233-245.

Tatsiramos, K., & Ours, J. C. (2014). Labor market effects of unemployment insurance design. *Journal of Economic Surveys*, *28*(2), 284-311.

Tiffin, P. A., Pearce, M. S., & Parker, L. (2005). Social mobility over the lifecourse and self reported mental health at age 50: prospective cohort study. *Journal of Epidemiology and Community Health*, *59*(10), 870-872.

Trochim, W. M., & Donnelly, J. P. (2006). The research methods knowledge base (3rd ed.). Cincinnati, OH:Atomic Dog.

Trzesniewski, K. H., Donnellan, M. B., Moffitt, T. E., Robins, R. W., Poulton, R., & Caspi, A. (2006). Low self-esteem during adolescence predicts poor health, criminal behavior, and limited economic prospects during adulthood. Developmental Psychology, 42(2), 381–390.

Uchitelle, L. (2007). The disposable American: Layoffs and their consequences. Vintage. New York: Vintage Books.

Uecker, J. E. (2012). Marriage and mental health among young adults. *Journal of Health and Social Behavior*, *53*(1), 67-83.

Uecker, J. E., & Stokes, C. E. (2008). Early marriage in the United States. *Journal of*

Marriage and Family, *70*(4), 835-846.

United States Government Accountability Office. (2012).*Unemployment insurance: Economic circumstances of individuals who exhausted benefits : Report to the chairman, committee on finance, U.S. senate*. Washington, D.C.: U.S. Govt. Accountability Office.

United States Government Accountability Office. (2007). *Unemployment insurance: Receipt of benefits has declined, with continued disparities for low-wage and part-time workers : Testimony before the subcommittee on income security and family support, committee on ways and means, house of representatives*. Washington, D.C.: U.S. Govt. Accountability Office.

Vallas, S. P. (1999). Rethinking post-Fordism: The meaning of workplace flexibility. *Sociological Theory*, *17*(1), 68-101.

Waite, L. J. (2009). Marital History and Well-Being in Later Life. In P. Uhlenberg, *International handbook of population aging* (pp. 658-598). New York, NY: Springer.

Walker, E. R., Cummings, J. R., Hockenberry, J. M., & Druss, B. G. (2015). Insurance status, use of mental health services, and unmet need for mental health care in the United States. *Psychiatric Services*, *66*(6), 578-584.

Walsemann, K. M., Gee, G. C., & Geronimus, A. T. (2009). Ethnic differences in trajectories of depressive symptoms: Disadvantage in family background, high school experiences, and adult characteristics. *Journal of Health and Social Behavior*, *50*(1), 82-98.

Wang, P., Lane, M., Olfson, M., Pincus, H. A., Wells, K. B., & Kessler, R. C. (2005). Twelve-month use of mental health services in the United States: Results from the National Comorbidity Survey Replication. *Archives of General Psychiatry*, *62*, 629-640.

Warr, P. & Jackson, P. (1985). Factors influencing the psychological impact of prolonged unemployment and of re-employment. *Psychological Medicine, 15,* 795-807.

Watkins, D. C. (2012). Depression over the adult life course for African American men toward a framework for research and practice. *American Journal of Men's Health*, *6*(3), 194-210.

Watkins, D. C., Walker, R. L., & Griffith, D. M. (2010). A meta-study of Black male mental health and well-being. *Journal of Black Psychology*, *36*, 303-330.

Weisman, A., Feldman, G., Gruman, C., Rosenberg, R., Chamorro, R., & Belozersky, I. (2005). Improving mental health services for Latino and Asian immigrant elders. *Professional Psychology: Research and Practice*, *36*(6), 642-648.

Weiss, A., Gale, C. R., Batty, G. D., & Deary, I. J. (2009). Emotionally stable, intelligent men live longer: the Vietnam Experience Study cohort. *Psychosomatic Medicine*, *71*(4),

385-394.

Wendorf, C. A. (2002). Comparisons of structural equation modeling and hierarchical linear modeling approaches to couples' data. *Structural Equation Modeling*, *9*(1), 126-140.

Western, B., Bloome, D., Sosnaud, B., & Tach, L. (2012). Economic insecurity and social stratification. *Annual Review of Sociology*, *38*, 341-359.

Wickrama, K. A. S., Kwag, K. H., Lorenz, F. O., Conger, R. D., & Surjadi, F. F. (2010). Dynamics of family economic hardship and the progression of health problems of husbands and wives during the middle years: A perspective from rural Mid-West. *Journal of Aging and Health*, *22*(8), 1132-1157.

Wickrama, K. A. S., Surjadi, F. F., Lorenz, F. O., Conger, R. D., & O'Neal, C. W. (2012). Family economic hardship and progression of poor mental health in middle-aged husbands and wives. *Family Relations*, *61*(2), 297-312.

Wilkinson, L. R. (2016). Financial strain and mental health among older adults during the Great Recession. *The Journals of Gerontology Series B: Psychological Sciences and Social Sciences*, 71(4), 745-754. doi: 10.1093/geronb/gbw001

Wolff, E. N. (2000). *Recent trends in wealth ownership , 1983-1998*. Working Paper No. 300. Annandale-on-Hudson, NY: The Jerome Levy Economics Institute, Bard College.

Yadama, G., & Sherraden, M. (1996). Effects of assets on attitudes and behaviors: Advance test of a social policy proposal. *Social Work Research, 20*(1), 3-11.

Yang, Y. (2007). Is old age depressing? growth trajectories and cohort variations in late-life depression. *Journal of Health and Social Behavior, 48*(1), 16-32. doi:10.1177/002214650704800102

Zammit, S., Allebeck, P., David, A. S., Dalman, C., Hemmingsson, T., Lundberg, I., & Lewis, G. (2004). A longitudinal study of premorbid IQ score and risk of developing schizophrenia, bipolar disorder, severe depression, and other nonaffective psychoses. *Archives of General Psychiatry*, *61*(4), 354-360.

Zimmerman, F. J., & Katon, W. (2005). Socioeconomic status, depression disparities, and financial strain: what lies behind the income-depression relationship?. *Health Economics*, *14*(12), 1197-1215.

Zhan, M. (2006). Economic mobility of single mothers: The role of assets and human capital development. *Journal of Sociology and Social Welfare*, *33*, 127-150.

Zhang, A.Y., & Snowden, L.R. (1999). Ethnic characteristics of mental disorders in five U.S. communities. *Cultural Diversity and Ethnic Minority Psychology*, *5*(2), 134-146.

Zhang, D., & Willson, V. L. (2006). Comparing empirical power of multilevel structural equation models and hierarchical linear models: Understanding cross-level interactions. *Structural Equation Modeling*, *13*(4), 615-630.

Zurlo, K. A., Yoon, W., & Kim, H. (2014). Unsecured consumer debt and mental health outcomes in middle-aged and older Americans. *The Journals of Gerontology Series B: Psychological Sciences and Social Sciences*, *69*(3), 461-469.

Xu, X., Liang, J., Bennett, J. M., Quiñones, A. R., & Ye, W. (2010). Ethnic differences in the dynamics of depressive symptoms in middle-aged and older Americans. *Journal of Aging and Health*, *22*(5), 631-652.