

THE IMPACT OF COMMUTING ON MENTAL HEALTH

John Malek-Ahmadi

Dissertation Prepared for the Degree of

DOCTOR OF PHILOSOPHY

UNIVERSITY OF NORTH TEXAS

August 2017

APPROVED:

Gul Seckin, Major Professor

Ami Moore, Committee Member

Stan Ingman, Committee Member

Helen Potts, Graduate Program Director in  
the Department of Sociology

Daniel Rodeheaver, Chair of the Department  
of Sociology

David Holdeman, Dean of the College of Arts  
and Sciences

Victor Prybutok, Dean of the Toulouse  
Graduate School

Malek-Ahmadi, John. *The Impact of Commuting on Mental Health*. Doctor of Philosophy (Sociology), August 2017, 86 pp., 8 tables, references, 170 titles.

The purpose of this research is to explicate the relationship between commuting behavior, stress, and mental health. The overall results from the regression analysis turned out to be inconclusive given the researcher's initial hypothesis. The commute time reported by respondents did not have a statistically significant bearing on mental health outcomes. This was true for both the normal sample, and the sample that was split by gender.

Copyright 2017

by

John Malek-Ahmadi

## ACKNOWLEDGEMENTS

No one achieves any level of success without help from others. First of all, many thanks to Dr. Gul Seekin, Dr. Ami Moore, and Dr. Stan Ingman for agreeing to form my dissertation committee and work with me over the past few years to bring this project to completion. Dr. Cynthia Cready and the late Dr. Kevin Yoder also deserve a great deal of credit for assisting me in better understanding sociology from a theoretical and statistical standpoint. Dr. Michelle Bata also deserves special consideration as she initially got me interested in sociology as a potential occupation.

I consider myself very fortunate to have family members who have looked out for my best interest over the years. This dissertation is dedicated to my late father, Dr. Parviz Malek-Ahmadi, who instilled the value and importance of education in our family. Similarly, my older brother Mike Malek-Ahmadi warrants special thanks. My mother Marjorie is likely more excited about this dissertation than anyone else. Her positivity and support was instrumental when the light at the end of the tunnel was little more than a flicker.

Lastly, my wife Jenny has provided unyielding support as I have navigated graduate school. Jenny moved across the country with me multiple times while I pursued higher educational goals. From Alabama to Idaho to Texas, Jenny has always been a voice of reason, mediator of stress, and motivation for me to challenge myself. Thank you for patiently listening as I applied some sociological concept, theory, or theme to almost every conversation we have had over the past 13 years.

## TABLE OF CONTENTS

	Page
ACKNOWLEDGEMENTS.....	iii
LIST OF TABLES.....	v
CHAPTER 1. INTRODUCTION.....	1
1.1 Background and Significance.....	1
1.2 Theoretical Position.....	14
CHAPTER 2. LITERATURE REVIEW.....	20
2.1 Age.....	20
2.2 Parenting, Age, and Gender.....	21
2.3 Gender.....	23
2.4 Socioeconomic Status.....	30
2.5 The End of Work.....	37
2.6 Research Questions.....	39
CHAPTER 3. DATA AND METHODS.....	41
3.1 Variables.....	42
CHAPTER 4. LIMITATIONS.....	46
CHAPTER 5. RESULTS.....	51
CHAPTER 6. DISCUSSION.....	59
CHAPTER 7. FUTURE DIRECTIONS.....	65
APPENDIX A. CONCEPTUAL DIAGRAM.....	70
APPENDIX B. VARIABLE MAP.....	72
REFERENCES.....	74

## LIST OF TABLES

	Page
Table 1: Self-Reported Mental Health.....	55
Table 2: Mental Health Status of Spouse.....	55
Table 3: Expression of Emotional Distress.....	55
Table 4: Linear Regression Estimates Predicting Mental Health Status .....	56
Table 5: Partial Eta-Squared Values for Predicting Self-Reported Mental Health with Marital Status - Males.....	56
Table 6: Partial Eta-Squared Values for Predicting Self-Reported Mental Health with Marital Status – Females .....	57
Table 7: Partial Eta-Squared Values for Predicting Self-Reported Mental Health with Interactions – Males .....	57
Table 8: Partial Eta-Squared Values for Predicting Self-Reported Mental Health with Interactions – Females .....	58

## CHAPTER 1

### INTRODUCTION

#### 1.1 Background and Significance

The purpose of this research is to explicate the relationship between commuting behavior, stress, and mental health. Ever since President Eisenhower's 1956 approval of the Federal Aid Highway Act, American commuting patterns began to shift. This legislation helped pave the way for United States inhabitants' overt reliance on private automobile transportation. Around 91% of people who commute use a private vehicle to travel to and from work (USDT, 2002). In Houston, Texas, approximately 80% of people drive to work alone and less than 3% of commuters utilized public transportation such as a bus or train (Houston Public Media, 2017). Initially, city planners and governmental officials saw a massive, interconnected roadway system as beneficial in a number of ways. This included the reduction of traffic jams, and greater ease of providing quick, safe evacuation routes from center cities in the event of natural disasters. Yet, as the country continued to grow and more cars hit the road, traffic jams on many of these interstates and highways became unavoidable. Accordingly, driving began to take a greater toll on the average commuter. One seemingly simple solution is to build more roadway infrastructure. Unfortunately, building more highways does not significantly decrease the amount of traffic (Druanton and Turner, 2011). Evidence from "the fundamental law of road congestion" furthers this argument (Downs, 1962). As more drivers become aware of the completion of a new road or highway, they are more likely to take that route over all others. As a consequence, we have reached a point where, not just commuting, but extensive commuting has become a normal part of our daily routine.

For social scientists and public health officials, this phenomenon should raise some concerns. If Americans are commuting more frequently and over longer distances, what impact does this have on their levels of stress and mental health? Maintaining positive mental health is vital with respect to overall individual wellness. At some point in their lives, close to 50% of all adults in the United States will be identified as mentally ill (APA, 2017). Statistical trends reveal that increasingly larger shares of individuals in the United States are being diagnosed with a broad range of mental illnesses. In 2012, approximately 43.7 million Americans had a diagnosed mental disorder (NIMH, 2013). This represented almost 14% of the population. No single factor is liable for this rate. Rather, a confluence of variables including life events, personal dispositions and access to economic, social, and cultural capital combine to produce either positive or negative mental health outcomes. Increases in the practice of medicalization should be scrutinized as well. The scope of what has been considered a mental illness has expanded drastically as the number of named mental illnesses and diagnoses has fluctuated to 265 currently (American Psychiatric Association, 2013). The underlying cause of numerous mental disorders, particularly depression, is directly associated with stress (Monroe and Reid, 2009; Hammen, 2005). The presence of certain daily stressors encountered by Americans may be linked with the onset of a variety of mental disorders. In this case, the stress that accompanies commuting will be analyzed. If commuting stress stands out in terms of frequency and duration relative to other forms of stress, the impact this behavior has on the mental health of individuals and larger social groups should be examined. In doing so, mental health professionals may be better equipped to understand, manage, and remedy the root causes of psychological distress that lead to the onset of mental disorders.

Traditionally, a great deal of attention has been paid to the negative physical costs placed on the human body as a consequence of commuting. Commuting is usually a sedentary activity. This is very much the case in the United States as very few “walkable” cities exist. A recent study by Mayo Clinic researchers found that a highly sedentary lifestyle can cause as much damage to the heart and cardiovascular system as smoking (Levine, 2017). Moreover, sedentary commuting can lead to issues such as higher exposure to air pollution, loss of sleep, and reduced time available to exercise and eat healthy (Lyons and Chatterjee, 2008). However, the psychological impacts of commuting may be more problematic than those that are physical in nature. Spending more time traveling from home to work and from work to home can be mentally taxing. The stresses involved in commuting have been well documented (Koslowsky et al, 1995). Traffic congestion, unforeseen road construction, fender benders, inclement weather, law enforcement, and distracted motorists are all beyond the control of individual drivers. In fact, if you ask the average American, commuting is quickly identified as the worst part of their day (Kahneman and Krueger, 2006). Moreover, being at the mercy of external factors, regardless of context, produces stress, anxiety, and fear within the individual (Mirowsky and Ross, 1990). Yet, this is not always the case. The solitude of a long commute can actually be therapeutic for some. This may be more likely if the commuting route is scenic and traffic moves at a pace in accordance with posted speed limits. There is evidence that certain populations may find that commuting can cause stress beyond the actual driving experience. Some who commute by walking or biking have reported a heightened degree of sociability and appreciation of nature as positive effects of a daily commute (Guell and Ogilive, 2015). It should be noted that these tend to be exceptions and the vast majority of commuters still view the practice largely in negative terms. For others, commuting represented time they could use to read, make phone calls, or

mentally prepare for business concerns later in the day (Jain and Lyons, 2008). Actively commuting also restricts the time available for leisure activities that can be instrumental in reducing overall stress.

Of primary importance in this study is determining the degree to which daily commuting patterns affect individuals on a psychological level. Americans' average commute times have been steadily increasing as suburban living has remained one of the most attractive residential options. For many middle class Americans, home ownership is a central component of wealth and a major step towards realizing the American Dream. As a direct consequence of subprime lending practices in the financial industry, this dream was shattered as quickly as it was realized for many in the United States (Grusky et al, 2011). Nonetheless, suburban and exurban home ownership rates remain high as these areas offer more square footage and lower prices than comparable residences in urban locations (FHA.gov, 2013). Accordingly, commute times in the United States jumped from an average of 44 minutes in 1990 to 51 minutes a decade later (U.S. Census, 2002). Due to the process of decentralization, Americans continue to live on the fringes of major metropolitan areas in spite of the ever rising cost of gasoline (Garreau, 1991). Much of this population shift can be attributed to post-WWII FHA lending practices that encouraged suburban home ownership. In response, employment mobility patterns have shifted. Modern day employees are less likely to stay at the same job their entire career. For instance, American employees spend an average of 4.6 years at any given position (BLS, 2014). This has become a typical pattern, particularly among millennials who are much more likely to hop from one job to the next relative to older generations of American workers (Abrahms, 2011). Part of this phenomenon is structural. The United States has lost the vast majority of its manufacturing base. Over 5 million manufacturing jobs were lost in the first decade of the 21<sup>st</sup> Century (Baily and

Bosworth, 2014). Currently, only around 9% of all American jobs are in the manufacturing industry (NAM, 20015). In the past, many of these jobs only required a high school education. Due to the availability of competitive benefits such as health insurance and pensions, many employees would spend their entire lives working for one company.

In addition to being stressful, commuting is expensive. In the U.S., approximately 20% of household income is spent on costs related to driving (EPA, 2001). A number of expenses are incurred by the average commuter. This includes a monthly vehicle payment, routine maintenance, registration, insurance, and fuel. Not all of these costs are fixed and cannot be budgeted for precisely. For instance, gasoline prices rise and fall in relation to market forces, irrespective of the wages paid to employees, creating a slight degree of uncertainty when considering average yearly fuel costs. Variable costs will typically put more stress on consumers than costs that are fixed. Obviously, not all of the money spent on automobile travel is directly related to commuting. Yet, we can reasonably argue that the majority of miles traveled by most Americans take place when they are getting to and from their place of employment.

The effects of such living and commuting patterns go beyond the pocketbook. The number of MSAs (metropolitan statistical areas) with more than 1 million inhabitants has increased from 34 to 49 in the last 50 years (U.S. Department of Transportation, 2011). Many of these locations are considered to be a product of urban and suburban sprawl. Many jobs followed these workers out to the suburbs. From 2000 – 2012, urban core areas saw a 7% decrease in the number of jobs within the normal commute distance (Kneebone and Holmes, 2015). However, millions of commuters still drive from a suburban city to an urban center on a daily basis. Simply put, Americans are choosing to live further away from where they are employed. Thus, roundtrip commutes have become longer than many of us could have fathomed. Some studies have cited

that commuters using a personal vehicle spend about 4 times as long in the car as they did in the early 1990's (Nivens and Nordstrom, 2012). Subsequently, larger shares of Americans must endure "extreme commutes" getting to and from work. The U.S. Census Bureau classifies extreme commutes as those lasting more than 90 minutes. As of 2009, approximately 3 million Americans navigated extreme commutes every day (McKenzie, 2013). However, this does not necessarily mean that there will be a higher incidence of mental health problems simply because more Americans are living on the borders of metropolitan areas. Previous research on suburban sprawl and health outcomes found that suburban sprawl is associated with a decrease in physical, not mental health (Sturm and Cohen, 2004). More time spent involved in sedentary activities such as driving may take up time that could be spent engaging in active, physically demanding endeavors that carry increased health benefits with them. Nonetheless, with the ubiquity of information technology coupled with widespread internet access, one can be employed but not forced to commute. Approximately 23% of Americans did some or all of their work from home in 2012 (BLS, 2013). Telecommuting has increased quite drastically in the past 20 years as 9% of Americans performed some of their work tasks from home in 1995 (Gallup, 2015). It should be noted that a much higher percentage of management and professional jobs allow employees to work from home. Over one third of workers in these professions did some or all of their work from home (BLS, 2016). The nature of these jobs frequently does not require being in a specific physical space since information and communication technology facilitate connections between employees and clients. A socioeconomic element enters the picture in this instance. The jobs that allow telecommuting typically require high levels of education. Also, the salary of such jobs is usually above the median household income level of many Americans. Therefore, higher SES

commuters in certain occupations are afforded the luxury of avoiding stressful commutes to a greater extent than their lower SES counterparts.

Perhaps many of these citizens are also residing in areas with a high overall sprawl index. Sprawl indexes are denoted by neighborhoods and communities located in low density suburbs which require residents to be heavily dependent on personal automobile transportation (Banai and DePriest, 2014). Consequently, Americans living in cities with high sprawl indexes must spend more time driving and are therefore at a greater risk of dying due to involvement in a traffic accident (Ewing et al, 2003). Clearly, this risk factor would exist in a diminished capacity for those using passive forms of commuting. Passive commuting opportunities tend to be located closer to center city and downtown areas. Public transportation is a rarity in most suburban locations. When the scanty available public transportation is used, it may be inefficient in terms of the time involved. For instance, taking a series of busses for 30 miles will likely require numerous stops and transfers. This represents an added layer of stress by increasing overall commute time and the degree of control the commuter has over their trip. Consistently being late for work may even result in disciplinary action and termination.

Although quite varied in individual terms, some scholars have suggested that a “tolerance zone” is applicable when discussing commuting. Research found that average acceptable commute times generally ranged from around 30-45 minutes (Van Ommeren, 1997). Of course, this range may be contingent upon the type of transportation utilized in the commute. Those using public transportation tend to have significantly longer commute times than those using private modes of transportation, regardless of the distance traveled (ACS, 2011). However, the loss of time may be offset by the lower levels of stress that may accompany use of public transportation. Of further importance are individual orientations and reactions to stressful

commuting situations. The degree of impedance within any given commute, such as long distances traveled, traffic jams, or road construction can have a bearing on their stress level (Stokols et al, 1978). Some commuters may be psychologically better equipped to handle such impediments while others may find that it contributes to higher blood pressure, increased stress levels and anxiety.

A cost-benefit analysis is also frequently employed by commuters. Spending more time traveling to and from a high salary job may be worth the loss of free time and added stress. This is particularly true if the position grants the employee supplemental benefits, such as group health care insurance, a pension, paid vacation days, stock options, or other occupationally oriented incentives. In 2000, about 75% of commuters traveled alone utilizing a private vehicle as their means of transportation (U.S. Department of Transportation, 2011). In recent years, this percentage increased to approximately 80% (Census, 2009). This particular form of commuting requires that the individual pay close attention to the road, other drivers, and a variety of hazards inherent to ground travel. Other forms of commuting may allow the individual to relax to a greater degree. Only 5% of Americans used any form of public transportation in their commute in the 2009 year (ACS, 2011.) In these rare cases, a city or government employee is responsible for safely navigating the mode of transport rather than the individual commuter. Conversely, carpooling and ride sharing has been increasing since 2003 due to major increases in the cost of gasoline (Deloach and Tiemann, 2011). Yet, not everyone has an equal chance of participating in this type of commuting. Individuals with less social capital who live in racially and ethnically heterogeneous neighborhoods are less likely to find others with whom they can carpool (Charles and Kline, 2006). In terms of stress and its relation to mental health, it seems plausible that those who use forms of public transportation will be affected differently based on the nature of their

commute. Unfortunately, even if social scientists and mental health professionals are able to elucidate these differences, building an infrastructure (high speed trains or subway systems) that is conducive to reducing stress from the commuting process will remain largely unattainable in the short term. This is particularly true if patterns of residential home ownership continue to be located further from the center of cities in suburban and exurban locations. In short, there may not be enough funding at the state and federal level to invest in transportation infrastructure if the degree of sprawl is too immense.

Relationships are also susceptible to strain as a consequence of extensive commuting (Landesman et al, 2013; Sandow, 2014). In general, levels of relationship satisfaction among couples tend to decrease as the amount of commuting in the partnership increases. Of course, single people may not approach their commutes in fundamentally different ways than couples. Yet, as anyone takes on more statuses and the associated roles, strain and conflict increase (Merton, 1949). Typically, one stressful event in isolation is unlikely to cause a mental disorder. However, when these stressors add up, they have the potential to significantly increase an individual's propensity of manifesting a mental disorder (Holmes and Rahe, 1967). The Holmes and Rahe Social Readjustment Scale is a quality starting point when examining the social roots of stress. Numerous stressors, known as life events, are given point values ranging from 0-100. The accumulation of stressful events in one year exceeding 150 points on the scale places the individual at a moderate risk for developing a mental disorder. If an individual scores over 300 points within a one year window, their chances of manifesting a mental disorder increase to around 80%. Commuting is not mentioned within the 43 items listed on this stress inventory. Commuting does not constitute a "life event" as the other categories listed on the Social Readjustment Scale. This is because it is a stressor that must be confronted almost every single

day by those who are employed. Instead, commuting behavior can be altered in concert with other significant life events, including “change to a different line of work”, “change in living conditions”, and “change in residence.” For example, leaving one job for another may mean a longer or shorter commute. The same is true if a family moves. This residential shift may mean more or less time spent commuting and therefore affect overall stress levels of the commuter. The events on the stress inventory will likely be experienced by most adults at some point in their lives. The key is having these events spread out over time rather than being condensed into a short time frame.

Adequate buffers to stress can provide individuals with a means of effectively managing both chronic and acute forms of stress. The “stress-buffering hypothesis” argues that there are mechanisms in place that serve to protect people from the deleterious psychological and emotional effects encountered on a regular basis (Anderson, 2004). Those with fewer social ties or social network members who can offer support in times of need have an increased chance of developing anxiety disorders and depression (Cohen and Willis, 1985; Gore, 1978). This type of relationship can cushion and absorb stress in some instances. If marriage represents a built-in social support, rates of depression and mental disorder manifestation may be lower for those who are married (Pearlin and Johnson, 1977). Marital status, as a key dimension of social support, is a variable will be discussed in further detail later in the study. Consequently, single mothers are more likely than married mothers to suffer from depression and to report more chronic stress and negative life events (Cairney et al, 2003; Afifi et al, 2006). In our context, time spent commuting may be more of a daily impediment in the life of the single mother relative to a married mother. On the other hand, spouses can actually be the source of stress rather than serving as mediators. Since men’s and women’s roles in society have historically been dissimilar, the way men and

women experience stress is unlikely to be uniform (Aneshensel and Pearlin, 1987). Ultimately, the nature of the relationship is key. The more blissful and egalitarian the marriage, the more likely this union will be seen as positive in terms of stress and mental health (Simon, 2002). Social selection theory is also important in this instance. Those who have poor mental health in the first place are less likely to get married (Rushing, 1979). A potential spouse may not be willing or able to enter a long-term relationship in which the partner initially carries the stress and burden of a mental disorder. Similarly, in a social drift explanation, more instances of marital strife and dissolution may be found when mental disorder high levels of emotional distress and alcohol use is present (Breslau et al, 2011). Maintaining a healthy marriage is difficult when both partners are free of mental illnesses. When this variable is added, managing this type of relationship can become even more stressful.

Of further importance is the way in which the individual copes with perceived stressful situations. Coping represents the process by which individuals seek mental and emotional stability when faced with circumstances beyond their control (Lazarus, 1966). No two coping styles will be exactly the same. Certain individuals may possess more effective coping skills than others. There are some gender differences to consider when evaluating coping styles. Men tend to utilize “problem-focused” coping while women are more likely to make attempts to alter their emotional response to the situation (Matud, 2004). This can be framed with respect to commuting. Men using the problem focused model may attempt to find a new commuting route with less traffic, or perhaps leave at a different time to avoid traffic congestion. Conversely, women using an emotional response may not feel the need to alter their route. Angrily musing or reflection on their inability to alter the commuting landscape represents the emotionally focused coping approach. While these roles can be reversed in some situations, there is a consistent

pattern of utilization along gendered lines. Other studies have shown that women are actually treated differently than men in mental health evaluations (Broverman et al, 1970). The crux of the study focused on the degree to which male personality characteristics were deemed normal while female traits were viewed as negative and more likely to contribute to poor mental health outcomes. Given that males are the dominant gender group, this finding is not surprising.

Coping mechanisms usually take on 2 forms when utilized by social actors. The use of comparative frames of reference represents the first. In this case, the individual actively attempts to locate others in their reference group who are not fairing as well or having troublesome outcomes in their lives (Pearlin et al, 1981). In doing so, the individual may realize that their life, or particular parts of it, does not warrant as much concern as they initially thought. In a commuting example, the employee who commutes 90 minutes each day may find some solace in the fact that many Americans commute well over 120 minutes or more on a regular basis. Pearlin also discusses the valuation or devaluation of economic achievements as a coping mechanism. In capitalist economies, a lot of importance is placed financial viability. This is not only true in the short term, but when speaking of long-term considerations as well. Accordingly, one of the primary sources of stress for American families are financial concerns (Papp et al, 2009). This could be objective (below poverty wages) or more subjective as frequently cited in the keeping up with the Jones' adage. In either case, measuring up to some economic standard or social class can elicit high levels of stress. Previous research on coping and social class argue that lower income individuals adopt fatalistic coping strategies (Kohn, 1974). Lower class individuals are more likely to believe they have less control and authority in building and shaping their responses to stressful situations. If we are socialized with withdraw rather than attack stress when it materializes, our ability to cope is stifled (Langner and Stanley, 1963). The

intergenerational transmission of coping styles and dispositions is worthy of scrutiny. If lower class social actors adopt the same negative, dysfunctional coping styles that their parents or network members have adopted, their chances of successfully returning to better mental health is jeopardized. This is reinforced in the “culture of poverty” proposition. At the heart of this theory is that culturally specific dispositions such as nihilism, defeatism, and fatalism are endemic in low income, non-white communities (Moynihan, 1965). The adoption of such worldviews places those living in such areas at a greater risk for the intergenerational transmission of poverty. This report received quite a bit of backlash as it was conducted by the agents of the United States government. The notion that these types of negative sentiments are deterministic based on race, is fallacious. Nonetheless, the report did provide a way of understanding how social class position can be perpetuated.

Some contend that using the word stress as an umbrella term for a variety of experiences dismisses a great deal of differentiation within this context (Wheaton, 1994). Clearly, each commuter will approach and navigate their commute in unique ways. Some commuters may have more coherence than others. Coherence, in a stress context, describes the process by which social actors view and approach daily life hassles, stressors, and life events with the assumption that the majority of outcomes will be generally favorable (Antonovsky, 1979). Those who have experienced highly stressful times frequently and have found ways of adapting to the situation to elicit positive results will have a greater capacity to continue to do so when subsequent stress emerges. For example, the veteran daily commuter, or road warrior, who is accustomed to navigating the numerous stressors inherent to automobile travel, may have more coherence than the novice commuter who has much less experience with such travel. The key here is achieving a level of comfort with stimulus beyond individual control. Ultimately, every commuter is at the

mercy of external forces. The degree to which this is heavily bothersome or overwhelming is where differential stress outcomes need to be addressed. Uniformity is a rarity when considering commuting patterns as numerous variables will differentially affect each commuter. Nonetheless, since commuting has become such an integral and inescapable part of daily life for so many Americans, an examination of the negative aspects surrounding it is requisite.

## 1.2 Theoretical Position

The link between stress and the onset of mental disorders is clear. Pearlin (1999) argues that stress has 3 primary components. He identifies these as stressors, moderators, and outcomes. Each individual faces stressors in their daily life. For the purposes of our discussion, a daily commute would be classified as a potential stressor. Stress is unequally distributed within any population along social class, gender and racial lines (Turner, 2003). Everyone will moderate these stressors by utilizing their personal coping abilities as well as other forms of social support including personal mastery and self-esteem (Thoits, 2010). It should be noted that feelings of anxiety are a conditioned response and are a fairly normative part of being a human (Horowitz, 2007). Everyone experiences stress. How each individual handles that stress is where the differentiation occurs. Some commuters may inherently find traveling to and from work more stressful than others. In some cases, the ability to move back and forth between roles (commuter and employee) can be psychologically demanding, thus adding an additional layer of stress. Unwinding from a particularly chaotic commute can be time consuming and cut into employee productivity.

Moving from one context to another and carrying the appropriate disposition in each can be difficult to manage (Cornwell, 2013). This process is referred to as “code switching” in

academic circles. According to Cornwell's typology, daily commuting would fall into the "complete switching" category. This is particularly true for those who drive their own vehicle to and from work. After a stressful commute, the employee must quickly shift mental gears and live up to a variety of job expectations. The same applies at the end of the day when the commuter returns home. They must alter their mood and attitude in order to appease members of their family, regardless of the trials and tribulations encountered on the road just minutes prior. In each case, a certain carry over effect may occur. The commuter may have trouble forgetting about the driver who cut them off, the traffic light cycle that was not optimally calibrated, or a road construction project that forced them to take a lengthy detour. The long distance commuter is more likely to displace their anger and frustration by taking it out on those who had nothing to do with the incident. Women tend to find the commuting process to be one of the most significant stressful events in their day (Michelson, 1985). Similarly, Cornwell contends that working mothers may be forced to deal with complete switching to a greater degree than men since they tend to be the primary caretakers of children in the home. Irrespective of gender, relative to other daily activities, most people find commuting unpleasant and unproductive overall (White and Dolan, 2009). Additionally, the difference between primary and secondary stressors should be taken into account. Stress in one area of life can spill over into other facets and leave the individual with less emotional and psychological energy to confront secondary forms of stress (Post, 1992). This may be true when commuting is considered as a primary, chronic stressor.

Certain buffers or moderators may be in place, allowing some individuals to overcome heightened levels of stress with greater ease than among those without such defenses. Outcomes, according to Pearlin, will vary based on the specific personal orientations and external support

available that assists the individual in buffering the onset of potential mental illnesses. For instance, having a large family, close friends, or work colleagues with whom you can confide represents a crucial shield against overwhelming stress (Pearlin, 1981). As an added measure, the degree to which the individual is embedded in such relationships also explains their willingness to share such personal information (Pearlin and Schooler, 1978). Those with greater access to moderators have the ability to better eliminate, neutralize the degree of undesirability, or manage stress to a greater degree than those with fewer resources. In a study concerning daily travel and subjective well-being, researchers found that positive employment outcomes offset the stress normally associated with commuting (Bergstad et al, 2011). This suggests that job satisfaction may act as a buffer for reducing stress associated with a daily commute. Further support for subjective well-being is derived from a study comparing individuals' use of private automobiles and public transportation. Those who used a private automobile as a means of daily travel had higher levels of mastery, self-esteem, and a greater locus of control than those using public transportation (Ellaway et al, 2003; Hiscock, 2002). Moreover, certain character traits such as heightened curiosity, general attitude, and the use of a private car to display conspicuous consumption have also been linked with commuting stress buffers (Ory and Mokhtarian, 2004). The positive psychosocial impact of having the means, particularly a relatively high socioeconomic status, served to absorb some of the negative effects of a regular daily commute. In this instance, the daily commute may be an unfortunate but necessary element of reaching highly sought after achieved occupational status.

Pearlin (1989) also clearly identifies two main types of stress, life events and chronic strains. Life events are any occurrence, positive or negative, that elicit stress in an individual's life. Although we tend to associate stress with undesirable activities, chores, or demands, it

should be noted that both positive and negative events serve to increase stress. Events such as the death of a spouse, marriage, or the birth of a new family member would be classified in this way. A significant correlation exists between stressful life events and major depression (Hammen, 2005). If life events tend to carry short term stress, it can be argued that chronic, recurring, quotidian stressors such as commuting will lead to long term stress that becomes more difficult to avoid.

Chronic strains represent enduring situations, encounters, hassles, burdens, or demands that are regularly experienced by the individual (Wheaton, 1999). For instance, the roles, responsibilities, and duties associated with a status, such as being a parent, will be persistent. Similarly, commuting can be viewed as a chronic stressor because it is a repetitive task that can consistently disturb the flow of one's day. Commuting can be distinguished as an ambient strain due to the interaction between the individual and the physical environment they must traverse during the commuting process (Pearlin and Skaff, 1996). Most individuals that commute do so with great frequency, sometimes 5-7 days a week. An aggregate set of small but persistent stressors may cause recurrent undulations in mood. Scholars have also found that chronic stress, when coupled with lengthy commutes, caused sleep disruptions and led to abnormalities in the circadian rhythm (Yayoi, et al 2007). Lacking proper sleep could compound the impact of daily stressors. These stressors may lead to higher levels of overall stress which tend to accompany mental problems such as depression and anxiety. The ability to manage such psychological responses becomes more difficult as stress adds up (Almeida, 2005). A main focus of stress research deals with the accumulation of stressors. Rarely does one stressful event or single chronic stressor cause the onset of a mental disorder. Rather, many stressful life events or a combination of numerous chronic stressors are more likely to cause adversity for the individual

(Turner and Lloyd, 1995). Thus, the larger share of time that is spent dealing with a chronic stressor, the greater the probability that a mental disorder will manifest as a consequence of exposure. This is where the divergence of a life event and chronic stressor become important. Life events cause relatively short periods of stress while chronic strains may never be eradicated from patterns of living. Given the fact that average commute times have increase in almost every major city, commuting stress is here to stay.

There exist two primary explanations for the roots of mental disorder, social causation and the social selection hypothesis (Dohrenwend and Dohrenwend, 1969). In a commuting example, social causation argues that extensive commuting may be a primary source of stress and lead to poor mental health outcomes. The social selection model makes the case that genetic predispositions to stress and mental disorder explain rates and types of mental health irrespective of commuting distance or the stressors involved. If commuting is identified as being a primary source of stress, action should be taken in order to reduce distances or time spent traveling for these purposes. Moreover, if data shows that commuting in certain areas of the country is more problematic than others, addressing the psychological impacts to these populations should be of utmost importance to health care providers, politicians, and the general public in those locations. In addition to geographic region, certain individual attributes may require scrutiny. Locus of control, military veteran status and a history of mental illness are all related to the onset of mental disorder. Controlling for such factors will prove difficult. Although limited data referencing individual locus of control is available, the military status of respondents cannot be ascertained. Furthermore, veteran status clearly does not immediately indicate experience with the stresses of war. Thus, this factor may be beyond the scope of the current study. Unfortunately, federal and state level funding for a variety of programs aiming to ameliorate

mental health concerns has been declining in spite of significant increases in rates of affliction (NAMI, 2011). For instance, the 2013 sequester proposed by the White House discontinued essential mental health services to approximately 370,000 Americans (The White House, 2013.) Providing additional mental health resources to all populations across the country will be a necessary and logical step in ameliorating these issues. This represents another scenario in which the people who need the most help get the least.

## CHAPTER 2

### LITERATURE REVIEW

Identifying various demographic factors that may have some bearing on commuting behavior is an integral step in the process. Age, gender, socioeconomic status, and parenting will all be variables worthy of attention. Additionally, a comprehensive review of the literature on stress and its relationship to mental health will be explored. If certain populations have higher levels of stress exposure, commuting as a stressor may add to existing problems and eventually lead to mental health deterioration in the long run. The hope is that gaps in the existing literature can be filled by providing an examination of the American experience when discussing commuting, stress, and mental health outcomes based on specific variables.

#### 2.1 Age

The age of the individual does seem to have some bearing on the likelihood of developing a mental illness. For example, Americans age 40-59 are more likely to be diagnosed with clinical depression than any other age category (CDC, 2012). Yet, earlier research actually showed the opposite effect. During their 40's and 50's, many Americans have secured employment and a relatively stable family situation. Accordingly, researchers found that those in this age group reported very little depression (Mirowsky and Ross, 1999). Understanding the differences in commuting behavior among this age group in the 13 year gap may prove insightful. In contrast, younger people tend to have higher overall rates of mental disorder than older individuals (Kessler et al, 2005). Specifically, anxiety and mood disorder are much more likely to manifest during childhood and adolescence than at later times in the life course (Kessler et al, 2007). The amount of time spent commuting will vary according to the individual's

position in their life course. Patterns of employment may have a significant bearing commuting on behavior. Older adults are more likely to be employed on a full-time basis (Jacobe, 2013). Those who are working with greater frequency will naturally be required to spend more time commuting. Conversely, younger workers are more likely to be employed in part-time positions. Furthermore, a cost-benefit analysis must be used in order to determine whether the commuting distance is worth the time, fuel cost, and added burden shouldered by the employee (Stutzer and Frey, 2008; Small, 1992). Full-time employees are often paid higher wages and given more benefits by their employers. There also may be an intrinsic motivation on the part of the employee to stay with a company. On the other hand younger people are more likely to be employed in a part-time capacity. Many part-time workers often receive lower wages than their full-time counterparts. Low wage workers are also less likely to choose a job further away from their home. Thus, commuting further may make more sense economically for those employed in higher paying positions that are older.

## 2.2 Parenting, Age, and Gender

Levels of stress and self-reported measures of mental health may be affected by the presence of children, the age at which individuals have those children, and traditional caregiving roles associated with gender. For our examination of commuting, it is important that we identify the age at which most people first become parents. Parenthood itself can be stressful (Ross and Van Willigen, 1996). During this phase of the life cycle, mothers and fathers are taking on a new status and the associated roles. This is particularly true for mothers who hold full time jobs and also tend to the majority of household labor (Hochschild, 1997). Married mothers that worked full-time and had children under 18 performed more childcare related tasks than working fathers

(BLS, 2008). This increase in stress in the form of role conflict has been documented among married women. Married women from low-income families often find this added role stress to be more of a burden than other women (Bird, 1999). The importance of socioeconomic status as an indicator of stress and mental health outcomes will be addressed later in this study.

In the United States, the average age of first time mothers increased from 21.4 to 25 from 1970 to 2006 (Matthews and Hamilton, 2009.) Most men first become fathers around 27 years of age (Stykes, 2011). In a post-industrial society, acquiring the education necessary to compete in the job market takes much longer than in the past. This is one reason why both men and women are delaying having their first child until later in life. The average age of first marriage has also increased over the years. Men first marry at around 28.2 years of age while women first marry at 26.1 years of age (ACS, 2010). A great deal of time and energy must be devoted to children. If parents have lengthy commutes, this may increase the amount of stress they feel as a consequence of diminished time available to complete domestic tasks or other child focused activities (Koslowski et al, 1995). The percentage of dual-income families has risen sharply in the past 50 years from 25% in 1960 to 60% in 2012 (Pew, 2012). When both parents are employed, greater stress may materialize in the family unit as a whole. If commuting eats up a significant share of time available for domestic tasks, chores, and family obligations, dual earner families may be forced to carve out even smaller portions of their day to devote to such activities. Also, some married couples are simply choosing not to have children at all. “DINKS” or “Dual Income, No Kids” is a family form that is becoming more common in highly industrialized, post-modern economies (Baudin et al, 2012). Cohabitation without completing the formal marriage process has become more common among American couples within multiple age ranges (Cherlin, 2004). Consequently, having a child out of wedlock no longer carries the

same stigma as it once did. Mothers who cohabitate likely mirror the domestic responsibilities of married mothers and confront similar types and levels of stress.

### 2.3 Gender

As noted earlier, the prevalence of mental disorder is higher among women than men (NCHS and CDC, 1992). Women also have a higher propensity for expressing indicators of depression (Turner et al, 1995). Part of this may be due to the degree and type of stress encountered by women relative to men. Women tend to be impacted family stress to a greater extent than men (Kessler and McLeod, 1984). Women also experience more instances of chronic stress (McDonough and Walters, 2001). In a national study of stress related to daily experiences, the majority of women's stress emanated from dealing with members of their social network, while men's stress originated from matters related to work (Almeida, 2015). Other research cites that women are more likely to be diagnosed with anxiety and depression rather than other mental illnesses (Baruch et al, 1987). Part of this discrepancy may be tied with women's greater susceptibility to gender specific discrimination and violence (Klonoff et al, 2000). As a subordinate group in terms of gender, rates of female victimization are unlikely to diminish.

Much of the differences in stress levels and the associated link with mental illness can be derived from the cost of caring hypothesis. Women are normatively tasked with ensuring the family remains healthy and stable as a whole. Therefore, they incur more stress while navigating their role as caregiver to a greater extent than men (McLeod et al, 1985). To that end, Pearlin's (1981) stress process model of family caregiving should be examined in this context. This model argues that acting as the primary caregiver in a household inherently carries stress and burdens. Worrying about the health and well-being of family members can be draining. Largely, women

are socialized into such roles. Most parents are concerned about their children, regardless of gender. However, if society expects that women should worry more, it stands to reason that they will follow suit. Further support for this theoretical position can be found in dealing with chronic illnesses. Women can be overwhelmed when providing emotional and psychological support to those that represent primary group members such as family or close friends (Coyne et al, 1990). Other research found that women experienced role conflict to a greater degree than men (Nolen-Hoeksema et al, 2008). Frequently, women occupy more statuses and roles both inside and outside of the home. Moreover, women are susceptible to four primary vulnerability factors linked with negative mental health outcomes. The presence of young children, an absent father or father figure, unemployment, and the death of the mother prior to becoming a teenager, prime women for adverse mental health problems, most notably, depression (Harris and Brown, 1978). Effectively, the sharp lines that have been drawn between males and females in numerous realms of social life can lead to differential experiences of stress and mental disorder manifestations.

Stress is not always directly related to the onset of mental disorder. Yet, when stress does significantly impact the individual, discrepancies in rate and type of mental disorder may be attributed to patterns of help-seeking behavior. Specifically, women tend to be more expressive than men and are more likely to seek professional assistance when mental disorders arise (Cockerham, 2010; Kessler et al. 1981). Or, at the very least, women are more likely to get preventative care checkups where symptoms of a mental disorder can be identified in their early stages (Courtenay et al, 2002). Subsequently, the ability of health care professionals to assist the patient in managing and suppressing their condition is increased. This data suggests that the “women think, men drink” adage associated with confronting mental health problems is frequently supported. Women are more likely to ruminate over problems in their lives, whether

they are real or perceived. Men tend to self-medicate by using alcohol or other drugs as a coping mechanism (University of Michigan, 1999). As such, men tend to downplay the seriousness of health issues, be they mental or physical. This is largely a consequence of the socialization process. Men are taught throughout their life course to be tough, strong, and to suppress symptoms of mental and physical illness. Otherwise, their masculinity may be brought into question. Numerous and consistent instances of deviating from male-oriented social scripts may result in a revocation of the highly protected “man card” reference used in so many patriarchal societies. The social script is clear. If you are a man, weakness is not a redeeming quality. On the other hand, women rarely, if ever, lose social status for crying or other overt displays of emotion. In order to avoid such sanctions, most men will abide by gender normative behavior even if it increases stress and is deleterious to mental health.

In the majority of American families, women tend to be the household party responsible for arranging preventative health care visits and consultations for the family, purchasing over the counter medications, and taking time off of work to care for sick children (Cockerham, 2012). Accordingly, women and female heads of household are much more likely to book their own preventative care visits. This is likely one of the reasons why women’s rate of mental illness is usually higher than men’s. Simply put, women are more likely to admit needing help and more likely to seek it, thus leading to more instances of diagnosis. Consequently, men’s help seeking behavior is vastly different from women’s, particularly when examining the frequency of preventative care usage. This is a crucial factor in reducing the onset of mental disorder. It is imperative that medical professionals can identify and treat a problem before it becomes overwhelming for the individual. If stress and mental disorders are treated before they have the chance to exacerbate, outcomes for patients will likely increase in quality and the manifestation

of a mental disorder will decrease. Of course, this hinges on the willingness of the potential patient (the daily commuter) to take the time out of their already busy schedule to address stress from a medical perspective. Finding time to squeeze in a psychological evaluation may be stressful itself and contribute to the already lengthy list of daily stressors one may encounter. In fact, the fear of a stigmatizing diagnosis may be enough to keep some potential patients from seeking help.

Although the gap is slowly closing, data consistently shows that men spend more overall time commuting than women (Crane, 2007). The 2015 American Time Use Survey revealed that men spent .84 hours or about 50.4 minutes per day commuting to and from work. Women commuted an average of .68 hours a day, or 40.8 minutes to and from work. The roughly 10 minute difference in women's daily average commute time may eventually shrink as women's overall labor force participation has been increasing steadily. Approximately 73% of employed women worked full-time (U.S. DOL, 2010). Women tend to take more total trips, most of which are short in duration. As women continue moving into professions once held exclusively by men, their commuting patterns, along with the stress associated with complex job roles, will increase. Identifying commuting as a legitimate source of stress along gender lines may elucidate differences in mental health overall.

Research pointing to gender differences in commuting patterns must be understood in the context of the labor market. Employment patterns within the family unit have been drastically altered such that the number of multiple worker or two-income households has increased. Although both parents may be working, husbands tend to commute longer both in terms of distance and miles than their wives (Clark et al, 2003; McDonald, 1999). The household responsibility hypothesis is largely responsible for these differences. Employed women remain

responsible for the majority of domestic tasks. As such, they tend to choose their place of employment based on their ability to manage and maintain this sphere of life with the fewest possible impediments (Turner and Niemeier, 1997). Specifically, mothers with children under the age of 5 show consistently shorter commutes than other groups (McQuiad, 2009). Additionally, professional working mothers with childcare responsibilities often have higher levels of psychological distress than employed single or childless females (Ozer, 2006). Many women in such positions find balancing the demands of professional and personal life very stressful. The presence of multiple stress inducing obligations increases the probability of mental disorder (Aneshensel, 2009). With so many stressors already adding up, commuting may serve to worsen the situation. It should also be noted that post-modern fathers are spending significantly more time with their children than fathers of previous generations (DePasquale et al, 2016). With respect to gender role norms, the script has been altered such that father's domestic and child focused labor has become more socially acceptable than in the past.

Much of the discrepancy here involves the distinction between who assumes the primary breadwinner role in the family. Traditionally, men tend to occupy this role to a greater extent than women. Not only are men more likely to work outside of the home, but they will be willing to spend more of their time traveling to and from their place of employment. This is largely because the mental and emotional cost of commuting may be outweighed by the financial benefits of the job. This may not be true for women who are consistently paid less than men and tend to commute at off-peak hours (White, 1986). Indeed, for all forms of commuting other than walking, men have higher average commute times than women (ACS, 2011). The implication would be that men may view commuting as more stressful since they are engaging in such

behavior to a greater extent than women. Other literature tells a somewhat different side of the story.

As a consequence of women's increasingly heavy participation in the labor force, more "commuter marriages" exist now than in the past. Commuter marriages are situations where married couples choose to set up multiple households in order to decrease the amount of commuting each partner must endure each week (Rhodes, 2002). Many partners in commuter marriages are highly educated. This means they become more mobile in terms of where jobs may open up. Highly educated individuals are more likely to move further from their home in order to take a job today than in the past (Kilborn, 2005). This second home could be in a suburb of a large metropolitan region or even a city hundreds of miles away (Stafford, 2004). Usually, women in commuter marriages face additional stress related to this lifestyle since they remain responsible for taking care of the domestic chores at both households (Bergen et al, 2007). It is not only the responsibility of managing two households that produces stress. Many commuter wives expressed that they were stigmatized by social network members. A common sentiment from other parents was that the commuting female was not living up to her motherly or wifely duties since she was away so frequently. The romanticized era of the single earner family with a stay at home mother is not a reality for a large share of Americans these days. Sevilla-Sanz (2010) argues that there has been a significant shift in the stigma surrounding males engaging in stereotypically female duties around the house. To a greater degree than ever before, men are pulling their weight around the house. This is particularly true in dual-income households (Pew Research Center, 2016). Nonetheless, an equitable division of labor in the home rarely surfaces, and females tend to bear the bulk of the responsibility. Sex role theory can assist in understanding the impact an unequitable division of household labor can elicit. It has been cited

that women, particularly married women with children, regularly present higher rates of mental disorder than married men (Gove, 1972; Fox, 1980). The implication is that women are overloaded and burdened by the numerous roles linked with their status as mother and domestic supervisor within the household. The key is cultural lag. Our conceptions of what women can and should be able to do outside of the home have been altered, particularly since the Women's Movement. However, very little has changed with respect to traditional norms within the home (Hochschild, 2003). This added stress can not only lead to greater instances of mental disorder, but also the potential dissolution of the marriage.

To this point, commuting behavior has been framed within the context of the relationship between commute length and stress on the individual that is traveling from work to home and home to work. Another important consideration is how an extensive commute may affect other family members' levels of stress. As previously noted, mothers have been charged with managing and maintaining the household. Examining the degree of stress placed on mothers given their status and associated roles is worthy of mention. Although fathers are taking a more active role in parenting now than in previous generations, mothers are still responsible for the majority of such tasks. As such, the daily commute of working mothers may be significantly longer as a consequence of being charged with picking up and dropping off children before or after work. The extent of this burden might be expressly high if their partner cannot provide assistance as a consequence of a taxing commute. Even if men are only providing marginal assistance in the domestic sphere, some support is better than none. Consequently, spouses may feel their significant other is stressed to a greater degree if they understand how their increased absence due to commuting may be a source of that stress. Similarly, the commuting spouse may

become increasingly stressed out if they realize the degree to which their daily commute inhibits their ability to provide tangible family support.

#### 2.4 Socioeconomic Status

One of the primary independent variables in the examination of commuting behavior and mental health will be the type of socioeconomic status held by each respondent. In any capitalist society, significant stress is correlated with the ability or inability to attain and retain positions of economic viability (Brenner, 1973). In addition to level of educational attainment and income level, the type of job in which an individual is employed can impact their stress level and mental health outcomes in a number of ways. A wealth of literature pertaining to occupational status in the United States shows that many jobs remain heavily gendered (Wootton, 1997). Although larger shares of women have been obtaining employment in traditionally male dominated sectors, unambiguous contrasts remain apparent when discussing gender and profession. Commuting patterns are affected by the type of industry in which the respondent is employed. Certain types of industry are less mobile than others. For example, manufacturing, farming, and commercial fishing, logging, and construction will not shift in unison with residential living patterns. These tend to be male dominated professions. Conversely, a host of service sector jobs are more likely to be located on the fringes of urban cores, or in suburban areas. Since women are more likely to be employed in service sector jobs than men, the differences in commuting between genders is no surprise.

In addition to the factors linked with the gendered state of many occupational sectors, scrutinizing the average numbers of hours worked by Americans should be noted. Given the theoretical framework previously discussed, it may be likely that employees confront greater

levels and degrees of stress if they are working longer hours. Although working more may not directly add to the time spent commuting, it could potentially make a longer commute more stressful than it otherwise would be. Diminished time for family, leisure activities, and attending to a variety of domestic tasks may ensue. Americans have actually seen a small but steady decrease in the number of hours worked yearly since 2000 when the average American worked 1,836 hours per year (OECD, 2017). Relative to other OECD countries, Americans worked an average of 1,790 hours in 2015. This is slightly above the OECD average of 1,766 hours, and equals approximately 34.42 hours a week.

Although it is difficult to objectively state, some jobs are simply more stressful than others. Too much occupational stress can detrimentally affect the quality and length of relationships (Story et al, 2006). As a dimension of socioeconomic status, a respondent's occupation may have a large bearing on their commuting patterns. Specifically, higher SES individuals tend to live in suburban and exurban areas further away from their places of employment (Iceland and Wilkes, 2006). This requires that they commute longer distances each day. Yet, this does not necessarily mean that they will react to this added stressor negatively. Research shows that those with more education were less susceptible to mental and physical distress than those with less education (Grzywacz et al, 2004). Also, lower status groups tend to have higher levels of exposure to poor daily living conditions that place them at greater risk for stress (Aneshensel et al, 1991). Higher educational attainment may act as a buffer for daily stress. This may eventually translate into a decreased likelihood of mental disorder manifestation if stress is approached and managed effectively. Additionally, higher SES commuters tend to have greater levels of perceived schedule control. This means they have more autonomy and flexibility in determining their own work hours (Kelly and Moen, 2007). This could potentially

act as a buffer for stress. Ultimately, SES position may be related to the cost-benefit analysis previously mentioned. Occupations requiring high levels of education will usually grant the employee a higher salary. An increased salary may offset the stress and loss of personal time as a form of economic rationality.

Previous studies on the relationship between social class, residential location, and mental health outcomes demonstrate the importance of such factors given the scope of this study. First of all, a very distinct trend has been found between social class position and the type of mental health disorder. Those in higher social classes are much more likely to manifest and report anxiety disorders, while those in lower classes are at greater risk for schizophrenia (Hollingshead and Redlich, 1958). This is important because anxiety disorders often do not inhibit participation in employment, family, and educational affairs to the extent that schizophrenia might.

Schizophrenia is characterized by the brain distorting reality by means of auditory or visual hallucinations. Or, the afflicted individual could simply withdraw into a delusional state, making the navigating of daily living patterns unmanageable. The key here is stress. Lower class individuals are exposed to more stress and tension with greater frequency (Srole et al, 1962). Given this information, the difference in rates of mental disorder along social class lines is plausible.

Next, the type of neighborhood in which one resides is vital when considering overall well-being. Lower income neighborhoods tend to be rife with higher rates of unemployment, crime, and drug abuse (Ross, 2000). Rates of psychiatric disorders are also higher in low income neighborhoods (Levy and Rowitz, 1973). These areas are also less likely to be maintained by residents or paid employees of the city. If it appears no one cares about the upkeep of the community, there will be more broken windows, graffiti, garbage, abandoned buildings, and

overgrown lawns. These areas then become highly susceptible to crime (Wilson and Kelling, 1982). Furthermore, these neighborhoods are less aesthetically pleasing than middle and upper income neighborhoods. Those residing in more ordered, safer, cleaner neighborhoods consistently report better mental health outcomes than those living in disordered communities. A classic experiment conducted by Dorothy Gatreux shed light on the importance of neighborhood characteristics and psychological well-being (Duncan and Zuberi, 2006). In this experiment, low-income Chicago residents were given housing vouchers to rent property in the private rather than public housing market. Those who self-selected into the study got better jobs and were less stressed out.

In post-modern times, increasingly large shares of middle and upper income neighborhoods have Home Owners Associations (HOA) that require monthly, quarterly or yearly payments by the resident. A great deal of these funds go to maintaining landscaping, community green spaces and parks, and hiring private security. Thus, usually, the more expensive the community in which one resides, the more protection residents have from potential stressors. This relates to commute distance and the associated stress in an important manner. The higher SES commuter may be more likely to incur a long commute each day if they know they are returning to an area or community that serves to decrease rather than increase stress. Our homes should serve as somewhat of an escape, sanctuary, or haven from many of the demands, hassles, and stressors we typically encounter. Otherwise, stress may not just add up, it may overwhelm the individual who traverses one setting to another. Making the connection between commuting behavior, SES, and mental health outcomes may open new lines of inquiry and research.

## 2.5 Characteristics of Commuting

The length of commute, population density, as well as the timing of commute should be considered. For example, a 5 mile commute in New York, Los Angeles, or Chicago may be much more time consuming and stressful than a 15 mile commute in a location such as Lubbock Texas, or Boise, Idaho. Short distances in miles are not always in line with the time in minutes it takes to travel from one location to another. Gridlock or standstill traffic conditions have been identified as the most bothersome to commuters (Choi et al, 2013). Hence, defining how commuting will be measured is a specific concern when considering the validity of our measure. Both distance and time should be taken into account (Martin, 1971). Moreover, daily traffic flows are subject to the “bottleneck effect” in many major cities (Vickery, 1969). Traffic jams may be more common heading one direction in the morning and the opposite direction in the evening. Interestingly, in some of the largest U.S. cities, so much commuting congestion occurs that it is difficult to identify any traffic flow pattern since the number of vehicles entering and leaving the center city is similar (Orski, 1985). This means that getting stuck in traffic jams is more of an inevitable stressor now than in the past. Post-modern advances in technology, particularly smartphone map features, allow commuters to view the quickest route to and from work based on traffic volume and estimated speed on the road. Even with this tool, quickly and smoothly navigating a daily commute may be impossible given the number of other commuters in the same physical space.

Largely as a consequence of White Flight, commuters travel towards the center city or urban core from suburban locations in the mornings (Putnam, 2000). In the afternoon and evening, these same commuters exit downtown districts in mass numbers. However, in post-modern times, traffic flows have been altered such that the majority of commuters now live in the suburbs and work in another metropolitan city that surrounds the center city or urban core

(Baum-Snow, 2010). Effectively, the average commuter is traveling from one suburb to another. Therefore, better understanding where Americans live and where most new jobs are created and located is of specific importance. Social scientists and demographers have noticed that a higher percent jobs requiring college degrees are located in downtown areas (Edlund et al, 2015). Two primary factors underlie this phenomenon. First, when speaking specifically of younger members of the workforce, millennials are less likely to buy a home than previous generations did at the same age (Hwang and Lin, 2016). Much of this is due to the combination of wage stagnation and increases in the cost of living. In effect, it has been more difficult for the average millennial to possess the financial capital and credit to debt ratio required for home ownership. The inability to purchase and invest in larger assets is also challenging for this generation due to student loan debt. Around 11% of all student loans in the U.S. end in default (Department of Education, 2016). Although the student loan default rate has been decreasing slightly in recent years, those with daunting levels of debt will have much less available cash on hand for other investments. Secondly, in order to get those middle class jobs that are available in downtown areas, a great deal of education is required. Consequently, younger adults are delaying their entry into the professional employment market by staying in institutions of higher education for longer stretches. Those who get married later are also more likely to begin having children later. This means that the need for a larger family home may not be as attractive as an apartment downtown.

Gaining insight into the types of jobs that require more commuting is important here. Specifically, do white collar employees commute further than blue collar workers? This phenomenon may be experiencing a reverse pattern as gentrification processes become increasingly prevalent in urban cores. Younger generations of middle class citizens are eschewing suburban living and taking up residence closer to urban entertainment districts

(Ehrenhalt, 2012). If these trends continue, it is possible that the traffic patterns with which we have all become familiar may be reversed. It should be kept in mind that this is a new phenomenon. Still, most middle age adults move farther from the city center as they age. Mileage or minutes spent commuting will obviously be affected by an individual's route to and from work, the size of city in which they reside, and the type of transportation infrastructure available in each region.

Differentiating between the forms of commuting is typically accomplished by defining the method of travel in one of two ways. "Active" commuting involves driving a personal automobile, riding a bike, or walking. Some scholars more narrowly define active commuting to include forms of commuting that involve significant physical exertion (Humphreys et al, 2013). Commuting that doubles as a form of exercise is key since the positive correlation between physical activity and mental health is widely documented. If more Americans employ physically active forms of commuting such as walking or biking, perhaps the prevalence of work-related stress and the onset of mental disorder can be diminished. Although very rare, bicycling to work is becoming a more common method of commuting. Multiple physical benefits such as the burning of calories and positive mental hygiene are linked with biking to work. Nonetheless, distance to work, streets that are conducive to biker safety, and cost of parking are 3 primary factors that influence willingness to utilize this form of commuting (Handy and Xing, 2011). Unfortunately, the infrastructure of most cities in the U.S. is not favorable in terms of quickly and safely getting to and from work using active forms of transportation.

Conversely, "passive" commuting involves public transportation such as busses, trains, and subways wherein the individual is not responsible for operating any type of vehicle (Roberts et al, 2011). The ability to control one's commute and related aspects therein is of primary

importance when discussing stress and commuting. A feeling of helplessness has been linked with a wide range of mental disorders. Many facets of commuting are beyond the control of any single individual (Cassidy, 1992). This vulnerability comes in many forms, including the risk of being involved in a high speed automobile accident, a train or subway derailment, or possibly a terrorist attack targeting the mass transportation system. Although rare, each of the aforementioned instances can heighten the amount of stress an individual experiences. Furthermore, finding oneself in traffic during rush hour times has also been linked with a physiological stress response in the body (Evans and Carrere, 1991). The “ecological model” has also been examined by previous researchers (Bopp et al, 2013). This model scrutinizes the degree to which commuting affects the amount of time one has available to spend with family or engage in non-employment related matters. Thus, quality of life may be reduced if commuting eats up an overwhelming amount of time in one’s day. As discussed in the gender section, the ecological model may be particularly salient for commuting mothers as the demands on these individuals have increased over the years. In many post-industrial societies we now expect “supermoms” that can brilliantly manage both work and home life without batting an eye (Douglas and Michaels, 2004). Women tend to engage in non-employment related activities to a greater extent than men, despite also working similar hours at a paid job.

## 2.5 The End of Work

What will commuting look like in the future if fewer people are engaged in any type of traditional employment? If we are not required to travel to some physical space to conduct business, commuting disappears. This could reduce overall stress levels. Unfortunately, the cessation of commuting comes at a significant existential cost if we no longer have wage labor at

the core of our identities. Many “end of work” scholars are beginning to explore this issue in greater detail. Post-industrial societies are rife with technological advancements. Innovation has meant that more computers, robots, and machines are now capable of performing many of the tasks that once required the physical prowess and the mental proclivities of human beings (Rifkin, 1995). Yet, some jobs are more likely to be automated than others. Professions requiring higher levels of education, skill, and talent often require human reasoning and thought processes to maximize proficiency. These positions are considered more functionally important than lower order jobs (Davis and Moore, 1945). On the other hand, employees who provide unskilled and semi-skilled labor are marginalized in labor markets since their labor is more easily replicated by the automation process. In effect, higher levels of inequality will materialize as lower SES workers are pushed out of jobs to a greater degree than higher SES workers (Autor, 2015). If this becomes a reality, only those in high socioeconomic positions will commute.

As more Americans are losing their jobs to outsourcing and machines, it is not only economic viability that is at stake. Strangleman (2007) argues that humans may struggle to form cohesive identities if they do not work. We have built our lives around work to a significant degree. Where we live, eat, and play are all heavily influenced by the job we hold. We have gone as far as inculcating our citizens to believe that their self-worth cannot be divorced from paid occupations. Often, our political stances may even have some connection with how we are employed. When we meet a new person, we often ask them, “What do you do?” The implication is that our paid labor has become the most important feature of our lives. If our identities are not linked with our jobs, we may find it stressful to build new identities around other facets of social life.

The deindustrialization process began in large scale during the 1970's in the United States. In a recently released report, only a scant 8% of all jobs in the U.S. are in the manufacturing sector (BLS, 2015). As factory jobs began being outsourced to lower priced labor forces all over the world, Americans became less certain about employment prospects and how they identified with work (Casey, 1995; Milkman, 1997). Post-modern economies are wrought with risk. For most Americans, the idea of working at the same job for our entire career is highly unlikely (Beck, 2000). Younger generations grew up seeing parents and grandparents work for the same company for 20 to 30 years before retiring with a pension as a financial safety net. Currently, the average American employee will remain at the same job for just over 4 years (BLS, 2016). A greater percentage of jobs currently offered are more likely to be part-time, low wage positions with few benefits such as health care insurance or pensions. It is now expected that employees be more mobile and have an understanding that job stability no longer means what it did previously in our economy (Sennett, 1972). We can certainly see how stress is infused into these types of employment considerations. People have always stressed about their jobs. However, when our jobs become increasingly precarious, our stress levels may increase.

## 2.6 Research Questions

A number of practical questions underlie the motivation for examining commuting as a chronic stressor. Before any headway can be made in terms of identifying and reducing the amount of stress associated with commuting, the most affected populations should first be pinpointed. More specifically, the living patterns, life course stage, and access to modes of commuting will be of primary importance. What is the relationship between commuting times, stress and mental health? Do individuals with longer daily commutes experience significantly

worse outcomes in relation to mental health? It is necessary to delineate between distance in miles and time spent commuting. These variables can be vastly different according to the population density in a given city or metropolitan area. If more time is spent on the road getting from home to work and work back home, what impact does this have in constructing normal family routines? How does commuting fit into larger patterns of daily living? The impact commuting has on other areas of social life may be integral in terms of its bearing on mental health. This leads to the next research question. Do parents find commuting more problematic than those who do not have children? Clearly, the more time spent traveling from one location to another decreases the amount of time available to provide childcare, participate in child oriented activities such as sports, clubs, and extracurricular activities, as well as other forms of instrumental support. Perhaps, reaching the locations of child-centered activities may lead to further commuting distances. If this is the case, parents may be less likely to view commutes negatively. Rather, they may frame them as an obligatory aspect of modern parenting.

## CHAPTER 3

### DATA AND METHODS

A wealth of research exists on commuting behavior in Europe, specifically, Sweden and England. However, finding an appropriate data set for a study of American commuting required a significant search. The majority of data sets that asked respondents questions about the type and duration of commute did not provide any variables related to mental health such as stress levels or overall psychological well-being. The Institute on Aging at this institution produces a variety of data sets which seek to better understand the aging process of Americans during the midlife period. Funding comes from the National Institute on Aging. For the purposes of this project, I chose to use the MIDUS II data set. This was a follow-up to the MIDUS I study that examined a host of psychosocial, sociodemographic, and health indicators based on the age of the respondent. The data from this study was gathered from 2004-2006 and full completion occurred in 2009. Multiple factors were involved in the process of choosing this dataset. First, as previously mentioned, there exists a scarcity of datasets with questions pertaining specifically to American commuting patterns. Furthermore, when these datasets are present, they rarely include data linked with stress, mental health outcomes, or both. Some of the datasets that do meet the aforementioned criteria are not current enough to accurately depict the relationship between commuting and stress in an American, post-modern context. Residential housing development patterns have continually been located further from center cities with each passing year and the sheer number of commuters also increases similarly. Therefore, utilizing a relatively current dataset is crucial in achieving a real gauge and sense of broad, overall commuting behavior in the U.S. and the degree to which that commuting elicits stress.

Before analysis of the data could be compiled, it was necessary to ensure that the available information was appropriate. First, the sample size of those who responded to the questions applicable to the study at hand was sufficient. A total of 2,316 (46.6%) males and 2,647 females (53.4%) responded. This represents a total of 4,963 respondents. Next, descriptive statistics were run for all of the major variables included in this study. The age range of the respondents was between 28 and 84 years of age. The average age of all respondents' was 55 (43±12.45) years of age.

The original MIDUS I study collected information from individuals aged 25-74 while the follow up study that will be used here only gathered responses from those aged 35-86. This does represent a limitation because there are plenty of individuals who fall into the 18-34 year old range that commute on a daily basis. However, an accurate measure of the relationship between commuting and mental health outcomes can still be derived from the available data. As previously mentioned, MIDUS II contains multiple measures of commuting characteristics along with variables that assess mental health.

### 3.1 Variables

The breakdowns of self-evaluated responses for mental health (B1PA2) were as follows. “Excellent” self-reported mental health was reported by 846 (17.05%) respondents in the sample, while 1901 (38.31%) responded with “very good” 14,089 (30.00%) reported “good”, 535 (10.78%) reported “fair”, and 191 (3.84%) respondents claimed to have a “poor” current mental health state (Table 1). When asked to classify the mental health status of their spouse (B1SL19), 945 (30.88%) said their spouse had “excellent” mental health, while 1,123 (36.69%) responded with “very good”, 661 (12.60%) were “good”, 265 (8.66%) were “fair”, and 66 (2.15%) were

rated as “poor.” The age of respondents varied between a minimum value of 28 and a maximum value of 84 (*Table 1*).

Four variables are used to measure the amount of time spent commuting by survey respondents. The variable “B1SF17A” asks, “How long does it usually take you, round trip, to get to and from work?” This variable is measured in hours. Next, the variable “B1SF17B” asks, “How long does it usually take you, round trip, to get to and from work?” This variable is measured in minutes. Additionally, two other variables ask the same question but are related to the commute time of the respondent’s spouse. These variables are “B1SL26A” for spouse’s commute time in hours, and “B1SL26B” for spouse’s commute time in minutes.

The integral piece of this research deals with mental health outcomes that may be related to commuting. The MIDUS II data contains 96 variables that ask about the mental health status of respondents and their families. Only three of the variables will be used in this study. First, the variable “B1PA2” asks the respondent, “What about your mental or emotional health? Would you say your mental or emotional health is excellent, very good, good, fair, or poor?” Descriptive statistics for this variable are listed in *Table 2*. Similarly, the variable “B1SL19” asks about the mental health of the respondent’s spouse or partner using the same rating scale. “How would you describe your spouse’s or partner’s overall mental or emotional health at the present time?” The variables that ask about the respondent’s spouse or partner are important given the literature related to commuting and stress. Effectively managing the distribution of labor within the household can be very difficult. If one partner is stressed because of long daily commutes while the other is stressed because they must engage in more cooking, childcare, or other related activities as a consequence of their partner’s lengthy commute, this can be detrimental to the mental health of all involved. A second independent variable “B1SE12X” was also included in

the study. This variable asked respondents to describe how they usually respond to a stressful event. Available response categories were “A lot, a medium amount, only a little, and not at all.” *Table 3* shows the number of responses for each category. Much importance in the literature was placed on the presence of children and the degree of stress parenting may add. The data set includes a variable, B1PC2, which asks respondents if they have any children. This included biological, adopted, step, and foster children living with the parent or elsewhere. The overwhelming majority of respondents had either 2 children (1,549; 31.2%) or 3 children (1065; 21.5%). Exactly 13%, or 647 respondents did not have any children.

Other pertinent variables included in this study were education, wages, and marital status. The education variable was coded as B1PB1, and asked “What is the highest grade of school or year of college completed?” Wages were coded as B1SG8A, and asked the respondent to report the dollar amount of pre-tax income earned the previous year. Almost 15% (735) of the sample reported \$0 for the previous year. This likely meant that these respondents were a non-working spouses. About 2.5% (123) of the sample reported that their income in the previous year was \$50,000 - \$54,000. This is in the range of the median household income value in the United States. These two variables were used in creating a measure of socioeconomic status. Finally, the marital status of each respondent was taking into consideration. This variable was coded B1PB19, with response categories of married, separated, divorced, widowed, and never married.

### 3.2 Statistical Analysis

In order to examine the effects of commuting on mental health, a number of statistical techniques were utilized. Chi-square analyses were used to assess the associations between demographic and research variables used in the study. A conceptual model that shows the potential relationships between each variable is located in *Appendix A*. For relationships that

demonstrated statistically significant chi-square associations, linear regression analyses were used to elucidate the relationship between minutes or hours spent commuting and the mental health status of those traveling to and from their places of employment. Adjusted linear models were used so that the role of sociodemographic factors will be explored. In the adjusted model, age, gender, educational level, and previous year's wage were included to account for their effects on reported mental health status.

Finally, given the very low beta values in the linear regression model, the sample was split by gender. The rationale behind this was to see which, if any, independent variables would demonstrate a larger impact when examining each gender group separately. Partial eta squared values for selected socioeconomic variables were used to quantify the impact of the predictor variables with self-reported mental health. This statistical tool was used since the sample was so large. Partial eta squared is used in order to test the effect size between the variables in the study. Three interaction terms were also used. They included wages and education, emotional distress and commute time, and emotional distress and children. This way, the effect of the interaction terms of on the dependent variables would better take into account the different gender role expectations and both the stress and buffering effect of marriage.

## CHAPTER 4

### LIMITATIONS

A number of limitations should be taken into account when analyzing the data and findings present in this study. First of all, the data set does not capture the full spectrum of those who commute on a regular basis. As previously mentioned, the MIDUS II data only surveyed Americans who were between 35 and 86 years of age. Given this age range, a significant share of daily commuters was left out of this examination. Specifically, the youngest share of commuters was excluded. As one of the independent variables in this study, age may have a substantial impact on the commuting experience. Individuals age 25-34 comprise the largest share of mental disorder among any age group (Kessler et al, 1994). Given that this age group was not included in the MIDUS II data set, the researcher was unable to capture further insight into the stressors encountered among this specific population. Younger commuters will have less experience commuting. Consequently, the strategies by which they manage the stress associated with this activity may differ largely from older adults who have been able to adopt and implement stress reduction tactics. If this is added to an existing predisposition for mental disorder, more commuting stress could represent a significant gap in mental health literature among young adults. Unfortunately, the degree to which commuting stress affects the daily quality of life of those in the 25-34 age group cannot be ascertained given the available data. A future study concerning commuting, stress, and mental health should seek to encompass all age groups that participate in daily commuting in order to be more exhaustive. Although there are certainly some commuters that fall outside of the upper range of the age variable, this is much less likely. A very miniscule share of those who commute will be over 86 years of age.

The cost-benefit analysis of commuting should also be framed in terms of age. Younger commuters may not find as much benefit from a longer commute as older commuters. First, younger employees are often paid lower salaries than older employees due to differences in education, skills, and seniority. The younger commuter is likely to earn less during ages 25-34 than they will beyond that point. Therefore, a long commute for lower pay may not seem as attractive. Parenthood among the 25-34 age group is also crucial in this discussion. If the young commuter has young children, they may be more likely to extend their commute to a lower salary job despite the increased stress and loss of family time involved, as providing financially may be paramount. As previously mentioned, the demands of parenthood can certainly be stressful. Younger parents may be less likely to have developed positive coping strategies relative to older parents with more experience. Furthermore, the occupational status of the younger commuters that are excluded from this study may differ widely from that of older commuters. Younger people are more likely to work part-time, and with fewer credentials, skills, and employment history, their pay is normally lower. Accordingly, the cost-benefit of a longer commute may not be worth the time for the younger commuter relative to the older commuter.

Another significant limitation in this study deals with the existence of specific commuting related variables. No variables in the data set differentiate between the types of commute employed by each respondent. Delineating the mode of commute is key when discussing this behavior and its relationship with stress and the onset of mental disorder. Are certain types of commuting more stressful than others? Specifically, does operating a personal motor vehicle elicit more stress and anxiety than utilizing forms of public transportation? The assumption when conducting a study of American commuting is that an overwhelming percentage of respondents would utilize a personal vehicle given the lack of

public transportation infrastructure in most major cities in the United States. Outlining the range of commuting types will be crucial in future studies of this nature. This is of particular importance when we consider walking or biking as an active form of commuting. Granted, very few Americans walk or ride a bike to and from work. This is largely due to the fact that it is simply not feasible in most cases. The overall commute distance is either unrealistic for this type of commuting, or traversing major interstates may present unjustifiable challenges to the commuter. An absence of city appropriated bike lanes may also deter active commuters who endeavor to take a more physically active and healthy approach to commuting. Accordingly, the mere availability of public transportation may have a significant bearing on outcomes when examining regional differences in stress and the mental health impacts of commuting.

Respondents in this study did not specify whether they utilized an active or passive form of commuting. Furthermore, the questions did not discuss public vs. private commuting. In public forms of commuting such as riding a subway, bus, or train, other passengers and their behavior may represent an additional layer of stress that the private commute will not encounter. With each form of commuting, there is a give and take occurring. For instance, the subway, train, or bus commuter could attend to a variety of work, family, or leisure tasks during the commute. Since they are not responsible for navigating the road or track, they can catch up on employment related projects, check email, read the news, send text messages, schedule appointments for family members, or even sleep. Of course, this is not possible for the private automobile commuter. Previous research has shown that those who use a private car to commute are more stressed, anxious, and impatient than those who use passive forms of commuting (Abou-Zeid, 2009). However, there is a sense of control the private car commuter has relative to the passive, public commuter. If there is a traffic jam, the individual driving their own car can attempt to find

a new route that bypasses the gridlock. Often times, smart phone GPS applications will provide multiple routes and the time in minutes that path would take. Conversely, if a subway, train, or bus breaks down in the middle of the track or street, options for the commuter are much more limited in scope when considering taking alternative routes. In fact, protocol for city managed transportation systems may not even allow the commuter to leave until the problem has been rectified.

The lack of this variable may be the most noteworthy when discussing stress and its relationship with mental health outcomes. The majority of literature dealing with socioeconomic status and commuting focuses on the health impacts of school-age children (Timperio et al, 2006). Walking, biking, or using some other form of active transportation has been linked with better physical and mental health among students. However, this study focuses on adults and their commuting behavior. This represents a general gap in the literature. Other studies, such as the Bay Area Travel Survey, 2000, have differentiated between the types of commute used by the respondent. Unfortunately, no variables in this study asked the respondents about stress or mental health. Other studies such as the MIDUS II Daily Stress Project include numerous variables related to stress, yet it does not include commuting as a variable that might elicit daily stress. A future study might include both of these variables in order to provide some insight into the way each form of commuting is experienced by those involved.

The number of years spent commuting should be a variable included in future studies of this scope. This variable will be key in determining the degree to which stress impacts the commuter. Seasoned, long distance commuters will be more accustomed to the rigors of commuting stress as those with much less experience. In addition, the experienced commuter may already possess the tactics by which commuting stress can be reduced. Secondary,

quantitative data was used for the purposes of this study. Whenever this is the case, the inclusion of variables that might highlight relationships more extensively might be missed. An in-depth, qualitative study concerning commuting behavior, stress, and mental health outcomes would certainly elucidate the relationship of these variables to a greater extent than the present study. Going beneath the surface and finding out which parts of the daily commute are the most pressing would be a great starting point. The current study can be viewed as a starting point in a much larger conversation dealing with patterns of American commuting, residential living, public transportation infrastructure, daily chronic stress, and mental health.

Finally, the size of the sample may have been germane to the very small outcome values of the relationships between the independent and dependent variables. Previous research on p-values has noted that fallacies may occur if the sample size is large. In sum, a small effect in a study conducted with a large sample size can be misleading in the same way that a large effect can materialize in a study with a small sample size (Goodman, 1999). The results in both cases are statistically significant. Yet, they really do not tell us much about the relationship because the degree of significance is so small. Typically, statisticians are concerned with small sample sizes. However, the same caution should be used in interpreting the significance of p-values in large samples.

## CHAPTER 5

### RESULTS

In order to determine if there was an association between gender and respondent's wages, a chi-square test was performed and indicated the presence of a significant association ( $\chi^2=333.37$  (df=41),  $p<0.001$ ). Linear regression was used to determine if respondent wages in the previous calendar year (B1SG8A) were related to gender. Linear regression results found males were more likely to report higher wages than women (OR = 1.05, 95% CI: 1.04, 1.06;  $p<0.001$ ). Chi-square analysis for respondents' highest level of education completed and gender yielded a significant association ( $\chi^2 = 99.54$ ,  $df = 11$ ,  $p<0.001$ ). Linear regression analyses found that men were more likely to report higher education than women (OR = 1.09, 95% CI: 1.06, 1.11;  $p<0.001$ ). Chi-square analyses for the industry in which the respondent was employed and gender yielded a significant association ( $\chi^2 = 400.87$ ,  $df = 11$ ,  $p<0.001$ ). The chi-square value of 333.369 had a p-value of .000. This means that the association between respondents' wages and their gender is not due to chance. An initial odds ratio was run to determine how the respondent's wages in the previous calendar year (B1SG8A) were related to gender. The calculated odds ratio of 1.050 showed that males are more likely to report higher wages than women. This is directly in line with the literature both in terms of traditional caregiving roles remaining heavily female oriented and with women working part-time to a greater extent than males who are more likely to be employed on a full-time basis.

The same statistical test was run in order to elucidate the relationship between gender and education. The calculated chi-square for respondents' highest level of education completed and gender was 99.541. The p-value for this test was also .000, showing that the association between educational level and gender was not due to chance. The calculated odds ratio of 1.085 showed

that men are more likely to report higher education than women. Again, given the existing literature, this relationship was anticipated. A final chi-square test was run using a combination of the industry in which the respondent was employed, coupled with gender. The chi-square value of 400.872 had a p-value of .000, showing that there was an association between industry code and gender.

In order to use socioeconomic status (SES) as an independent variable, an interaction term was created to include wages from the previous year (B1SG8A) and highest level of education completed (B1PB1). The reason for taking this approach is because the existing data set provided a variable, B1PIND, which classified the respondent's profession by industry code. Due to the nominal nature of this variable, an interaction term using both term wages and education was used as a proxy measure of socioeconomic status. The existing data set provided a variable, B1PIND, which classified the respondent's profession by industry code.

For the analyses of commute time and mental health status, unadjusted linear regression analysis found no significant association ( $\beta = 0.002$ ,  $SE = 0.002$ ,  $p = 0.16$ ). The adjusted analysis also failed to demonstrate a significant association ( $\beta = 0.001$ ,  $SE = 0.002$ ,  $p = 0.36$ ). An additional linear regression analysis, which included the wages and education interaction term, also found no significant association between commute time and reported mental health status ( $\beta = 0.002$ ,  $SE = 0.002$ ,  $p = 0.19$ ). However, the socioeconomic status interaction term did show a significant association with reported mental health status ( $\beta = 0.002$ ,  $SE = 0.001$ ,  $p = 0.048$ ) indicating that higher wages and higher educational levels are positively associated with reported mental health status.

After working with the data, an interesting interaction was found among spouse's job commute in minutes (B1SL26B) and mental health status of the respondent. Initially, the latter

variable was treated as a dependent variable. However, after further analysis, it seemed more appropriate to treat spouse's commute time as an independent variable. The reasoning behind this alteration is the degree to which the respondent's mental health may be negatively impacted as a direct consequence of higher stress levels manifested by their spouse. Specifically, when one's spouse is spending more time commuting, he or she may experience higher levels of stress. As such, the respondent may be forced to invest more emotional and physical energy in order to manage and deal positively with a relationship. When stress is brought home, it may have a secondary effect of worsening the mental health of those who share a residence with those who endure long commutes on a daily basis. It should be expected that these trends will continue to increase as residential living patterns tend to be clustered further away from the center of major cities. In this study, women reported a higher mental health burden for their spouse than men did for their wives; however the magnitude of this difference was small ( $d = 0.09$ ). A linear regression model using self-reported mental health status as the outcome and the interaction of gender and self-reported rating of the spouses' mental health found a significant association even after adjusting for age, gender, education, wages, and commute time ( $\beta = 0.14$ ,  $SE = 0.01$ ,  $p < 0.001$ .)

The presence of children can add an additional layer of stress. Emotional and psychological demands are often linked with the daily care of children. When adding the respondents' number of children to the regression model, there was no statistical significance relative to stress levels and self-reported mental health ( $\beta = 0.03$ ,  $SE = 0.04$ ,  $p = 0.43$ ). An interaction term between number of children and stress was then used to see the relationship as it related to commute time. This interaction term was also found to be statistically not significant ( $\beta = -0.02$ ,  $SE = 0.01$ ,  $p = 0.022$ ). Marital status was also used as a predictor variable related to the presence and number of

children. Those who are married tend to have more children than those who are not married. Linear regression analysis revealed that marital status ( $\beta = 0.005$ ,  $SE = 0.001$ ,  $p = 0.063$ ) did not significantly influence self-reported mental health.

Next, emotional distress (B1SE13X) was used as a means of analyzing the way respondents reacted when confronted with a stressful event. After adjusting for age, gender, education, wage, and industry, emotional distress was a significant predictor of mental health status ( $\beta = -0.23$ ,  $SE = 0.04$ ,  $p < 0.001$ ). Additionally, an interaction term was created to include emotional distress and commute time. The interaction between emotional distress and commute time as a predictor of mental health status was not significant ( $\beta = 0.000$ ,  $SE = 0.002$ ,  $p = 0.90$ ). A complete list of all independent variables used in the study and their beta values can be found below in Table 4.

In order to demonstrate the impact of the previously mentioned interaction terms, 4 additional models were used. A split sample approach was used, breaking up respondents into two separate male and female gender groups. All four models test the amount of variance the interaction terms explain in self-reported mental health. Partial eta squared was the specific measure utilized. In this case, minutes spent commuting, age, education, and wages were used as predictors of mental health status, accounting for marital status. *Table 5* reports these values for males, while *Table 6* reports these values for women. The predicted main effect of commute time was not significant for males,  $F(1, 979) = 0.25$ ,  $p = 0.55$  or females  $F(1, 997) = 0.88$ ,  $p = 0.28$ . Education  $F(1, 979) = 11.39$ ,  $p = 0.00$  and wages  $F(1, 979) = 4.89$ ,  $p = 0.00$  were both significant for males. The same was true of education  $F(1, 997) = 8.39$ ,  $p = 0.00$  and wages  $F(1, 979) = 6.49$ ,  $p = 0.00$  for women. Yet, these measures only explain a miniscule amount of variation in self-reported mental health, controlling for marital status.

Lastly, *Table 7* and *Table 8* add three interaction terms to the existing model for males and females respectively. In these models, partial eta-squared values for predicting self-reported mental health with marital status. In males, the only significant interaction term was emotional distress and children  $F(1, 770) = 4.34, p = 0.01$ . Yet, this only explained less than 1% of the variation in the self-reported mental health. For women, none of the interaction terms were significant in explaining the variation of the self-reported mental health.

*Table 1: Self-Reported Mental Health*

Excellent	846 (17.05%)
Very Good	1,901 (38.31%)
Good	14,089 (30.00%)
Fair	535 (10.78%)
Poor	191 (3.84%)

*Table 2: Mental Health Status of Spouse*

Excellent	945 (30.88%)
Very Good	1,123 (36.69%)
Good	661 (12.60%)
Fair	265 (8.66%)
Poor	66 (2.15%)

*Table 3: Expression of Emotional Distress*

A Lot	388 (7.8%)
A Medium Amount	828 (16.7%)
Only a Little	1805 (36.4%)
Not at All	961 (19.4%)

Table 4: Linear Regression Estimates Predicting Mental Health Status

Predictors	$\beta$	SE	p
Time spent commuting	0.002	0.002	0.16
Emotional Distress	-0.23	0.04	0.001***
Emotional Distress and Commute time (interaction)	0.000	0.002	0.90
Wages and education (interaction)	0.002	0.002	0.19
Socioeconomic status	0.002	0.001	0.048*
Marital Status	0.005	0.001	0.063
Children	0.03	0.04	0.43
Emotional distress and children (interaction)	-0.02	0.01	0.022
Age	0.00	0.00	0.004
Gender	0.01	0.04	0.84
Education	-0.04	0.01	0.00**
Wages (previous year)	-0.01	0.00	0.00**

Note. \*p $\leq$ .05 \*\*p $\leq$ .01 \*\*\*p $\leq$ .001

Table 5: Partial Eta-Squared Values for Predicting Self-Reported Mental Health with Marital Status - Males

Predictors	SS	df	p-value
Minutes Spent Commuting	0.25	1	0.55
Education	11.39	1	0.00**
Age	0.01	1	0.90
Wages	4.89	1	0.01**
Marital Status	11.46	5	0.01**

Note. \*p $\leq$ .05 \*\*p $\leq$ .01 \*\*\*p $\leq$ .001

*Table 6: Partial Eta-Squared Values for Predicting Self-Reported Mental Health with Marital Status – Females*

Predictors	SS	df	p-value
Minutes Spent Commuting	0.88	1	0.28
Education	8.39	1	0.00**
Age	10.65	1	0.00**
Wages	6.49	1	0.00**
Marital Status	10.81	5	0.01**

*Note.* \*p≤.05 \*\*p≤.01 \*\*\*p≤.001

*Table 7: Partial Eta-Squared Values for Predicting Self-Reported Mental Health with Interactions – Males*

Predictors	SS	df	p-value
Minutes Spent Commuting	1.49	1	0.14
Education	9.13	1	0.00**
Age	0.08	1	0.73
Wages	7.26	1	0.00**
Marital Status	5.94	1	0.11
Emotional Distress	0.00	1	0.94
Children	5.17	1	0.01**
Education and Wages (Interaction)	3.95	1	0.02
Children and Emotional Distress (Interaction)	4.34	1	0.01**
Minutes Commuting and Emotional Distress (Int)	1.55	1	0.13

*Note.* \*p≤.05 \*\*p≤.01 \*\*\*p≤.001

Table 8: Partial Eta-Squared Values for Predicting Self-Reported Mental Health with Interactions – Females

Predictors	SS	df	p-value
Minutes Spent Commuting	0.97	1	0.25
Education	7.13	1	0.00**
Age	8.10	1	0.00**
Wages	3.63	1	0.03
Marital Status	10.00	1	0.12
Emotional Distress	0.00	1	0.98
Children	0.63	1	0.36
Education and Wages (Interaction)	2.38	1	0.07
Children and Emotional Distress (Interaction)	1.21	1	0.20
Minutes Commuting and Emotional Distress (Int)	0.57	1	0.38

Note. \* $p \leq .05$  \*\* $p \leq .01$  \*\*\* $p \leq .001$

## CHAPTER 6

### DISCUSSION

The overall results from the regression analysis turned out to be inconclusive given the researcher's initial hypothesis. The commute time reported by respondents did not have a statistically significant bearing on mental health outcomes. This was true for both the normal sample, and the sample that was split by gender. A number of rationales could be responsible. First, just as stress is unequally distributed in any population, the ability to navigate and manage stress is also not uniform. It could be that commuters who endure above average or extreme commutes have adopted stress management practices which act as buffers. Whatever these tactics may be, their presence could help alleviate the negative emotions linked with that commute. Or, those who cannot effectively manage multiple forms of stress may simply choose jobs which do not require a long commute. The aforementioned cost-benefit analysis, coupled with locus of control, coping styles, and family status are all applicable in this situation. Those without a feeling of confidence when approached with stress may view shorter commutes as a quality of life issue. Maybe they have tried a longer commute in the past and were unable to find a psychological balance given daily demands of work, family, and social activities. Moreover, if the long distance commuter does not have family or social network members who can help them find solace at the end of stressful days, more rumination of the stress may occur in the absence of an appropriate and convenient outlet.

One of the most pertinent findings from this study was the relationship between education, income, and commuting. Those who earn higher wages and have higher levels of education tend to spend more time commuting than those who earn less and have less education. Yet, the high SES commuters did not report higher levels of stress and deleterious mental health

outcomes relative to lower SES commuters. Again, this ties in directly with the literature pertaining to the cost-benefit analysis that is scrutinized by individuals when considering potential employment options. People tend to be willing to spend more time commuting if they are getting paid a higher wage to do so. The same is true if they are afforded higher levels of autonomy at their job. Often, levels of autonomy within employment sectors are heavily correlated with the amount of education needed to acquire such jobs. Those with a college degree or a professional degree are more likely employed in higher echelons of many job sectors. As such, they are more likely to be in a managerial position and have employees answering to them. In contrast, commuters with lower levels of educational attainment are increasingly likely to be employed in positions where they have multiple bosses to whom they must answer. Ensuring that they toe the line, appropriately perform work tasks, and effectively manage relationships with other employees represents an added layer of stress for the less educated worker. Essentially, commuters who are granted more self-direction and power within the workplace may not view a long, stress riddled commute as negatively since they are less likely to be at the mercy of external forces once the commute has concluded. The same is true if the respondent is able to use a higher salary during the workday to offset such stress.

It may not be salary and autonomy alone that account for the buffering effect of socioeconomic status. This could be achieved in a variety of ways, including taking more vacations, hiring a private counselor specializing in stress management, or purchasing a home in a more expensive neighborhood that has lower rates of crime. Furthermore, the ability to better take care of the mind and body may be realized by the higher SES commuter. Having discretionary income that can be used on a variety of social activities can act as a stress buffer. These could include going to the movies, shopping at the local mall, regularly eating out at

restaurants, having a gym membership, or taking personally fulfilling classes like cooking, art, or learning how to play a new instrument. Socioeconomic status may be the best predictor of stress and the onset of mental disorder, regardless of time spent commuting and other, more conventional stressors. The hidden curriculum within institutions of higher education may have some bearing on these outcomes. Attaining post-secondary education and earning professional degrees may provide a heightened degree of confidence, self-efficacy, and a greater locus of control. Those who are trained to be leaders, should assume the leadership qualities which accompany such a status. Usually, this does not entail allowing stressors to dictate and inform personal, professional, or social responsibilities. Together, these characteristics can be applied by the more highly educated individual to deflect or diminish all forms of stress, commuting related or otherwise.

Regression analysis results also showed that male respondents in this study were more highly educated and earned more than women. If women's socioeconomic status is consistently lower than men's, then women may be exposed to greater levels of stress. Accordingly, women are at a greater risk of manifesting a mental disorder than men. There are multiple avenues that this analysis provides. First, women are moving up occupationally relative to men. Much of this is related to the percentages of women in higher education across the country. In each major racial group, women represent higher enrollment numbers at colleges and universities in the U.S. As women as a whole become more highly educated, the occupations in which they find themselves will be more prestigious, and likely provide higher wages. Therefore, as time progresses, we may see more similarity between men's and women's overall SES. However, if the distribution of household labor and the stress that is tied with it remains gendered, as documented in Pearlin's stress process model of family caregiving, women's overall standing in

terms of socioeconomic status may not provide the same offset as it does with men. The gender wage gap is slowly closing, but there is much work to be done. This is particularly true with respect to the wages of minority women. Achieving complete pay equality in the United States may never occur. Therefore, it is important that attention be paid to such dynamics since this can certainly represent an added level of stress.

The link between stress and mental health was clearly outlined as evidenced in the correlation between level of emotional distress and self-reported mental health status. Those who were more susceptible to distress after a stressful event reported worse mental health than those who did not feel as distressed. However, emotional distress and commute time together did not predict mental health outcomes. The key is locating the origin of stress for the individual. Each individual approaches stress differently. Commuting may be stressful to some, but not others. Also, it could be that many respondents simply misinterpreted the source of their stress. Perhaps their commute was stressful, but was overshadowed by other stressors in their lives. For instance, job or family related stress could carry over to the commute. This could potentially increase the stress of the commute, but not primarily due to specific factors related to the experience of commuting. It should also be noted that the emotional distress variable did not specify the type of event in question. The respondent was asked how they usually respond to a stressful event. It is unclear if these events were viewed as singular instances or if they were chronic in nature. This is important because commuting stress should be framed as a recurrent, daily stressor. The wording of the question may have led respondents to understand “stressful event” as a life event rather than an enduring, persistent stressor like commuting.

Gender and marital status as an interaction term did not have a significant bearing on level of emotional distress or self-reported mental health. Again, this is a situation where the

socioeconomic status of the commuter becomes the principle variable. Research speaking to the unequal distribution of stress along gender lines is an important piece in understanding stress outcomes. However, in a commuting context, the positive features of having a higher socioeconomic status seem to outweigh the costs of a long commute. Irrespective of the cost of caring thesis and greater internalization of stress, higher SES women are less likely to find their commute as emotionally distressing as lower SES female commuters. The buffering effects of job autonomy and locus of control are utilized by women in the same way as men. This makes sense as more women achieve powerful, upper management positions in a variety of employment sectors. Women who provide for their families financially may not view their absence due to work or commuting as negatively if they can offer economic incentives.

Finally, the interaction term of the presence of children coupled with emotional distress only had a very small effect on self-reported mental health for men. Often, children are viewed as a source of stress for parents. This is particularly true in the formative years when children are much more reliant on their parents for economic, psychological, and emotional support. Given the existing literature, women may be able to manage the stress of children and general emotional distress to a greater degree than men for two reasons. First, most women are socialized to be caregivers as opposed to males who are trained to be financial providers. If men are spending more time at paid occupations than women, they simply have less experience with children. Simply put, they are not confronted with the trials and tribulations of childcare with the same frequency as women. Second, as a consequence of this increased time devoted to childcare, women can create and hone positive emotional responses to the stresses of childcare. On the other hand, men's lessened childcare experience, coupled with a traditionally negative societal view of men's participation in this type of care, may inhibit their ability to properly manage child

related stress. Therefore, men's emotional distress may increase when children are present to a greater degree than women because society does not expect them to manage these stressors to the same extent as women. Perhaps a significant difference in these variables would surface if the ages of children were taken into account. The commuter with one or more infants or toddlers might incur greater stress from not being able to witness milestones in the child's life if their commute eats up what would otherwise be spare time. Older children who are more self-reliant may not contribute to stress and poor mental health in the way younger children might. Also, experience as a parent is key. The new parent is more likely to be concerned about their parenting skills since they have little practice. This alone can be a source of stress.

## CHAPTER 7

### FUTURE DIRECTIONS

Upon completion of the current study, a number of considerations should be taken into account given the data analysis and findings. Ideally, the information presented in this project can be utilized by a host of interested parties including, sociologists, mental health clinicians, civil engineers, local, city, and state policy makers, and demographers. By understanding the links between stress, commuting, and mental health outcomes, professionals in numerous fields can better assist commuters of all demographic backgrounds so that they might realize more favorable outcomes. To do so, a more exhaustive research project must be carried out. Specifically, compiling data that speaks to crucial indicators of stress involved in the commuting process should be of utmost importance.

First, differentiating between active and passive commuting is a central measure that will be correlated with commuting stress. The underlying reason why this type of data is limited may be due to the fact that the vast majority of Americans engage in active commuting. In particular, most Americans drive alone to and from work in a personal vehicle. European countries produce a great deal of literature and scholarly studies that speak to differences in the type of commute employed. This is because vast, efficient systems of public transportation are found in this part of the world with much greater frequency than in the United States. Thus, the average European has many more passive commuting opportunities. European countries also do not have as much available landmass as the United States. Population density in urban cores requires public transportation infrastructure as a means of travel and commuting functionality. Suburban and exurban sprawl in many American cities, coupled with the reliance on private automobile use, make passive commuting rare in many major economic, social, and entertainment hubs in the

United States. As such, a comprehensive examination of land use planning both at the state and federal level should be explored. The ramifications of building cities with vast, extensive, interconnected roadway systems conducive to private auto travel should not be understated. With respect to public health, our increasingly sedentary lifestyles are already alarming. The obesity epidemic continues to plague Americans. Over one third of adults are obese, and more than two thirds are classified as overweight (USDHS, 2012). If our physical health is compromised by the way we build our communities, we should expect undesirable mental health outcomes to follow. As mentioned in the literature review, more American families are setting up multiple residences to reduce daily commute times. These “commuter marriages” merit special consideration as they can heavily disrupt the ability to achieve a quality work-life balance.

Next, a more detailed commuting study would include a variable about the city or metropolitan area in which each respondent lives. We know that traffic congestion is much worse in certain parts of the country than others. For example, large metropolitan areas like the Dallas-Ft. Worth, Houston-Woodlands-Sugarland, and Atlanta-Sandy Springs-Roswell represent some of the longest average commuting times in the country (Kneebone and Holmes, 2015). Each of these areas has high levels of urban, suburban, and exurban sprawl spanning multiple counties in the region. This translates to increased time spent commuting and the stressors that accompany such travel. Millions of Americans are attracted to cities like these because of expanded job opportunities as well as entertainment and leisure activities. Finding affordable housing in the center-city areas of such economic growth hotspots can prove challenging. Consequently, cheaper properties on the fringes or outskirts of neighboring towns are the only viable option. In response to such construction patterns, city planners have attempted to reduce road congestion by offering Park and Ride locations, railway systems, and ridesharing services.

These services purport to reduce air pollution. However, the average commuter typically does not live within walking distance to these services. Essentially, they must first commute by private car to the carpool or train station, and then navigate a second commute. Not only does this do very little to reduce vehicle exhaust pollution, another layer of stress may be incurred in transferring from one form of travel to the next. This type of commuting should also be explored further. There may be some stress inherent in using more than one form of commute on a daily basis. The inclusion of such a variable in a commuting study would certainly add a degree of exhaustiveness otherwise overlooked.

In the quest for a better understanding of commuting and its relationship with stress and mental health, in-depth, qualitative analysis should be conducted. The development of an unstructured interview schedule would be a good place to begin. In this manner, researchers can get richer, thicker meaning that underlie the daily struggles Americans traverse while commuting. It has already been established that commuting is stressful. Even more important questions should be geared towards specific aspects (gridlock, distracted drivers, road construction, crashes, inclement weather, police activity) of the commuting experience that produce the most stress. If a pattern emerges relative to specific stressors within the average American commute, policy makers can attempt to address and rectify these issues. Furthermore, these qualitative interviews should be conducted in a variety of city types, both small and large. This will assist in further elucidation of the factors normally encountered by a variety of commuters.

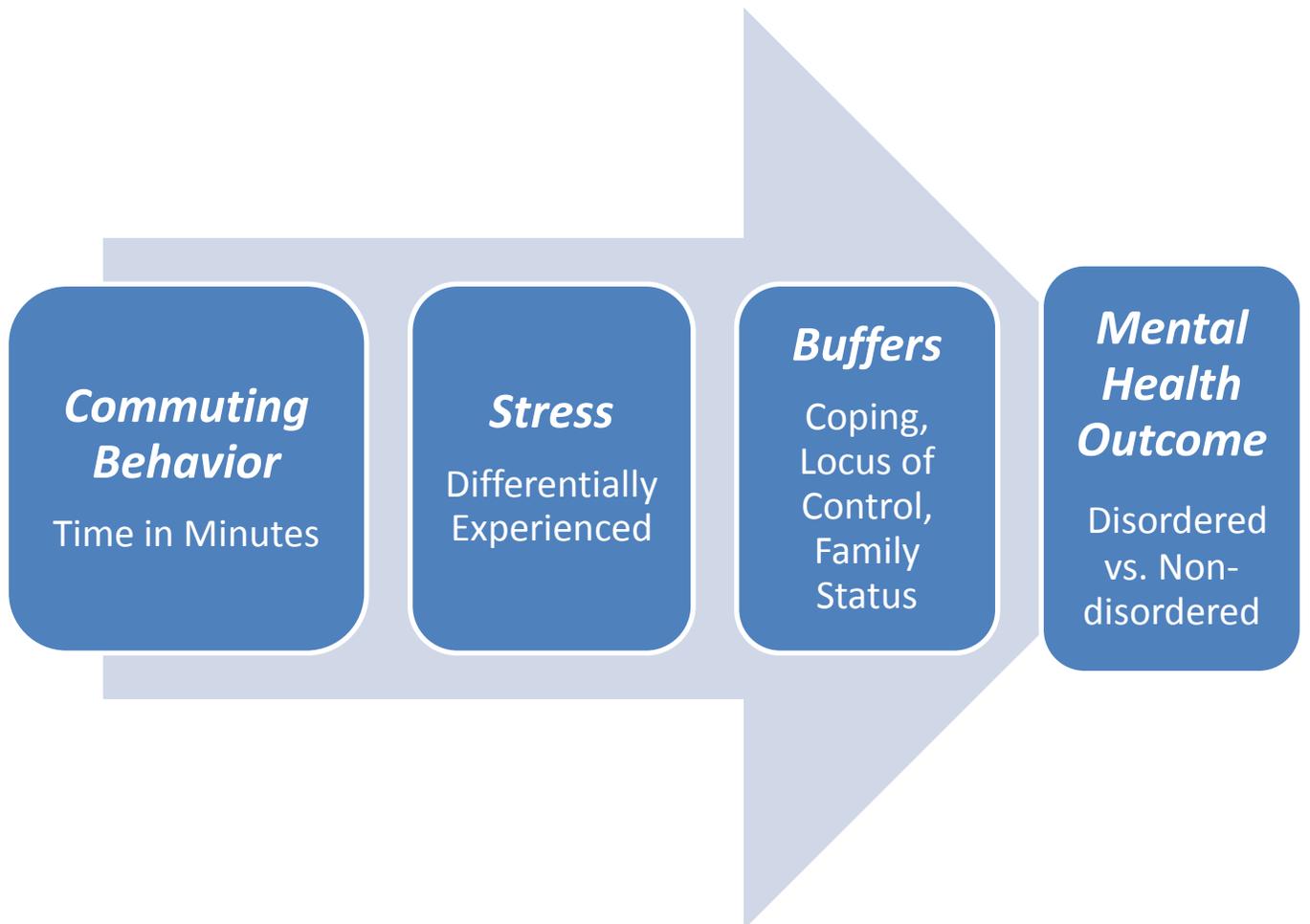
The introduction of autonomous vehicles should be discussed in any conversation about commuting, specifically using the means of a private automobile. When the human element is removed from all systems of transportation, much of the stress any individual commuter might

encounter will be reduced, if not eliminated. It may be decades before fully autonomous passenger cars become ubiquitous. Companies like Google, Tesla, Uber, and a multitude of other corporations have been testing the capability and practicality of such vehicles for over a decade. The technology is already available and widely used. However, creating the infrastructure that will be conducive to a country where all vehicles are driven by computers and global positioning systems represents much more of a challenge. The initial cost of such a vehicle may represent a barrier to entry for the average American. In fact, commuting may become more stressful as early adopters ascertain this technology. The combination of autonomous vehicles sharing the road with human operators could be disastrous and actually lead to further instances of accidents and congestion. Some of the earliest autonomous cars often drive under or right at the speed limit, thus impeding traffic in some locations. Also, it could be argued that completely removing humans from driving or operating any form of transport could be even more stressful. Without some sense of control, commuters may feel at the mercy of external factors to an even greater extent. The possibility of the entire system shutting down or being subject to a hack are also worrisome, not to the individual alone, but to lawmakers that are in charge of the safety of the general public.

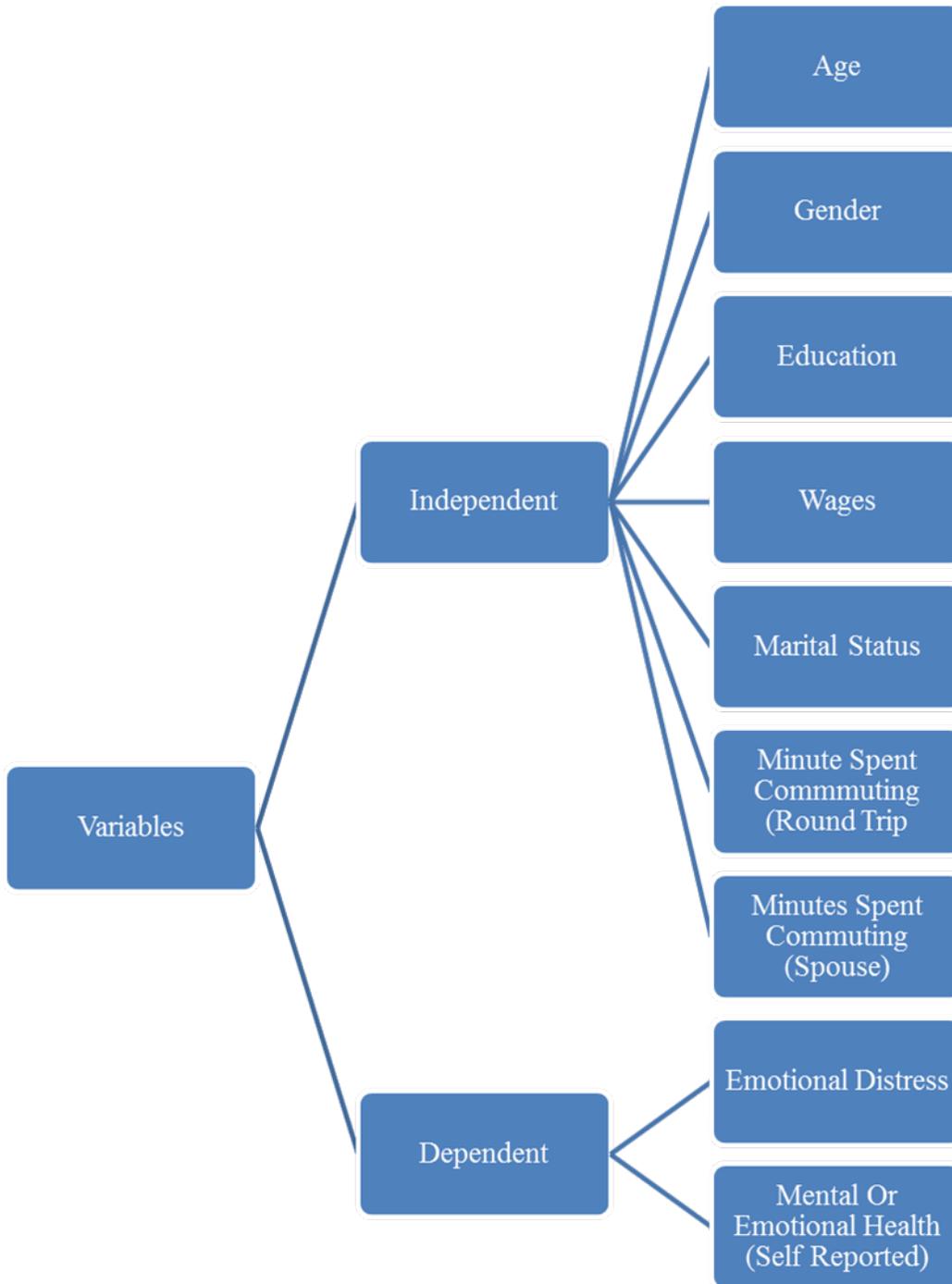
Finally, the results of the statistical analyses documented in this project did not meet the researcher's initial hypothesis. Only a very small percent in the variation of emotional distress and self-reported mental health outcomes were explained by time spent commuting on a daily basis. Despite this finding, insightful information was still derived. This was particularly true in the relationship between socioeconomic status, stress, and coping mechanisms. As more master planned, suburban communities continue popping up farther from center city locations, Americans will realize longer and more stressful commutes. If houses in these communities are

only affordable to those in the middle class and above, greater scrutiny of commuters in this specific socioeconomic group may shed light on forms of stress, coping mechanisms, and mental health outcomes. Ultimately, a collaborative effort between mental health researchers, governmental officials, and civil engineers can help shape a commuting environment that is more favorable to ease of travel associated with all forms of commuting. The key element will be the cooperation between multiple entities. Much like any other social problem, if only one party, entity, or group is concerned, the fruition of positive results is less likely. Some non-profit organizations already address issues of commuting. For example, The New Cities Foundation has collaborated with the information technology giant, Ericsson, to address how technology can ease all forms of travel, daily commuting included. The pooling of resources to create practical and affordable commuting solutions will be paramount.

APPENDIX A  
CONCEPTUAL DIAGRAM



APPENDIX B  
VARIABLE MAP



## REFERENCES

- Abrahms, S. (2011). "Married but living apart: Happy couples confront the necessity of separate households." *AAPR Bulletin*, July 11, 2011. Accessed March 16, 2015.  
<http://www.aarp.org/relationships/friends-family/info-07-2011/married-but-living-apart.html>.
- Afifi, Tracy O., Cox, Brian J., Enns, Murray W. (2006). "Mental health profiles among married, never-married, and separated/divorced mothers in a nationally representative sample." *Social Psychiatry and Social Epidemiology*, 41, 122-129.
- Almeida, David M. (2005). "Resilience and vulnerability to daily stressors assessed via diary methods." *Current Directions in Psychological Science*, 14 (2), 64-68.
- American Community Survey. (2010). U.S. Decennial Census. (1890-2010).  
<http://www.census.gov/acs>. Accessed on August 11, 2014.
- American Community Survey Reports. (2011). "Commuting in the United States: 2009."  
<http://www.census.gov/prod/2011pubs/acs-15.pdf>. Accessed on December 12, 2013.
- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Arlington, VA: American Psychiatric Publishing.
- American Psychological Association. (2017). "Data on behavioral health in the United States."  
<http://www.apa.org/helpcenter/data-behavioral-health.aspx>. Accessed on February 22, 2017.
- American Time Use Survey. (2015). "Table A-1. Time spent in detailed primary activities and percent of the civilian population engaging in each activity, averages per day by sex, 2015 annual averages." [https://www.bls.gov/tus/tables/a1\\_2015.pdf](https://www.bls.gov/tus/tables/a1_2015.pdf). Accessed on February 13, 2017.
- Anderson, Norman B. (2004). *Encyclopedia of health and behavior*. Thousand Oaks, CA: Sage.
- Antonovsky, Aaron. (1979). *Health, stress, and coping*. San Francisco: Jossey-Bass.
- Autor, David H. (2015). "Why are there still so many jobs? The history and future of workplace automation." *The Journal of Economic Perspectives*, 29 (3), 3-30.
- Aneshensel, C.S., and Pearllin, L.I. (1987). "Structural contexts of sex differences in stress. In R.C. Barnett, L. Biner, and G.K. Baruch (Eds.), *Gender and Stress* (pg. 75-95). New York: The Free Press.
- Aneshensel, Carol S., Rutter, Carolyn M., and Lachenbruch, Peter A. (1991). "Social structure, stress, and mental health: Competing conceptual and analytic models." *American Sociological Review*, 56 (2), 166-178.

- Aneshensel, Carol S. (2009). "Toward explaining mental health disparities." *Journal of Health and Social Behavior*, 50 (4), 377-394.
- Baily, Martin Neil and Bosworth, Barry P. (2014). "U.S. manufacturing: Understanding its past and its potential future." *Journal of Economic Perspectives*, 28 (1), 3.26.
- Banai, Reza and Depriest, Thomas. (2014). "Urban sprawl: Definitions, data, methods of measurement, and environmental consequences." *Journal of Sustainability Education*, Vol. 7.
- Thomas Baudin, La Croix, David De, and Gobbi, Paula. (2012). DINKs, DEWKs & Co. Marriage, Fertility and Childlessness in the United States.
- Baruch, G. K., Biener, L., & Barnett, R. C. (1987). "Women and gender in research on work and family stress." *American Psychologist*, 42, 130–136.
- Baum-Snow, Nathaniel. (2010). "Changes in transportation infrastructure and commuting patterns in U.S. metropolitan areas, 1960-2000." *The American Economic Review*, 100 (2), 378-382.
- Beck, Ulrich. (2000). *The Brave New World of Work*, Cambridge: Polity.
- Bergen, Karla Mason., Kirby, Erika., and McBride, M. Chad. (2007). "How do you get two houses cleaned? Accomplishing family caregiving in commuter marriages." *Journal of Family Communication*, 7 (4), 287-307.
- Bergstad, Cecilia Jakobsson; Gamb le, Amelie; Garling, Tommy; Hagman, Olle; Polk, Merritt. (2011). "Subjective well-being related to satisfaction with daily travel." *Transportation* 38 (1), 1-15.
- Bird, Chloe E. (1999). "Gender, household labor, and psychological distress: The impact of the amount of division of housework." *Journal of Health and Social Behavior*, 16, 183-191.
- Bopp, Melissa.,Kaczyinsky, Andrew T., Campbell, Mathew E. (2013). "Social ecological influences on work-related active commuting among adults" *American Journal of Health Behavior*, 37 (4).
- Brenner, Harvey M. (1973). *Mental illness and the economy*. Cambridge, MA: Harvard University Press.
- Breslau, J., E. Miller, R. Jin, N. A. Sampson, J. Alonso, L. H. Andrade, E. J. Bromet, G. deGirolamo, K. Demyttenaere, J. Fayyad, A. Fukao, M. Gáláon O. Gureje, Y. He, H. R. Hinkov, C. Hu, V. Kovess-Masfety, H. Matschinger, M. E. Medina-Mora, J. Ormel, J. Posada-Villa, R. Sagar K. M. Scott, and R. C. Kessler. (2011). "A multinational study of mental disorders, marriage and divorce." *Acta Psychiatrica Scandanavica*, 124 (6), 474-486.

- Bureau of Labor Statistics. (2008). "Economic news release: American time use survey 2003-2006," <http://www.bls.gov/news.release/atus2.nr0.htm>. Accessed August 4, 2016.
- Bureau of Labor Statistics. (2013). "Economic news release: American time use survey 2012." <http://www.bls.gov/news.release/atus.nr0.htm>. Accessed November 10, 20.
- Bureau of Labor Statistics. (2014). "Economic news release: Employee tenure summary." <http://www.bls.gov/news.release/tenure.nr0.htm>. Accessed March 16, 2015.
- Bureau of Labor Statistics. (2015). "Employment projections: Employment by major industry sector." [https://www.bls.gov/emp/ep\\_table\\_201.htm](https://www.bls.gov/emp/ep_table_201.htm). Accessed on February 22, 2017.
- Bureau of Labor Statistics. (2016). "Economic news release: Employee tenure summary." <https://www.bls.gov/news.release/tenure.nr0.htm>. Accessed February 27, 2017.
- Bureau of Labor Statistics. (2016). "American Time Use Survey – 2015." <https://www.bls.gov/news.release/pdf/atus.pdf>. Accessed April 19, 2017.
- Cairney, John., Boyle, Michael., Offord, David R., Racine, Yvonne. (2003). "Stress, social support, and depression in single and married mothers." *Social Psychiatry and Psychiatric Epidemiology*, 38 (8), 442-449.
- Casey, C. (1995). *Work, Self and Society After Industrialism*, London: Routledge.
- Cassidy, Tony. (1992). "Commuting-related stress: consequences and implications." *Employee Counseling Today*, 4 (2).
- Centers for Disease Control and Prevention. (2012). QuickStats: Prevalence of current depression among persons aged  $\geq 12$  years, by age group and sex — United States, national health and nutrition examination survey, 2007–2010." <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6051a7.htm> Retrieved on August 4, 2016.
- Charles, K.K and Kline, K. (2006). "Relational costs and the production of social capital: evidence from carpooling." *Journal of Economics* 116 (511), 581-604.
- Cherlin, A. (2004). "The deinstitutionalization of American marriage." *Journal of Marriage and Family*, 66, 848-861.
- Choi, Janet., Coughlin, Joseph F., and D'Ambrosio, Lisa. (2013). "Travel time and subjective well-being." *Transportation Research Record: Journal of the Transportation Research Board*, 100-108.
- Clarke, William A.V., Huang, Youquin., and Withers, Suzanne. (2003). "Does commuting distance matter? Commuting tolerance and residential change." *Regional Science and Urban Economics*, 33, 199-221.

- Cockerham, William C. (2010). *Sociology of mental disorder* (8<sup>th</sup> ed.). Upper Saddle River, NJ: Pearson Educational Inc., Prentice Hall.
- Cockerham, William C. (2012). *Medical sociology* (12th ed.). Upper Saddle River, NJ: Pearson Educational Inc., Prentice Hall.
- Cohen, Sheldon and Wills, Thomas Ashby. (1985). "Stress, social support and the buffering hypothesis." *The American Psychological Association*, 98 (2), 310-357.
- Courtenay, Will H., McCreary, Donald R., and Merighi, Joseph R. (2002). "Gender and ethnic differences in health beliefs and behaviors." *Journal of Health Psychology*, 7 (3), 19-31.
- Coyne, J. C., Ellard, J. H., & Smith, D. A. E (1990). "Social support, interdependence, and the dilemmas of helping." In B. S. Sarason, I. G. Sarason, & G. R. Pierce (Eds.), *Social support: An interactional view*, 129-149. New York: Wiley
- Crane, Randall. (2007). "Is there a quiet revolution in women's travel? Revisiting the gender gap in commuting." *Journal of the American Planning Association*, 73 (3).
- Davis, K., and W. E. Moore. (1945). *Class, Status and Power*. R. Bendix and S. M. Lipset (Eds.) New York, NY: Free Press.
- Deloach, Stephen B. and Tiemann, Thomas K. (2011). "Not driving alone? American commuting in the twenty-first century." *Transportation* 39, 521-537.
- Depasquale, Nicole., Zart, Stephen H., Mogle, Jacqueline., Moen, Phyllis., Hammer, Leslie B. Almedia, David M. (2016). "Double and triple-duty caregiving men: An examination of subjective stress and perceived schedule control." *Journal of Applied Gerontology*, 1-29.
- Department of Education. (2016). "National student loan cohort default rates steadily decline." <https://www.ed.gov/news/press-releases/national-student-loan-cohort-default-rate-declines-steadily>. Accessed March 27, 2017.
- Dohrenwend, Bruce P. and Dohrenwend, Barbara S. (1969). *Social Status and Psychological Disorder: A Causal Inquiry*. New York: John Wiley.
- Downs, Anthony. (1962). "The law of peak-hour express-way congestion." *Traffic Quarterly* 16, (3) 393-409.
- Duncan, Greg J. and Zuberi, Anita. (2006). "Mobility lessons from Gautreaux and moving to opportunity." *Northwestern Journal of Law and Social Policy*, 1,110.  
<http://scholarlycommons.law.northwestern.edu/njls/vol1/iss1/5>
- Duranton, Gillies., and Turner, Matthew A. (2011). "The fundamental law of road congestion: Evidence from US cities." *American Economic Review*, Vol. 101(6), 2616-2652.

- Ellaway, Anne., McIntyre, Sally., Hiscock, Rosemary., Kearns, Ade. (2003). "In the driving seat: psychosocial benefits from private motor vehicle transport compared to public transport." *Transportation Research Part F: Traffic Psychology and Behavior* 6 (3), 217-231.
- Ewing R., Schieber R. A., Zegeer C. V. (2003). "Urban sprawl as a risk factor in motor vehicle occupant and pedestrian fatalities." *American Journal of Public Health* 93 (9), 1541-45.
- Douglas, S., and Michaels, M. W. (2004). *The mommy myth: The idealization of motherhood and how it has undermined women*. New York: Free Press.
- Fox, John W. (1980). "Gove's specific sex-role theory of mental illness: A research note." *Journal of Health and Social Behavior*, 21 (3), 260-267.
- Gallup. (2015). "In U.S., Telecommuting Work Climbs to 37%." <http://www.gallup.com/poll/184649/telecommuting-work-climbs.aspx>. Accessed on March 8, 2017.
- Goodman, Steven N. (1999). "Toward evidence-based medical statistics: The p-value fallacy." *Annals of Internal Medicine*, 130 (12).
- Gore, Susan. (1978). "The effect of social support in moderating health consequences of the unemployment." *Journal of Health and Social Behavior*, 19, 157-165.
- Gove, W. R. (1972) "The relationship between sex roles, marital status, and mental illness." *Social Forces* 51, 34-45.
- Grusky, David B., Western, Bruce., and Wimer, Christopher. (2011). *The great recession*. New York, NY: Russell Sage Foundation.
- Grzywacz, J.G., Almeida, D.M., Neupert, S.D., and Ettner, S.L. (2004). "Stress and socioeconomic differentials in physical and mental health: A daily diary approach." *Journal of Health and Social Behavior*, 45, 1-16.
- Guell, Cornelia and Ogilvie, David. (2015). "Picturing commuting: Photovoice and seeking well-being in everyday travel." *Qualitative Research*, 15 (2), 201-218.
- Handy, Susan L. and Xing, Yan. (2011). "Factors correlated with bicycle commuting: A study in six small U.S. cities." *International Journal of Sustainable Transportation*, 5, 91-110.
- Brown G.W. and Harris T.O. (1978). *Social Origins of Depression A Study of Psychiatric Disorder in Women*. London:Tavistock Publications.
- Hiscock, Rosemary., Macintyre, Sally., Ellaway, Anne., Kearns, Ade. (2002). "Means of transport and ontological security: Do cars provide psycho-social benefits to their users?" *Transportation Research Part D: Transport and Environment* 7 (20), 119-135.
- Hochschild, Arlie. (1997). *The Second Shift*. New York, NY: Penguin.

- Hochschild, Arlie. (2003). *The commercialization of intimate life*. Los Angeles: The University of California Press.
- Hollingshead, August B., and Redlich, Frederick C. (1958). *Social class and mental illness: A community study*. New York: Wiley.
- Holmes, Thomas H. and Rahe, Richard H. (1967). "The social readjustment rating scale." *Journal of Psychosomatic Research*, 11, 2.
- Horowitz, Allan V. (2007). "Transforming normality into pathology: The DSM and the outcomes of stressful social arrangements." *Journal of Health and Social Behavior*, 48, 211-222.
- Humphreys, David K., Goodman, Anna, and Ogilvie, David. (2013). "Associations between active commuting and mental wellbeing." *Preventative Medicine*, 57, 135-139.
- Iceland, John and Wilkes, Rima. (2006). "Does socioeconomic status matter? Race, class, and residential segregation." *Social Problems*, 53 (2), 248-273.
- Jacobe, Dennis. (2013). "In U.S., fewer young adults holding full-time jobs." *Gallup* <http://www.gallup.com/poll/163727/fewer-young-adults-holding-full-time-jobs-2013.aspx>. Retrieved on May 20, 2014.
- Jain, Juliette and Lyons, Glenn. (2008). "The gift of travel time." *Journal of Transport Geography*, 16, 81-89.
- Kahneman, Daniel and Krueger, Alan B. "Developments in the measurement of subjective well-being." *Journal of Economic Perspectives*, 20 (1), 3-24.
- Kelly, Erin L. and Moen, Phyllis. (2007). "Rethinking the clockwork of work: Why schedule control may pay off at work and at home." *Advanced Development Human Resources*, 9 (4), 487-506.
- Kessler, Ronald C. and McRae, James A. Jr.(1982). "The effects of wives' employment on the mental health of married men and women." *American Sociological Review*, 47.
- Kessler, R. C., and McLeod, J. D. (1984). "Gender differences in vulnerability to undesirable life events." *American Sociological Review*, 49, 620– 631.
- Kessler, R.C., McLeod, J.D., and Wethington, Elaine. (1985). "The costs of caring: A perspective on the relationship between sex and psychological distress." *Social Support, Theory, and Applications*, 24, 491-506.
- Kesler, Ronald C., et al. (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, 8-19.

- Kessler, Ronald C., Berglund, Patricia., Jin, Robert., Merikangas, Kathleen R., and Walters, Ellen E. (2005). Lifetime prevalence and age-of-onset distributions of DSM-IV disorders in the national comorbidity survey replication." *Archives of General Psychiatry*, 62, 593-602.
- Kessler, Ronald C., Amminger, Paul G., Aguilar-Gaxiola, Sergio., Alonso, Jordi., Lee, Sing., and Ustun, Bedirhan T. (2007). "Age of onset mental disorders: A review of the recent literature." *Current Opin Psychiatry*, 20 (4), 359-364.
- Kilborn, Peter T. (2005). "The five-bedroom, six-figure rootless life." In: *Class Matters New York Times*. Henry Holt, New York, NY.
- Kirsch, Irving. (2010). *The emperor's new drugs: Exploding the antidepressant myth*. Basic Books, New York, NY.
- Klonoff, E. A., Landrine, H., & Campbell, R. (2000). "Sexist discrimination may account for well-known gender differences in psychiatric symptoms." *Psychology of Women Quarterly*, 24, 93-99.
- Klumb, P., Hoppmann, C., & Staats, M. (2006). "Division of labor in German dual-earner families: Testing equity theoretical hypotheses. *Journal of Marriage and Family*, 68, 870 - 882.
- Kneebone, Elizabeth and Holmes, Natalie. (2015). "The growing distance between people and jobs in metropolitan America." Brookings Institute: Metropolitan Policy Program. [https://www.brookings.edu/wp-content/uploads/2016/07/Srvy\\_JobsProximity.pdf](https://www.brookings.edu/wp-content/uploads/2016/07/Srvy_JobsProximity.pdf). Accessed on April 24, 2017.
- Kohn, Melvin L. (1969). *Class and conformity: A study in values*. Homewood, IL: Dorsey.
- Koslowski, Meni., Klueger, Avragahm N. Reich, Mordechai. (1995). *Commuting stress: causes, effects and methods of coping*. Springer.
- Landesman, Judy and Seward, Rudy Ray. (2013). "Long distance commuting and couples satisfaction in Israel and the United States: An exploratory study." *Journal of Comparative Family Studies*, 44 (6), 765-781.
- Langner, T., and S. Michael. (1963). *Life stress and mental health: The midtown Manhattan maistudy*. London: Free Press of Glencoe.
- Lazarus, R.S. (1993). "From psychological stress to the emotions: A history of changing outlooks." *Annual Review of Psychology*, 44, 1-21.
- Levine, James A. (2017). "What are the risks of sitting too much?" Mayo Clinic, Adult Health. <http://www.mayoclinic.org/healthy-lifestyle/adult-health/expert-answers/sitting/faq-20058005>. Accessed March 27, 2017.

- Levy, Leo, and Rowitz, Louis. (1973). *The ecology of mental disorder*. New York: Behavioral Publications.
- Lyons, Glenn and Chatterjee, Kiron. (2008). "A human perspective on the daily commute: Costs, benefits and tradeoffs." *Transport Reviews*, 28 (2), 181-198.
- Martin, J. (1971). Some aspects of absence in a light engineering factory. *Occupational Psychology*, 45, 77-89.
- Matthews, T.J. and Hamilton, Brady E. (2009). "Delayed childbearing: More women are having their first child later in life." *NCHS Data Brief*, 21.
- Matud, M. Pilar. (2004). "Gender differences in stress and coping styles." *Personality and Individual Differences*, 37, 1401-1405.
- McDonald, H.I. (1999). "Women's employment and commuting: explaining the links." *Journal of Planning Literature*, 13, 267-283.
- McDonough P., and Walters, W. (2001). "Gender and health: reassessing patterns and explanations." *Social Science and Medicine*, 52, 547-559.
- McKenzie, Brian. (2013). "Out of state and long commutes: 2011." *American Community Survey Reports*. <http://census.gov>. Accessed on August 13, 2014.
- McQuiad, Ronald W. (2009). "A model of the travel to work limits among parents." *Research in Transportation Economics*, 25, 19-28.
- Merton, Robert. (1949). *On sociological theories of the middle range*. New York.
- Michelson, William. (1985). *From sun to sun: Daily obligations and community structure in the lives of employed women and their families*. New York: Rowman and Allanheld.
- Milkman, R. (1997). *Farewell to the Factory*, Berkeley: University of California Press.
- Mirowsky, John, and Catherine E. Ross. (1990). "Control or defense? Depression and the sense of control over good and bad outcomes." *Journal of Health and Social Behavior*, 31, 71-86.
- Mirowsky, John, and Catherine E. Ross (1999). "Well-being across the life course." Pp. 328-347 in A. Horwitz and T. Scheid (eds.), *A handbook for the study of mental health: Social contexts, theories, and systems*. Cambridge, UK: Cambridge University Press.
- Monroe, Scott M. and Reid, Mark W. (2009). "Life stress and major depression." *Current Directions in Psychological Science*, 18 (2), 68-72.

- National Alliance on Mental Illness. (2011). "State Mental Health Service Funding." [http://www.nami.org/Content/Microsites158/NAMI\\_Lexington/Home144/Homepage571mportant\\_Managed\\_Care\\_Documents/2011StateMentalHealthServiceFunding.pdf](http://www.nami.org/Content/Microsites158/NAMI_Lexington/Home144/Homepage571mportant_Managed_Care_Documents/2011StateMentalHealthServiceFunding.pdf). Accessed on December 12, 2013.
- National Association of Manufacturers. (2015). "Facts about manufacturing." <http://www.nam.org/Newsroom/Facts-About-Manufacturing/>. Accessed on March 16, 2015.
- National Center for Health Statistics and Centers for Disease Control.(1992). "Serious mental illness and disability in the adult household population." Advance Data, No. 218. Washington, DC: U.S. Government Printing Office.
- National Institute of Mental Health (2013). "What is Depression?"
- Nivens, Valerie, and Nordstrom, Cynthia R. (2012). "The effect of workers' driving commute on stress and burnout." *Psychology Journal*, 9 (2), 73-83.
- Nolen-Hoeksema., Wisco, Blair E., and Lyubomirski, Sonja. (2008). "Rethinking rumination." *Perspectives on Psychological Science*, 3 (5), 400-424.
- Organization for Economic Cooperation and Development (2017). "Average amount of hours actually worker per worker." <http://stats.oecd.org/Index.aspx?DataSetCode=ANHRS>. Accessed on February 13, 2017.
- Orski, C.K. (1985). "Suburban mobility: The coming transportation crisis?" *Transportation Quarterly*, 39, pp. 283-296
- Ory, David T and Mokhtarian, Patricia L. (2004). "When is getting there half the fun? Modeling the liking for travel." *Transportation Research Part A* 39, 97-123.
- Ozer, Elizabeth. (2006). "The impact of childcare responsibility and self-efficacy on the psychological health of professional working mothers." *Psychology of women quarterly*, 19 (3), 315-335.
- Pearlin, Leonard I., and Johnson, Joyce. (1977). "Marital status, life-strains and depression." *American Sociological Review*, 42, 704-715.
- Pearlin, Leonard I. (1981). "The stress process." *Journal of Health and Social Behavior*, 22, 337-356.
- Pearlin, Leonard I. (1989). "The sociological study of stress." *Journal of Health and Social Behavior*, 30, 241-56.
- Pearlin, Leonard I. and Skaff, Marilyn Mckean. (1996). "Stress and the life course: a paradigmatic alliance." *The Gerontological Society of America*, 36 (2), 219-247.

- Pew Research Center (2015). "The rise in dual income households." [http://www.pewresearch.org/ft\\_dual-income-households-1960-2012/](http://www.pewresearch.org/ft_dual-income-households-1960-2012/). Accessed on February 6, 2017.
- Pew Research Center. (2016). "Six facts about American fathers." *Facttank: News in the numbers*. Accessed on August 9, 2016. <http://www.pewresearch.org/fact-tank/2016/06/16/fathers-day-facts/>
- Post, R. M. (1992). "Transduction of psychosocial stress into neurobiology of recurrent affective disorder." *American Journal of Psychiatry*, 149, 999–1010
- Putnam, Robert. (2000). *Bowling alone: The collapse and revival of American community*. New York, NY: Simon and Schuster.
- Rhodes, A. (2002). "Long-distance relationships in dual-career commuter couples: a review of counseling issues." *The Family Journal: Counseling and Therapy for Couples and Families*, 10, 398-404.
- Rifkin, Jeremy. (1995). *The End of Work: The Decline of the Global Labor Force and the Dawn of the Post-Market Era*. Putnam Publishing Group.
- Roberts, Jennifer., Hodgson, Robert., Dolan, Paul. (2011). It's driving her mad: Gender differences in the effect of commuting on psychological health." *Journal of Health Economics* 30, 1064-1076.
- Ross, Catherine E. (2009). "Neighborhood disorder: Subjective alienation and distress." *Journal of Health and Social Behavior*, 50, 49-64.
- Ross, Catherine E. and Van Willigen, Marieke. (1996). "Gender, parenthood, and anger." *Journal of Marriage and the Family*, 58: 572-584.
- Rushing, William A. (1979). "Marital status and mental disorder." *Social Forces*, 58, 540-546.
- Sandow, Erika. (2014). "Til work do us part: The social fallacy of long-distance commuting." *Urban Studies*, 51 (3), 526-543.
- Sevilla-Sanz, Almudena. (2010). "Household division of labor and cross-country differences in household formation rates." *Journal of Popular Economics*, 23 (1), 225-249.
- Simon, Robin W. (1997). "Revisiting the relationships among gender, marital status, and mental health." *American Journal of Sociology*, 107, 1065-1096.
- Small, K.A. (1992). *Urban Transportation Economics*, Harwood.
- Srole, Leo, T., S. Langner., T Michael, M., K Opler, and T.A. C. Renine. (1962). *Mental health in the metropolis: The midtown Manhattan study*. Vols. 1 and 2. New York: McGraw-Hill.

- Stafford, Laura. (2004). *Maintaining long-distance and cross-residential relationships*. New York, NY: Routledge.
- Stokols, Daniel., Novaco, Raymond W., Stokols, Jeannette., and Campbell, Joan. (1978). "Traffic congestion, type a behavior, and stress." *Journal of Applied Psychology* 63 (4), 467-480.
- Story, Lisa B. and Repetti, Rena. (2006). "Daily occupational stressors and marital behavior." *Journal of Family Psychology*, 20 (4), 690-700.
- Strangleman, Tim. (2007). "The nostalgia for permanence at work? The end of work and its commentators." *The Sociological Review*, 55 (1).
- Stutzer, Alois and Frey, Bruno S. (2008). "Stress that doesn't pay: The commuting paradox." *The Scandinavian Journal of Economics* 110 (2), 339-366.
- Stykes, J. (2011). "Fatherhood in the U.S.: Men's age at first birth, 1987-2010." National Center for Family & Marriage Research. Retrieved from [http://ncfmr.bgsu.edu/pdf/family\\_profiles/file99036.pdf](http://ncfmr.bgsu.edu/pdf/family_profiles/file99036.pdf)
- Szasz, Thomas. (1974). *The myth of mental illness*. New York: Harper and Row.
- Timperio, Anna., Ball, Kylie., Salmon, Jo., Roberts, Rebecca., Giles-Corti, Billie., Simmons, Dianne., Baur, Louise. A., Crawford, David. (2006). "Personal, family, social, and environmental correlates of active commuting to school." *American Journal of Preventive Medicine*, 30 (1).
- Turner, Jay R. (2003). "The pursuit of socially modifiable contingencies in mental health." *Journal of Health and Social Behavior*, 44 (1), 1-17.
- Turner, Jay R., Wheaton, Blair., and Lloyd, Donald A. (1995). "The epidemiology of social stress." *American Sociological Review*, 60: 104-125.
- Turner, R. J., and Lloyd, D. A. (1995). "Lifetime traumas and mental health: The significance of cumulative adversity." *Journal of Health and Social Behavior*, 36, 360-376
- Turner, Tracy and Niemeier, Debbie. (1997). "Travel to work and household responsibility: new evidence." *Transportation*, 24: 394-419.
- The White House. (2013). "Fact Sheet: Examples of How the Sequester Would Impact Middle Class Families, Jobs and Economic Security" Office of the Press Secretary. <http://www.whitehouse.gov/the-press-office/2013/02/08/fact-sheet-examples-how-sequester-would-impact-middle-class-families-job>. Retrieved September 17, 2014.
- Thoits, Peggy. (2010). "Stress and health: Major findings and policy implications." *Journal of health and Social Behavior*, 51 (5), 541-553.

- University of Michigan. (1999). "Women think, men drink." *Journal of Psychosocial Nursing and Mental Health Services*, 37 (10).
- U.S. Census Bureau (2002) American Community Survey.
- U.S. Census Bureau. (2011). "State and County Quick Facts: USA." <http://quickfacts.census.gov/qfd/states/00000.html>. Retrieved September 7, 2013.
- U.S. Census Bureau. (2016). "Figure MS-2: Median age at first marriage: 1890 – present." <https://www.census.gov/hhes/families/files/graphics/MS-2.pdf>. Accessed on February 22, 2017.
- U.S. Department of Health and Human Services. (2012). "Overweight and obesity statistics." <https://www.niddk.nih.gov/health-information/health-statistics/overweight-obesity>. Accessed on April 24, 2017.
- U.S. Department of Labor. (1965). "The Moynihan report." Office of Policy, Planning, and Research. March.
- U.S. Department of Labor. (2010). "Employment and earnings, January, 2010 annual averages." <http://www.bls.gov/opub/ee/empearn201101.pdf>. Access August 4, 2016. U.S. Department of Transportation. (2011). "Federal Highway Administration: Executive Summary."
- Van Ommeren, J.N., Rietveld, P., Nijkamp. (1997). "Commuting in search of jobs and residences." *Journal of Urban Economics*, 42, 402-421.
- Vickery, William S. (1969). "Congestion theory and transport investment." *American Economic Review*, 59 (2).
- Wheaton, Blair. (1994). "Sampling the stress universe." Pp. 77-114 in *Stress and Mental Health: Contemporary issues and prospects for the future*. New York, NY: Plenum
- Wheaton, Blair. (1999). "The nature of stressors." Pp. 176-197 in *A Handbook of the Study of Mental Health: Social Contexts, Theories, and Symptoms*, edited by A.V. Horwitz and T.L. Scheid. New York: Cambridge.
- White, Michelle J. (1986). "Sex differences in urban commuting patterns." *The American Economic Review* 76 (2), 368-372.
- White, M. P., and Dolan, P. (2009). "Accounting for richness of daily activities." *Psychological Science*, 20 (8), 1000-1008.
- Wilson, James Q., and Kelling, George K. (1982). "Broken Windows." In: *Critical Issues in Policing: Contemporary Readings*, 7. By Roger G. Dunham, Geoffrey P. Alpert.
- Wootton, Barbara H. (1997). "Gender differences in occupational employment." *Monthly Labor Review*, April.

Yayoi, Oda., Tsuneyuki, Abe., Takano, Ruriko., Tatsuta, Amane., and Nakamura, Minoru.  
(2007). "A model of the relationship between psychosocial variables and diurnal cortisol  
rhythm under chronic stress by using structural equations." *Behaviometrika*, 34 (1), 45-  
57.