DEVELOPMENT AND INITIAL VALIDATION OF A COMPREHENSIVE MODEL OF SCARCITY

by

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ABSTRACT

MAYSA DE SOUSA. Development and initial validation of a comprehensive model of scarcity (Under the direction of DR. AMY PETERMAN and DR. CHARLIE L. REEVE).

This dissertation aimed to develop a comprehensive model of scarcity. While socioeconomic factors partially explain these disparities, the traditional indicators used in most of the literature fail to fully capture the relationship between SES and health. The use of additional concepts that assess a broader array of actual and perceived economic and social resources may prove beneficial in addressing the direct and indirect causes of health disparities beyond the influence of education, income and occupation. Scarcity is one such concept. The literature on material hardship and time pressure, as well as the literature on cognitive ability, and interpersonal and intrapersonal resources were used to inform the development of the initial model of scarcity. This project employed both qualitative and quantitative methods. Study 1 used a phenomenological approach in order to understand individuals' shared experiences of scarcity. Semi-structured qualitative interviews were conducted with 24 individuals. Results from this study identified the aspects of scarcity that were most salient to participants across the SES spectrum. This study yielded seven major themes, including four possible dimensions that were both objective and subjective in nature: material scarcity, time scarcity, psychological resource scarcity, and physical health scarcity. Quantitative data collection was used in Study 2 to develop a valid scale to measure scarcity. A national sample of 203 participants was used to test the items that were generated to assess scarcity. Exploratory factor analyses showed that a three-factor model of scarcity best fit the data, and evaluation of each of the factors confirmed a *time scarcity*, a *psychological resource scarcity*, and a *material*

scarcity dimension. The proposed model has implications for both theoretical and applied practice. This model ensured that the construct of scarcity is as comprehensive as possible by identifying the dimensions of scarcity that are most significant to individuals. Moreover, the results of this study provided the basis for the development of a scarcity measure that can be used in future projects assessing the relationship between SES and health disparities.

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TABLE OF CONTENTS

CHAPTER ONE: INTRODUCTION

Despite substantial advances in the overall health of Americans over the past 50 years (Frieden, 2013), significant gaps in health between segments of the population continue to exist (Meyer, Yoon, & Kaufmann, 2013). For example, the CDC reports that the infant mortality rate of non-Hispanic blacks is 50% more than that of non-Hispanic whites (2013a); the prevalence of diabetes is higher among those without college degrees and with lower household incomes (2013b); and non-Hispanic black adults are at least 50% more likely to die prematurely of heart disease or stroke than non-Hispanic whites (2013c). These health disparities can partially be explained by the conditions and social context in which individuals live (U.S. Department of Health and Human Services, 2014), as those who are socially, economically, and environmentally disadvantaged more often report poor health status, disease risk factors, and limited access to health care (Meyer et al., 2013).

Indicators of socioeconomic status (SES), such as education, income and occupation, are necessary factors to consider when trying to explain and address health disparities. Much of the disparity research in the health fields, economics, and public policy has recognized the role SES plays in a variety of health outcomes. SES variables have been found to determine both physical and social environments, which in turn affect the likelihood of individuals' exposure to both harmful health conditions and access to

health protecting resources (Adler & Rehkopf, 2008). SES has also been reported to influence health behaviors, such as tobacco use, exercise habits, and diets (Pampel, Krueger, & Denney, 2010).

Recently, scholars have come to recognize the complex nature of SES and have suggested going beyond the traditional SES measures used in much of the literature (Adler & Stewart, 2007; Wolff, Acevado-Garcia, Subramanian, Weber, & Kiwachi, 2010). Specifically, it is suggested that SES should be evaluated using different types of measures that assess not only actual economic resources, but subjective and prestige-related characteristics as well. Moreover, it is important to explore how individuals may internalize these indicators of SES and the result this may have on health outcomes. Scarcity, the feeling of not having enough to meet one's needs (Mullainthan, & Shafir, 2013), is one such internalization process that may provide insight into how SES affects health outcomes and contributes to health disparities. However, though current research has begun to look at the influence of scarcity on decision-making processes (Shah, Mullainthan, & Shafir, 2012), the concept of scarcity has not been fully defined or developed.

The purpose of this dissertation is to provide a comprehensive conceptualization of scarcity. This includes fully identifying the main components of scarcity and providing an initial validation of those components.

Socioeconomic Status

SES has been defined in various ways. Two of the most commonly used definitions are the conceptualization based on material and structural forces, and the conceptualization based on socioeconomic gradients. According to the former, SES can

generally be thought of in terms of access to material and social resources (Matthews & Gallo, 2011). SES is seen as the ability to attain goods (e.g. food) and services (e.g. medical care), in addition to the ability to access information and social resources. This approach focuses on the unequal access to resources by particular members and groups in society (Saegert at al., 2007). The socioeconomic gradients conceptualization defines SES as a reflection of the relative position of an individual or group on a hierarchical social structure, based on their access to or control over wealth, prestige and power (Mueller & Parcel, 1981). Therefore, one's status is assessed in relation to other socioeconomic groups (Saegert at al., 2007).

Traditional Measures of SES

SES has traditionally been measured by education, income, or occupation, or some combination of these three indicators (Adler et al., 2008; Braveman et al., 2005). While education, income, and occupation have all been used as proxies for SES, each of these three measures reflects access to different resources and different aspects of SES (Adler & Snibbe, 2003). However, they are oftentimes used interchangeably due to data availability despite being only moderately intercorrelated (Adler & Snibbe, 2003; Saegert et al., 2007). Therefore, while much of the SES literature uses one of these indicators as a proxy of SES (Braveman et al., 2005), it is important to consider the various aspects of SES being assessed by each of these indicators.

Education. Education is measured as years of education completed, highest educational level completed, or credentials earned (Shavers, 2007). It is considered to be the most widely used indicator of SES because of the ease of measuring educational attainment or level. Moreover, the likelihood of reverse causation is greatly reduced since

education is usually completed before negative health outcomes occur (Stewart, 2009).

Some consider education to be the most fundamental aspect of SES (Saegert et al., 2007). Though education is often considered to be interchangeable with income and occupation as a measure of SES, education is unique in that it often precedes and influences employment and earnings, thereby making it a key factor in establishing one's social ranking (Adler & Newman, 2002; Ross & Mirowsky, 2010). Higher levels of education are associated with better economic outcomes through a greater likelihood of employment, higher income, and less financial hardship (Saegert et al., 2007). The association between education and various other outcomes is well-established in the literature (see Johnston, 2004; Murray, 2009 for review).

Education may affect status through increased knowledge, credentials, and social networks. Individuals with higher education levels may not only develop better cognitive, information processing, and critical thinking skills, but may also develop skills that enable them to navigate bureaucracies and institutions (Stewart, 2009). Education results in learned knowledge, skills, values, and behaviors that help people succeed, and has been found to help develop qualities such as dependability, judgment, motivation, effort, trust, and confidence (Ross & Mirowsky, 2010). Moreover, education is thought to increase effort in students, as successful students must develop the necessary habits to meet academic challenges with attention, analytic skills, and perseverance (Ross & Mirowsky, 2010).

Education levels also influence how others see individuals. More educated individuals are judged more positively by others because of their credentials (Saegert et al., 2007). Moreover, higher degrees may lead others to make positive assumptions about

personal characteristics; for example, a person with a higher degree may be judged to be highly motivated or perseverant (Saegert et al., 2007). These assumptions about personal characteristics can have significant implications when seeking employment.

The skills learned in school often result in benefits outside of an academic setting, as higher levels of education may lead to increased ability to interact with others effectively (Shavers, 2009). Higher levels of education increase social resources and provide broader social networks, leading to increased access to better economic conditions and psychological resources. Increased access to social and psychological resources may in turn lead to a greater sense of control and more social support (Saegert et al., 2007). In addition, the highly educated are more likely to be socialized to engage in health-promoting behaviors and lifestyles (Yen & Moss, 1999).

There is no dearth of research supporting the relationship between education and good health. Education has been found to increase physical functioning and subjective health (Crimmins & Saito, 2001; Schnittker, 2004), and those with higher education levels are reported to have lower levels of anxiety and depression, and increased overall levels of well-being (Johnston, 2004). In addition, it has been found to decrease the age-specific rates of morbidity, disability, and mortality (Beckett, 2000; Lynch, 2003; Singh-Manoux, Ferrie, Chandola, & Marmot, 2004). There are various mechanisms through which education may affect health. Economic factors are hypothesized to be responsible for about half of the impact of education on health, as they enable individuals to avoid stressors linked to financial hardship and grant people access to better health care (Organization for Economic Co-operation and Development (OECD), 2006). In addition, people with higher education levels tend to have less hazardous jobs (Ross & Mirowsky

2010). Hammond (2002) explains that the indirect effect of education on health occurs through an increased sense of personal empowerment and socialization. In addition, education has been found to affect health behaviors such as eating healthier diets, smoking less, consuming less alcohol, engaging in more exercise, and using health services more (OECD, 2006).

Income. Income refers to "the flow of economic resources over a period of time" (Shavers, 2007, p. 1015). Income has been measured as individual annual income, annual household income, and family income (Shavers, 2007). Generally, individuals with higher incomes have more access to resources, goods, and services, such as better healthcare, housing and recreational activities (Adler & Newman, 2002). On the other hand, a lack of money creates challenges for individuals and has been found to be a source of tension and conflict (Saegert et al., 2007), which lead to adverse effects on mental and physical health. Also, unexpected drops in income may lead to subsequent negative health outcomes.

Occupation. Occupation is often measured as employment status, specific occupational group, aggregate occupation groups, blue-/white-collar workers, and employment status (Shavers, 2007). Occupation is used to measure SES because of its role in positioning individuals within the social structure (Shavers, 2007). Assessment of occupation often gives information about the social class, prestige, and the role of the physical work environment associated with the occupation. As such, measures of occupation can provide information about access to resources, exposure to psychological risks and physical hazards, and lifestyle (Shavers, 2007). Additionally, occupation provides information on time and other types of demands placed on the individual

(Saegert et al., 2007).

In addition to type of occupation, employment status can also provide information on the status of an individual. There is evidence to suggest that employment may improve the health of the employed and that the unemployed may be at a greater risk of physical and mental illness (Jin, Shah, & Svobada, 1995). However, reverse causation is also possible, as healthy people may be more capable of obtaining and retaining employment (Ross and Mirowsky, 1995).

For the most part, the benefits associated with occupation depend on the type of occupation one holds. Besides the financial rewards associated with higher status occupations, they may also provide more challenges and opportunities for control over working conditions (Saegert et al., 2007), which generates more occasions to use one's skills and abilities. Finally, occupational status can lead to extended social networks and a meaningful source of identity and pride. Conversely, low status occupations generally provide less autonomy, are more physically hazardous, involve more shift work, and can be routine and monotonous (Saegert et al., 2007).

Traditional measures of SES and health. Research on the relationship between SES and health attempts to define which basic resources are required to achieve and maintain good health (Shavers, 2007). There is a plethora of research supporting the relationship between traditional measures of SES and health (Adler & Newman, 2002; Cutler & Lleras-Muney, 2010). Associations between SES and health have been found in every industrialized society in which it has been studied (Adler et al., 2008). Adler and Newman (2002) offer three possible pathways through which SES may affect health: healthcare, environmental exposure, and health behavior and lifestyle. It is estimated that

these pathways may account for up to 80% of premature mortality (2002).

Traditional measures of SES may directly affect the means to purchase goods and services that promote health. For example, individuals with higher income levels are better able to purchase health insurance and access healthcare on a consistent basis (Adler & Rehkopf, 2008). SES variables are associated with both physical and social environments, which in turn affect the likelihood of individuals' exposure to both harmful health conditions and health protecting resources (Adler & Rehkopf, 2008). Moreover, SES has been found to influence health behaviors, such as tobacco use, exercise habits, and diets (Aggarwal, Monsivais, & Drewnowski, 2012; Boffeta et al., 2012; Cummins & Macintyre, 2006; Green et al., 2013; Pampel, Krueger, & Denney, 2010; Popkin, Duffey, & Gordon-Larsen, 2005; Siahpush, McNeil, Hammond, & Fong, 2006).

Limitation of traditional measures of SES. Several limitations exist when only objective measures of SES are used in research on this multidimensional construct. For one, the measurement of any of these three variables can be complicated, leading to broad assessment categories (Adler et al., 2008) that may fail to recognize important distinguishing qualities between individuals. For example, when measuring education level, individuals are typically asked to choose the highest degree they have earned from few categories. This does not capture the quality of the education they received, how well they did in school, or what field they may have studied. In addition, education level fails to fully represent the cognitive, material, social and psychological resources gained through education over the life course (Shavers, 2007). For example, while receiving one's education, individuals learn a multitude of skills that go beyond classroom lessons,

like how to manage one's time and communicate effectively. In addition, individuals have the opportunity to build large social networks while in school that can lead to future benefits in the form of better job opportunities, advantageous personal and professional relationships, and information about the latest developments in health, science, and technology.

Similar limitations can be found when looking at occupation, as there are significant issues with existing measures assessing occupation. Most either do not account for the nuances of each type of occupation or do not allow for comparison between jobs. For example, though the Standard Occupational Classification system (U.S. Bureau of Labor Statistics, 2010) is designed to include all occupations and reflect the current occupational structure in the United States, it does not provide a means for comparing status between occupational categories. The Hollingshead Occupation Scale (Hollingshead & Redlich, 1958) does rank occupations by status on a single scale of 1 to 7, however far fewer occupations are included in the scale's codebook. Moreover, neither measure takes into account those that are unemployed, retired, or homemakers. Because there is no universally agreed upon measure of occupational status that hierarchically categorizes various occupations (Saegert et al., 2007), oftentimes occupation is measured as employed or unemployed. However, this fails to account for the multitude of occupations with substantial variation in education, income and prestige (Shavers, 2007). In addition, though retirees and homemakers may be categorized as unemployed, they may have access to resources not representative of the typical unemployed person.

Another limitation of objective measures of SES is that they often only assess current status, failing to capture past experiences and future prospects. This is an

especially significant limitation for income given its unstable nature. For example, if one reports on income and occupation status one month after starting a new job following a three year period of being unemployed, these measurements will probably fail to capture the stress and lack of resources this person experienced in recent history, leading to inaccurate or unreported associations with health. Moreover, income does not capture all of the assets high SES individuals may possess. Though income may give some insight into this concept, it fails to truly capture the economic resources available to some individuals like investments, health insurance coverage, and disability benefits (Shavers, 2007).

Alternative Measures of SES

The multidimensional nature of SES calls into question the wisdom of continuing to solely use traditional indicators when trying to measure SES. Instead, scholars suggest that SES should be evaluated using different types of measures that assess a broader array of actual and perceived economic and social resources (Adler & Stewart, 2007; Wolff et al., 2010). Two such measures are wealth and subjective social status (SSS).

Wealth. Wealth, or the total accumulated resources and ownership of important assets, is believed by many to be a better indicator of socioeconomic position over time than measures of income (Braveman et al., 2005; Saegert et al., 2007; Shavers, 2007). Wealth can vary dramatically across different social groups with similar incomes because wealth reflects intergenerational transfers of assets in addition to individual income and savings (Saegert et al., 2007). Moreover, wealth may speak to an individual's ability to meet emergencies or to absorb economic shock. For example, assets beyond income can help buffer the effects of temporary low income due to unemployment or illness. Finally,

wealth reflects influence over others (Braveman et al., 2005), another indicator of status that is not captured by income. These characteristics help to explain why wealth may contribute to differences in health and mortality outcomes among groups with similar incomes (Braveman et al., 2005).

Subjective Social Status. SSS is a summative judgment of SES that takes into account multiple dimensions of one's life (Adler et al., 2008). SSS is "an individual's perception of his or her relative position in the social hierarchy" (Reitzel, Nguyen, Strong, Wetter, & McNeill, 2013, p. 104). Through self-report, individuals are able to rate their self-perceived position in their social hierarchy (Adler, Epel, Castellazzo, & Ickovics, 2000; Singh-Manoux, Marmot, & Adler, 2005). The MacArthur Scale of Subjective Social Status (Adler & Stewart, 2007) is a commonly used assessment of SSS that asks respondents to rate their standing as compared to others (e.g. "*Think of this ladder as representing where people stand in the United States. At the top of the ladder are the people who are best off- those who have the most money, the most education and the most respected jobs. At the bottom are the people who are worst off- who have the least money, the least education and the least respected jobs or no job. The higher up you are on this ladder, the closer you are to the people at the very top; the lower you are, the closer you are to the people at the very bottom. Where would you place yourself on this ladder?*"). Most research on the relationship between SSS and health outcomes has included the use of a single SSS referent group, which asks individuals to compare themselves to a distal referent group (e.g. others in American society) (Adler & Stewart, 2007). Occasionally, the SSS scale asking participants to compare themselves to a more

proximal referent group (e.g. others in their community) (Adler & Stewart, 2007) has been used.

SSS captures distinctive aspects of social class that influence how individuals act and feel. Social class is defined as " a group of individuals who are categorized according to common socioeconomic indicators (Grant, 2001, p.161). When making SSS ratings, individuals may factor in multiple considerations that include the quality of objective SES indicators, such as wealth, experiences of social inequities, family history, past experiences, and future prospects (Adler et al., 2000; Adler et al., 2008; Singh-Manoux et al., 2005b). For this reason, many argue that SSS is a unique, and perhaps more sensitive, predictor of health-related outcomes independent of objective SES measures (Adler et al., 2008, Wolff et al., 2010).

Alternative measures of SES and health. Empirical research has shown significant independent relationships between wealth and SSS and health outcomes. Wealth is associated with a range of health indicators such as: mortality (Bond Huie, Krueger, Rogers, & Hummer, 2003), self-rated health status (Hurd & Kapteyn, 2003), chronic conditions (Robert & House, 1996), and functional status (von dem Knesebeck, Luschen, Cockerham, & Siegrist, 2003). For example, having less than $1000 in assets is associated with increased HIV-related and all-cause mortality after adjusting for other SES and treatment variables (Cunningham et al., 2005). In addition, research suggests that wealth is related to psychological variables. Von dem Knesebeck and colleagues (2003) reported that having no assets was significantly related to increased risk for depression.

The use of subjective measures of SES in addition to objective ones may better

assess the relationship between SES and health status by tapping into how individuals may be internalizing their status (Adler et al., 2008). SSS is related to multiple health outcomes and behaviors, including psychological variables, self-rated health, smoking, weight status, cardiovascular risk, negative affect, feelings of financial insecurity, and drug use (Adler et al., 2000; Finch, Ramo, Dellucchi, Liu, & Prochaska, 2013; Ghaed & Gallo, 2007; Hu, Adler, Goldman, Weinstein, & Seeman, 2005; Ostrove, Adler, Kuppermann, & Washington, 2000; Reitzel et al., 2011; Singh-Manoux, Adler, & Marmot, 2003). The relationship between SSS and health-related outcomes may be best explained by Wilkinson's (1996) hypothesis that hierarchical rank has both direct and indirect influences on health. Directly it may affect stress-related physiological processes, thereby increasing vulnerability to disease. Rankings may indirectly influence health through an increased risk of engaging in health threatening behaviors (Wilkinson, 1996). By tapping into both direct and indirect processes, SSS may better explain the relationship between social status and health-related outcomes (Reitzel et al., 2013).

Limitations of wealth and SSS. There are some limitations that exist when using wealth and SSS as SES measures in disparity research. In regards to wealth, there are a great number of factors that can potentially contribute to one's assessment of wealth, and so it is difficult to calculate (Shavers, 2007). For this reason, there may be significant error rates when reporting on wealth and it may be problematic to accurately compare wealth between individuals.

Despite the increased use of SSS in SES research, gaps still exist in the empirical literature, especially when trying to explain racial/ethnic differences in ratings. Stiles and Kaplan (2004) found that Blacks and Hispanics were both more likely than Whites to

perceive their income level to be lower than their friends and relatives, but in comparisons with American society, only Blacks were more likely than Whites to consider their incomes lower than those with the same education. Among Cherokee and White Appalachian adolescents, Whites rated their SSS lower than Cherokee youth when compared to the national norm, however this relationship was reversed when peer group was used as the referent group (Brown et al., 2008). In a study of Hispanics, respondents rated their SSS higher when using similar, proximal referent groups, but lower when using more distal referent groups (Franzini & Fernandez-Esquer, 2006). Overall, these findings suggest referent groups inform SSS ratings differently between racial/ethnic groups.

Another limitation of using SSS is that it is currently unclear what exactly respondents are thinking about when making SSS ratings. Previous research has found that respondents tend to primarily consider material wealth, occupational status, and education when providing distal SSS rankings, whereas everyday altruistic practices (e.g., being a good neighbor) were among the highest considerations in providing proximal SSS rankings (Adler & Stewart, 2007). It is possible that proximal SSS rankings are particularly relevant for individuals of lower SES, who might not rate themselves highly on the distal SSS ladder, but who have important and influential roles in their communities that would elevate their SSS-community rankings (Reitzel et al., 2013). For this reason, it may be inappropriate to compare SSS ratings between individuals of different groups until there is a better understanding of who participants are actually thinking of when making comparisons and whether these referent groups differ by a demographic characteristic.

Scarcity

Traditional measures of SES help to explain the existence of health disparities, however they fail to completely explain the relationship between SES and health. Despite SSS and wealth providing additional insight into this relationship, there is still a need for additional indicators that explain both the direct and indirect processes by which SES affects health. Measures of scarcity may provide useful information on how SES influences behavior, and by extension health outcomes. Mullainthan and Shafir (2013) describe scarcity as the feeling of having less than one needs. Though the idea of scarcity appears to capture a fundamental feature of those in poverty and of lower SES, it also applies to a range of individuals in a variety of contexts (Shah et al., 2012). That is, it is not just the poor who may experience scarcity; those of higher SES may also experience feelings of scarcity in other areas of life. For example, people who are exceedingly busy may experience time scarcity and therefore this sense of scarcity may negatively affect their ability to carry out certain tasks or may lead them to engage in behavior that may have long-term negative consequences.

Recent research on scarcity has focused on how scarcity affects decision-making processes. Generally speaking, scarcity seems to direct focus to matters in which scarcity is most salient, changing how people look at and address problems (Shah et al., 2012). When a resource is abundant, situations that require that resource are easily handled. However, when a resource is scarce, these same situations often require additional attention, seeming bigger and more urgent. For this reason, situations that require scarce resources elicit greater focus while trying to solve the problem, often causing individuals to neglect other demands that may result in worse long-term outcomes (Shah et al.,

2012). For example, low-income homeowners have been found to neglect regular home maintenance while they attend to more pressing financial matters, thereby leading to more extensive, costly repairs in the future (Acquaye, 2011). This theory helps to explain why those of lower-SES may make decisions that lead to poor outcomes; it is not that those of lower-SES fundamentally make poor decisions because of some innate quality, but rather "poverty captures attention, triggers intrusive thoughts, and reduces cognitive resources" (Mani, Mullainthan, Shafir, & Zhao, 2013, p.980). This leads them to make decisions based on short-term goals, neglecting to pay attention to long-term consequences.

Mani and colleagues (2013) suggest that poverty requires additional mental processes, as the poor must manage sporadic income, juggle expenses, and make difficult tradeoffs. This places an extra load on the finite cognitive system, as the poor may be preoccupied by their financial situations, even when they are not actively engaged in the decision-making process. This preoccupation leaves fewer cognitive resources for them to focus on other pressing tasks.

Mani and colleagues (2013) attempted to test the influence of scarcity on cognitive functioning both experimentally and in a naturalistic setting. In a series of lab experiments, the researchers primed participants with financial scenarios that were meant to trigger thoughts of the participant's own finances. As participants were thinking about how they would go about solving the financial problem, they were asked to perform two cognitive tasks. Findings show that the rich performed equally well on the cognitive tasks whether they were primed with easy or more difficult financial scenarios. However, while poor participants performed as well as the rich participants on the cognitive tasks when

they were primed with easy financial scenarios, they performed significantly worse on the tasks when primed with more difficult financial scenarios. Results were the same even when participants were given financial incentives for their performance on the cognitive tasks. Thus, as hypothesized, more stressful financial demands did in fact capture more focus and increased cognitive load.

In the field experiment, the researchers studied Indian sugarcane farmers. These farmers tend to experience a cycle of poverty because they receive their income annually at harvest time. Therefore, the researchers were able to assess each farmer's cognitive capacity during times of poverty (pre-harvest) and wealth (post-harvest). Results indicate that the farmers faced greater financial pressures pre-harvest, leading them to engage in such behaviors as pawning items and taking out loans at higher rates than post-harvest. Moreover, as hypothesized, farmers performed significantly worse on cognitive performance test pre-harvest than post-harvest. In addition, significant negative correlations were found between the perceived intensity of financial constraint and performance on the cognitive tests (Mani et al., 2013).

Scarcity may also help to explain the borrowing habits of the poor, namely taking out short-term, high-interest loans, as these loans make it difficult to meet future expenses and lead to worse financial outcomes (Shah et al., 2012). When explained by the theory of scarcity, it becomes easier to see how current financial scarcity can lead individuals to focus on their present expenses, causing them to attend to the loan's benefits and ignore its negative consequences. Shah and colleagues (2012) go on to claim that any kind of scarcity can lead individuals to act in this way and set out to test this theory in a series of experiments. The investigators randomly assigned participants to be

"poor" or "rich," and had participants play games, with the poor participants having fewer chances to win at each game. Findings from these experiments support the notion that scarcity creates increased focus leading to increased fatigue, as the poor participants spent more time focused on the game and then performed worse than rich participants on cognitive tasks. Their experiments also supported the notion that scarcity leads to increased borrowing, as those in the poor condition borrowed more chances to win from future rounds than rich participants. Furthermore, the over-borrowing of the poor was actually counterproductive, as those who could not borrow performed better than those who could. This finding occurred whether participants were borrowing chances to win or time to play the games. These findings support the notion that current demands may lead individuals to neglect future prospects in order to meet current needs.

Components of Scarcity

Though the research on scarcity has begun to explore how scarcity affects decision-making processes, it does not fully explain what scarcity is. That is, there is limited information on what actually contributes to individuals' feelings of scarcity. The literature does point to material resources and time as factors contributing to feelings of scarcity, however it is likely that other factors may also influence the experience of scarcity, namely psychological resources. Specifically, the cognitive ability and emotional resources literature provide a starting point from which to begin to integrate psychological resources into the conceptualization of scarcity. Together, material hardship, time scarcity, and a lack of psychological resources contribute to a general sense of scarcity (see Figure 1 for a model of scarcity based on the current literature).

Material hardship.

Material hardship refers to the inability to consume minimal

levels of basic goods and services, such as food, housing, and medical care (Heflin, London, & Scott, 2011). Though a number of policy makers use the federal poverty line based on household income as a means of defining those with inadequate financial resources to cover basic needs (Heflin et al., 2011), there is significant concern that this measure is inadequate at truly capturing all those who may be unable to meet their basic needs (Sullivan, Turner, & Danziger, 2008; Wimer et al., 2014). However, measures of material hardship are able to capture the ability to access basic material goods and services, and meet financial obligations (Kingston, 2013). Therefore, it is important to assess material hardship when trying to understand the influence of SES and scarcity on various outcomes.

Material hardship may affect individuals in a variety of life domains and has recently been studied in five categories: food, housing, utilities, medical care, and general financial difficulties (Wimer et al., 2014). For example, Wimer and colleagues (2014) asked residents of New York about their actual ability to make ends meet (e.g. "*Was the respondent unable to pay gas, electric or phone bills?*"; "*Had anyone in the household avoided seeking necessary medical or dental care because of the cost?*"). Measures such as these go beyond that of income by capturing scarcity related to lifestyle and cost of living differences (Kingston, 2013). For example, an annual household income of $60,000 in the South buys people much more than $60,000 in the Northeast. In addition, material hardship takes into account certain aspects of household wealth and debt that income measures do not (Heflin & Iceland, 2009). For example, a person who is independently wealthy and no longer working may seem income poor, but faces no financial hardships. On the other hand, it is possible for individuals making high incomes

to report hardships because of high fixed costs, like a large mortgage.

Material hardship is an important factor to consider when addressing disparities, as health issues result from a lack of access to material resources such as money, food, clean drinking water, safe housing, medicine, and healthcare (Giordano & Lindstrom, 2010). For example, Tucker-Seeley and colleagues (2012) found that financial hardship was associated with lower levels of self-rated health, and Heflin and Iceland (2009) report that the stress associated with material hardship leads to increased levels of depression. However, while the literature may focus on objective material hardship (e.g. Wimer et al., 2014), subjective feelings of material hardship may also lead to negative health outcomes. Just looking at objective material hardship does not capture the quality of the resources available to individuals, nor does it take into account one's satisfaction with their resources. That is, though individuals may be able to make ends meet and access a basic level of care, food and housing, it may not be to the standard that they desire. For example, though individuals may have enough food to avoid hunger, the quality of the food may be lacking and may not meet health recommendations; or though an individual may be able to pay their rent, it may be because they live in an unsafe neighborhood or undesirable apartment. Therefore, it is likely that it is not just an actual lack of resources, but also the perceived inadequacy of material conditions that may lead to poor health outcomes.

Time scarcity. Time scarcity refers to not having enough time or the feeling of not having enough time, particularly discretionary or leisure time (Jabs & Devine, 2006; Robinson and Godbey, 2005; Strazdinz et al., 2011). Time scarcity has become an important concern when considering quality of life (Bittman & Wajcmann, 2000), as the

experience has become more common in industrialized societies (Jabs & Devine, 2006). As standard working hours have increased and dual-earner families become more common, many individuals have less free time. This lack of leisure time can lead to serious consequences for people's health, since time to build close relationships, exercise, sleep, work, play, care, and consume have all been found to correlate with good health (Strazdinz, 2011). Moreover, many tasks that individuals must engage in are time specific, and this factor is not always considered in the traditional time equation that involves work/family demands. For example, Schwanen (2008) reports that working mothers face the challenge of picking up their children from childcare centers within the temporal constraint of its hours of operation. Therefore, not only did these mothers face an additional time consuming task, but they also experienced the additional pressure of having to complete the task at a specific time.

Time scarcity has been shown to be related to health outcomes such as poor self-rated health, sleep problems, and health dissatisfaction (Zuzanek, 2004), along with psychosomatic symptoms such as headaches and digestive disturbances (Hoge, 2009). In addition, time pressure predicted depression in both men and women (Roxburgh, 2006). Perceptions of time scarcity have also been reported to affect behaviors in ways that attempt to save time, such as such as speeding up activities, shortening the length of activities, substituting shorter activities for longer ones, and multi-tasking (Jabs & Devine, 2006). Food choices and exercise habits are two health behaviors that may suffer due to time scarcity. People may speed up food consumption by eating faster, deciding to order takeout or buying fast food instead of preparing food at home, or skipping meals entirely to try to save time (Jabs & Devine, 2006). Moreover, inadequate time is

frequently the reason individuals give for not exercising.

Relationship between income, time scarcity and health disparities. There is some evidence to suggest that income may contribute to inequalities in health through time scarcity. In essence, working involves giving time to earn income (Strazdinz, 2011). Though both professionals and low-skilled workers may both face work-related time scarcity, they differ in the income they are compensated for their time. This increased income provides the professionals with enough money to buy more time-saving goods and services, thereby enabling them to preserve their health in ways low-income individuals may not have access to (Jabs & Devine, 2006). In addition, low-income individuals may not receive sick leave to seek medical care. Moreover, low-income individuals may face additional challenges, like longer commutes, which may also contribute to higher perceptions of time scarcity and subsequent negative health outcomes (Strazdinz, 2011).

Psychological resource scarcity. Though not directly addressed in the scarcity literature, there is reason to believe that limited psychological resources may also contribute to feelings of scarcity. For one, differential psychologists regard cognitive ability, otherwise referred to as intelligence, as a psychological resource that "… among other things, involves the ability to reason, plan, solve problems, think abstractly, comprehend complex ideas, learn quickly, and learn from experience" (Gottfredson, 1997, p. 13). Lower levels of this resource can lead to poorer health outcomes, as the capacity for unassisted learning and problem solving is indispensible when trying to manage one's care in an ever advancing healthcare setting (Gottfredson, 2004). Indeed, cognitive ability has been shown to be significantly related to health outcomes in both

men and women at various ages (Singh-Manoux, Ferrie, Lynch, & Marmot, 2005). Gottfredson and Deary (2004) suggest that this occurs because lower levels of cognitive ability lead to inadequate health self-care.

There is an abundance of research supporting the relationship between cognitive ability and health. For example, cognitive ability in childhood has been linked to adult morbidity and mortality (Hart et al., 2003; Kuh, Richards, Hardy, Butterworth, & Wadsworth, 2004; Osler et al., 2003; Whalley & Deary , 2005). Moreover, reading ability is related to knowledge about health and health care, hospitalization, global measures of health, and some chronic diseases, with people who read at lower levels one and a half to three times more likely to have an adverse outcome than people who read at higher levels (see DeWalt, Berkman, Sheridan, Lohr, & Pignone, 2004 for review). For example, studies have found that poor reading ability is related to poorer health status (Baker, Parker, Williams, Clark & Nurss, 1997; Gazmararian et al., 1999), and better reading skills were associated with breastfeeding (Kaufman, Skipper, Small, Terry, & McGrew, 2001).

Similarly, knowledge levels have also been found to relate to health outcomes. Mothers with greater knowledge about breastfeeding benefits are more likely to both initiate breastfeeding and breastfeed longer (Kornides & Kitsantas, 2013). Also, in a study of breast cancer patients, low knowledge levels were associated with increased decisional conflict, which can weaken the quality of decision-making (Peate et al., 2011). Finally, cancer patients with fulfilled information needs reported better health-related quality of life, and less anxiety and depression (see Husson, Mols, & van de Poll-Franse, 2011 for review).

In addition to cognitive ability, research also suggests that psychosocial resources are related to health outcomes. For example, resources such as social support and perceived control impact emotional distress (Bailis, Segall, Mahon, Chipperfield, & Dunn, 2001; Turner, Lloyd, & Roszell, 1999). Gallo and Matthews (2003) offer the reserve capacity model to explain how emotional factors can contribute to the socioeconomic gradient in health. Interpersonal resources (e.g. social support and social integration) and intrapersonal resources (e.g. perceived control, optimism, and self-esteem) alter emotional and physical stress responses, thereby affecting health through biological and behavioral risk pathways (Gallo, Bogart, Vranceanu, & Matthews, 2005). For example, low resources and stress relate to unhealthy behaviors (e.g. poor eating habits, reduced sleep), which then lead to health problems, such as chronic diseases and premature mortality (Miller, Chen, & Cole, 2009). According to this model, low-SES individuals tend to report more depression and anxiety because they may have fewer resilient psychological and social resources to cope with frequent environmental demands, and this leads to poorer health outcomes (Gallo et al., 2005).

The literature on cognitive ability and emotional resources support the hypothesis that limited psychological resources may lead to feelings of scarcity. That is, like material hardship and time scarcity, limited cognitive ability and psychosocial resources lead to poor psychological and physical health outcomes. For this reason, a lack of psychological resources is expected to contribute to perceptions of scarcity.

Study Aims

Health disparities continue to exist despite significant advances in healthcare. Socioeconomic factors are a key component in explaining these disparities (Adler &

Snibbe, 2003), yet the traditional indicators used in most of the literature fail to fully explain the relationship between SES and health (Saegert et al., 2007). Further research on both objective and subjective indicators of SES may lead to greater advances in addressing health disparities. Scarcity is one such indicator; however a full conceptualization of scarcity is missing from the literature. Though there is evidence to suggest material hardship and time scarcity as components of scarcity, the objective and subjective elements of both factors have not been fully identified. In addition, it is very possible that additional components of scarcity exist (e.g., in areas of cognitive ability or emotional resources, as outlined above). As such, it is difficult to include this concept in studies that look at the relationship between SES and health.

Therefore, the purpose of this dissertation was to produce a comprehensive conceptualization of scarcity. This study had three aims: 1) to develop a theoretical model of scarcity that is currently missing from the limited literature on the concept; 2) to design a measure of scarcity based upon the newly developed construct; and 3) to conduct an initial validation for the measure.

CHAPTER 2: STUDY ONE METHODS

Participants

Faculty, staff, and students from a university in the southeastern United States were recruited through flyers posted throughout campus. Interested potential participants were invited to contact the principal investigator to determine their eligibility to participate in the study. Individuals who were over the age of 18, could understand and speak English, and were not claimed as a dependent on anyone else's taxes were eligible to participate in the study. Those who could be claimed as a dependent were excluded in order to capture, as well as possible, individual socioeconomic status and its relationship to scarcity. Since it is likely that the living conditions and resources available to dependents may actually be associated with the SES of the individual supporting the dependent rather than the dependent themselves, including dependents in the study may have confounded findings. During the determination of eligibility, potential participants were also asked to provide information about their annual household income in order to ensure an adequate number of participants from each SES category (i.e. low, middle, high). Eligible participants were invited through email to set up a time to complete the interview. Twenty-four participants were interviewed for Study One. Using criteria set forth by Mason (2010), it was determined that saturation was achieved after interviewing seventeen participants; however an additional eight interviews were completed to ensure a more diverse sample.

Materials

Email Prescreen Questionnaire

Participants were asked to complete a prescreen questionnaire through email. Participants were asked their age, to select their annual household income from one of three categories (low-SES = < $25, 000, middle-SES = $25,000 - $100,000, and high-SES = > $100,000), and whether anyone claimed them as a dependent on their taxes. A copy of the email sent can be found in Appendix D.

Interview

A semi-structured interview guide (see Appendix C) was used in order to collect data on participant experiences of the phenomena of scarcity. The interviews were audio recorded in order to ensure all information was captured. As is recommended for the phenomenological approach, the interview began by asking participants two broad questions about scarcity (Moustakas, 1994 as cited in Creswell, 2006; e.g., "*What have you experienced in terms of scarcity? What contexts or situations have typically influenced or affected your experiences of scarcity?*"). However, after participants had sufficient opportunity to discuss their experiences with scarcity, participants were asked about the specific contributors to feelings of scarcity based on those previously mentioned in the literature (e.g., "*What do you think about the notion of material scarcity?*"). During this portion of the interview, subjects were asked about the actual experience of not having enough of a resource to meet their needs (e.g. "*Please tell me about a time when you did not have enough to make ends meet.*") and the perceived

feeling of not having enough of a resource (e.g. "*Do you feel like you have enough time for leisure activities?*").

After the interview was completed, participants were asked to fill out a brief demographic questionnaire assessing age, race/ethnicity, gender, marital/partnered status, annual income, education level, occupation, and some indicators of childhood SES. In addition, participants completed two versions of the MacArthur Scale of Subjective Social Status.

MacArthur Scale of Subjective Social Status

The *MacArthur Scale of Subjective Social Status* (Adler & Stewart, 2007) was administered in this study. This scale consisted of two items in which participants are asked to indicate their placement on a ten-rung ladder relative to American society as a whole (distal comparison), and relative to their community (proximal comparison). See Appendix C for a copy of the scale.

Procedure

Theoretical Framework

This study used a phenomenological approach to guide both data collection and data analysis (Creswell, 2006). This framework allows for the understanding of multiple individuals' shared experiences of a phenomena, and so it was appropriate to use in the present study to understand the contributors to participants' experiences of scarcity. This method resulted in the gathering of data that led to a textural and structural description of the experiences of scarcity (Creswell, 2006), and ultimately the generation of a model of scarcity built on a strong empirical foundation.

Several strategies were used in order to minimize researcher bias during both the data collection process and the analysis of results. First, before beginning data collection, the principal investigator reflected on her own experiences with scarcity (Creswell, 2007). This increased awareness helped the investigator to avoid leading participants during the interview. For example, when subjects discussed their experiences with objective and subjective scarcity, the investigator was able to refrain from commenting on whether she thought their example was subjective or objective in nature, even if she personally disagreed with their categorization of the occurrence. Bracketing and phenomenological reduction (Hyncer, 1985) were used when reading through and coding the transcripts. These techniques allowed the investigator to avoid bringing her own expectations into the data analysis process (bracketing), and instead try to be as true as possible to the phenomena described as the interviewee intended without trying to fit it into existing theoretical assumptions (phenomenological reduction).

In addition, extensive notes were taken during the interview process to reduce bias during data analysis. Because the principal investigator both conducted the interviews with participants and coded these interviews, it was possible that she may have included her experiences with the participant in her interpretation of the data. Referring back to the notes during the coding process enabled the investigator to distinguish between what the participants actually said and what the investigator felt they might have meant to say based on her reading of participants' demeanor during the interview.

In order to enhance the rigor of the results, a research assist (RA) double coded twenty percent of the interview transcripts (n = 5). Both the investigator and RA reviewed the five double coded interviews, and all discrepancies were discussed and

resolved. Inter-rater reliability between the RA and investigator was excellent (> 90%), and the coding of additional transcripts was deemed unnecessary.

Finally, in order to ensure the accuracy of data interpretation, member checks were completed during the interview and after the data had been analyzed. Member checks give participants the opportunity to review data collected for accuracy, and to affirm or disconfirm whether summarized results from the study reflect their views, feelings, and experiences (Harper & Cole, 2012). During the interview, the interviewer restated and summarized the information from participants to confirm that her interpretations of their experiences were correct. After all data were analyzed, participants who agreed to be contacted again reviewed a summary of the study results.

Consent and Confidentiality

IRB approval from the University of North Carolina at Charlotte was obtained prior to data collection. Informed consent was obtained by having participants read and sign the participant consent form prior to participation in the interview. Participants had the opportunity to ask any study related questions prior to signing the consent form.

In order to ensure confidentiality, participants were assigned a unique identification number. This number was used during the interview, and to identify all demographic information and data collected from the individual. The participant's name was used on the consent and reimbursement forms, but neither form was stored with participant data or included the participant's assigned identification number. If a participant disclosed identifying information (e.g., name) during the interview, it was removed from the written transcripts to protect confidentiality.

All audio recordings and digital transcripts were stored in password protected electronic folders accessible only to the principal investigator, co-investigators, and RA. A separate document was kept with the names and email addresses of participants who agreed to be contacted at a later date for member checks. This document did not include the participant's identification number. Only subjects who agreed to be contacted were included and no participant data were included in the document. This document was destroyed after all member checks were completed. All hard copies of documents were stored in a locked file cabinet accessible only to the principal investigator.

Recruitment

Participants were recruited from the University of North Carolina at Charlotte through flyers posted throughout the campus (a copy of the flyer is included in Appendix D). Interested potential participants were invited to contact the principal investigator through email to learn more about the study. The principal investigator emailed the potential participant a brief summary of the study and questions to complete to determine their eligibility to participate in the study. Participants were also given the option of calling the principal investigator to complete the eligibility screener. Participants who were ineligible for the study received an email thanking them for their interest and informing them that they were not eligible for the study. Individuals who were eligible received an email informing them of this and requesting they schedule an interview time with the principal investigator to complete the interview. See Appendix D for copies of all recruitment email templates. All participants who completed the interview received a $15 Target gift card.

Interview and Questionnaire Administration

The principal investigator conducted one-on-one interviews with participants in her office. When participants arrived, they were asked to read and sign the informed consent document. Then the audio recorder was turned on and the investigator began the interview.

The first five interviews completed were treated as a pilot of the interview questions. These interviews were transcribed and then the transcripts were reviewed to determine whether the questions being asked were eliciting relevant information or were difficult for participants to understand and respond to. Only minor changes to some of the probes were made based on this review of the pilot transcripts, so these "pilot" interviews were included in the final data analysis.

Once the interviews were finished, the audio recorder was turned off and the participants were given hard copies of the questionnaires (i.e., demographics and MacArthur SSS) to complete. After participants completed the questionnaires, the investigator gave them their compensation (i.e., Target gift card). At this point, participants were asked if they could be contacted again to complete a brief member check. If they said yes, their contact information was stored on a separate document.

Transcription

All audio files were downloaded onto the principal investigator's computer. All interviews were transcribed in a three-step process. First, Dragon Naturally Speaking software (Nuance, 2014) was used to transcribe all interviews. Then, the principal investigator edited the transcriptions created by Dragon to ensure the accuracy of the transcription. At this point, all identifying information (e.g. names) was removed from the transcript. Finally, the principal investigator read through each transcription with her

hand-written notes from the interviews in order to add any relevant comments to the document. All transcripts were stored on the principal investigator's computer in a password-protected folder.

Coding

Data were coded according to the steps outlined by Moustakas, (1994, as cited in Creswell, 2006). First, in a step called horizonalization, the principal investigator reviewed all transcripts and highlighted significant statements. Significant statements were quotes that provided an understanding of how participants experienced scarcity (Creswell, 2006). Significant statements ranged from meaningful words to entire paragraphs. Examples of some of the keywords that were used to identify significant statements include: scarcity, lack, enough, satisfied, more, want, time, money, financial, homeless, poverty, food, transportation, clothing, and support. Next, the investigator developed clusters of meaning by grouping significant statements that shared similar expressions of phenomenological concepts (Creswell, 2006). These clusters of meaning were then grouped into themes. A codebook was developed based on the themes and clusters of meaning developed (see Appendix D for a copy of the codebook), and then the investigator went back through each of the interviews and coded the significant statements using the codebook.

Five interviews were randomly selected to be double coded by an RA. The RA was trained on the coding process before beginning to code the interviews. In addition, after coding the first interview, the investigator and RA thoroughly reviewed the coded interview before the RA went on to code the other four interviews. The RA was given a copy of the codebook to use to code the interviews.

The principal investigator developed a textural description of scarcity based on the significant statements and themes. This passage provided a description of participants' experiences with scarcity (Creswell, 2006). In addition, significant statements and themes were used to write up a structural description, which is a description of the context that influenced how participants experienced scarcity (Creswell, 2006). From these structural and textural descriptions, a written summary of the essential structure of scarcity was created. This summary focused on the common experiences of scarcity for participants, and included a rich account of what it is like to experience scarcity, information on the various components of scarcity, and distinctions between objective and subjective aspects of each dimension.

Member Checks

Member checks were completed after all data had been analyzed and findings summarized in order to ensure the analysis and interpretations of the data were correct. Participants who had given prior permission were contacted by email and asked to participate in a brief phone call to go over the findings. Eighteen participants gave permission to be contacted again. All 18 participants were contacted by email and eight responded to email requests to complete the call. Member checks were completed with all eight participants. At this time, participants were provided with the summary of the essential structure of scarcity, and had the opportunity to affirm or disconfirm whether the findings reflected their experiences.

CHAPTER 3: STUDY ONE RESULTS AND DISCUSSION

Participants

A total of 63 individuals completed the prescreen questionnaire. Of those who completed the questionnaire, 31 were eligible for the study. All 31 eligible participants were invited to participate in the interview. Of those invited, five did not respond to the invitation, two no-showed for their scheduled interview, and 24 completed the interview. The 24 participants were comprised of 15 females and nine males. Their ages ranged from 19 to 55 with an average age of 30.15 (SD = 10.17). Fourteen participants identified as white, two identified as Black/African American, two identified as Asian, two identified as Hispanic and four identified as multiethnic. Full demographic information for each participant can found in Table 1 of Appendix B.

The length of the interviews ranged from approximately 17 minutes to 67 minutes with an average length of approximately 36 minutes. Participant scores on quantitative measures can be found in Table 2 of Appendix B. Participants names have been replaced with letters in order to protect their identities.

Findings

Seven themes emerged from the interview data: general definition of scarcity, objective and subjective forms of scarcity, material scarcity, time scarcity, psychological resources scarcity, physical health scarcity, and relationships between dimensions of scarcity. Each of these themes is discussed in detail below.

Definition of Scarcity

Scarcity is generally defined as "not having enough" of something of importance (Mullainthan & Shafir, 2013) and may reflect a lack of resources to fulfill perceived basic needs and pursue normal life activities. That is, individuals may experience scarcity if they are without a resource they consider to be vital to their ability to function, or if they feel they require additional or better resources beyond what they currently have. All 24 interviewees in this study endorsed the experience of scarcity in either their current lives or at some point in the past. Their descriptions clustered into two subcategories discussed below (i.e. a lack of resources and having less than they would like).

Lack of Resources

Respondents stated that scarcity represented either a lack of resources or not having enough resources to meet their basic needs. This includes “not having a lot” (E), “not having a enough or very little” (H), “the lack of necessities,… or lack of money to pay for the necessities” (L), and “not having something in the quantity in which you want or need it” (U). In addition to not having enough to meet basic needs, “not being able to provide for [their] family” (B) and not being about to “meet obligations” (T) also contributed to feelings of scarcity. C reported that to her, scarcity was “the insecure feeling that you can’t provide for what you need.” This included not having a safety net of resources in case something were to happen:

> I also want to be able to take care of myself so knowing I have a good job and that I’m able to afford my bills and we always talk about what if [my husband] loses his job or what if I lose my job. Just being prepared and having that emergency fund and just knowing that you’re being taken care of. In our first year of marriage he had 4 jobs and I think that just him finding that right fit just made me more nervous about how’d we be able to manage.

Descriptions of scarcity ranged from "extreme poverty" (H) to having the "minimum to get by" (O) and "not [having] enough to go beyond your needs" (U). This reflects the individualized nature of scarcity and suggests a continuum of need that ranges from those most anyone would agree upon. For example, the following description of scarcity given by U is one most would agree with:

> I think greater scarcity would be people who are, where their health is really impaired by their poverty because they can't afford food and stuff like that… They're even worried about survival.

However, other descriptions are more subjective in nature, like the following quote from K: "[scarcity is] not having enough resources to do what you wish or even live comfortably."

"Less Than"

In addition to not having enough, respondents described scarcity as "the recognition of what you want and what you don't have" (M). This recognition of a difference between what you have and what you want signifies a dissatisfaction with their current position, and was expressed in a variety of ways that included: "feeling [like] you aren't getting what you deserve" (G), "always looking for something else in every aspect of life" (M), and "not being able to do what you want without having to plan" (O). N discussed her inability to decorate her apartment:

> For me, [scarcity] looks like my apartment last semester verses my apartment this semester. First semester there were no decorations, no throw rugs, it was the bare minimum. I had a couple pans, hand-me-down pans I used to cook, didn't have any curtains up in my room or my living room, no decorations whatsoever. So then second semester I was able to qualify for financial aid … and I was able to get a refund check so with that I bought myself a new pan to cook in because the other one had just about had it and I went to a discount store and got some curtains to hang up. I got a throw rug for my living room. So for me material scarcity can sometimes be add-ons, not necessarily things you need to survive everyday, but they are things that make you feel good about your life and let you

> know that, 'Hey I won't always be without things or always feeing like I don't have the things I need and the things I want.'

Though this experience is very different from the needs-based definition of scarcity discussed previously, the absence of furnishings and the "extras" seemed to cause this individual some distress and made her feel dissatisfied with her life.

Objective and Subjective Forms of Scarcity

There is reason to propose the existence of both objective and subjective forms of scarcity. Objective forms of scarcity are fact-based, measurable or observable, and reflect an actual lack of necessities. Subjective forms of scarcity would be based on personal preferences, interpretations, points of view, emotions and judgments of needs. Participants' perceptions of objective and subjective forms of scarcity clustered into two subthemes: differences between objective and subjective forms of scarcity, and differences in how objective and subjective forms of scarcity feel.

Difference Between Objective and Subjective Forms of Scarcity

When asked explicitly, all 24 participants agreed that there is a difference between objective and subjective forms of scarcity. Objective forms of scarcity reflect a lack of resources generally agreed upon as necessary for survival, whereas subjective forms of scarcity are more individualistic and context dependent. For example, L distinguished between the two as follows: "subjective [scarcity]… is something [that is] more of a want, whereas objective is more of a need. I mean, a place to live is kind of something you need, whereas a new shirt is not something you need if you already have one."

As U points out, the definition of needs when differentiating between objective and subjective forms of scarcity should go beyond what are generally considered to be those resources necessary for "biological survival":

> [Objective scarcity includes] things that you absolutely need to survive or- and it's not necessarily biological survival, but survival in a social context as well. Like, for example, having a house is not necessarily a biological need for survival, but to survive in certain societies you really need a stable place to live. So I think objective scarcity is something that is just so fundamental to life in that society… that life is going to be that much more difficult without it. Subjective scarcity is scarcity of things that are not as fundamental. For example, my leg now, when I'm not in pain, it's not really affecting my ability to get a job, or succeed in school, or be generally healthy and happy, but in those situations where I'm around my friends and they're running around, I feel scarcity, but it's subjective because it's just sort of, it makes me unhappy, but I don't need it.

This excerpt also points to the relative nature of subjective forms of scarcity. Unlike objective forms of scarcity that persist as long as the resource is lacking, subjective experiences of scarcity may pass after reflecting on one's situation. F states that: "I know that I've had less of something at one point or another so in my mind I have to judge, was that really scarce or was I just wanting more?" Many participants acknowledged that the subjective forms of scarcity they experienced were the result of comparisons made with others, and that thinking of others in worse situations than their own helped them to realize this. H summed up this experience as follows:

> I think everything's relative. So what you think might be scarcity to you compared to everyone you know might not really be scarcity in the big picture because there's starving kids in Africa and they might not have even seen lights.

Differences in How Objective and Subjective Forms of Scarcity Feel

While all subjects agreed that there is a difference between objective and subjective forms of scarcity, there was not consensus as to whether objective and subjective forms of scarcity felt the same or different to those experiencing it. Some

respondents felt that they did indeed feel different, with objective scarcity being more intense and causing more feelings of vulnerability, and subjective forms less serious, as is evident from following statement from J:

> I think the objective form of scarcity is a worse kind of feeling. It's a feeling of vulnerability. Like I said, if someone comes to my door and says, 'You have two days to pay or get out,' you're vulnerable, you're going to be on the streets, you have no where to go. But the subjective scarcity, it's not a feeling of vulnerability, maybe it's the feeling of not being able to provide something extra for yourself so you feel, you don't feel good about that, you feel like you're not doing well enough that you can't get yourself this extra thing that you want.

This difference may stem from the more severe nature of objective forms of scarcity, as pointed out by H: "That feeling of literally not having anything versus I have a little bit but it sucks, I think would be really big." Moreover, objective forms of scarcity seem to be more anxiety provoking because of the individual's inability to actually change the situation they are in. F spoke of this difference:

> I think the objective is much more high anxiety, there's much more pressure because you don't have an alternative, versus being subjective there's definitely that thought process of, I just need to calm down, it's going to be OK. Things can change, you can get more money, or something can happen. Being subjective definitely has a calming factor if you can just come to the realization that it's not permanent, but something that is objective is like a sure thing. It's definitely going to happen, you can't argue with it.

On the other hand, some respondents stated that they believed both forms of scarcity would feel the same to those going through the experiences. This may occur because it can be hard for some individuals to distinguish between objective and subjective forms of scarcity, as N described:

> It feels the same and if you let yourself really settle into that thought you aren't able to distinguish between the things you really need and the things you want and all of a sudden everything feels like things you need.

According to this position, those experiencing subjective forms of scarcity see the resources they are lacking as necessities. K rationalized this position as follows:

> To be honest, I want to say that they [objective and subjective forms of scarcity] are different, but when it comes down to it, the feeling that you need something is what breeds the idea of scarcity. I mean if you just want something than you can always just rationalize it away, 'Oh its not that important,' and so even if you have none of it, you can easily say, 'oh it's not that important,' so it's not scarcity. The feeling of it being needed, even if it's technically a "want" but not a need, you will feel like you don't have enough of it.

H used the following example to explain this point:

> Objective, I think no matter who is going through it, it's hard to grapple with. And then for people who have always had those things, you know if you're born with that silver spoon, the minute that you don't have those things, that subjective form of scarcity might start to feel objective even though to the larger world it's like, 'Hmmm, you know, you're still OK. You might not feel like it, but you're OK'… For some people, if you haven't had to live without things, then all of a sudden you do … that's the only life you've known so that subjective scarcity feels like everyone else's objective.

Material Scarcity

Material scarcity is generally defined as not having enough material resources. This includes not having basic necessities, not having the tools that allow you to complete your basic functions, not being able to cover your expenses, or settling for less than you would like. When asked about the notion of scarcity, respondents brought up examples of material scarcity most often. All respondents were able to discuss a time when they or someone they knew experienced some form of material scarcity. Participants' descriptions of material scarcity clustered into three subthemes: definition of material scarcity, types of material scarcity, and objective versus subjective forms of material scarcity.

Definition of Material Scarcity

Material scarcity was frequently described by participants as "homeless people and the severely poor who have no means or little means to afford necessities in life that are material things, like food, clothing, shelter, and stuff" (F). As this quote suggests, material scarcity involves both the lack of material necessities and the lack of financial resources to obtain those resources.

However, the experience of material scarcity goes beyond the inability to pay ones' bills or buy basic necessities. Material scarcity also includes not having the things necessary to "have a basic function in the society that we're living in. Like, hygiene or technology or things that would affect your ability to get a job, your ability to have transportation, your ability to communicate effectively" (C). In addition, for many respondents material scarcity was not just experienced when they were unable to meet their basic needs, but also when meeting those needs was the *only* thing they felt they were able to do. Respondent N discussed this experience in the following example:

> Not having enough, or always feeling, even if you pay all your bills and you have groceries, there's never any, or… not very often there's things to do outside of your basic needs. So wanting to go to the movies, not having that $10 to pay for that movie ticket. Even though your bills are paid, you're fed, I would say that's scarcity too because you can't really enjoy life when you're just barely … meeting your needs.

Respondents felt that material scarcity also included the lack of a safety net or having extra resources to deal with unexpected expenses. O offered an example of the difficulty she recently had trying to pay for an unexpected expense because she did not have extra funds:

> I got a U-turn ticket over the summer and I didn't even know you could get a U-turn ticket and it was $25 but then the court cost was like $200 and I was like, 'There is not way I am ever going to be able to pay for this.' So I paid it but it was

> like now I have to plan my whole life around a U-turn ticket. Like how is that even fair? It's not like it's a crime to do. Like now I'm going to have to figure out my whole Christmas list, I'm going to have to figure out where I'm not going to drive.

This example highlights the anxiety many respondents felt over not having savings they could use in times of emergency. B discussed her lack of savings and worried that this could lead to some very significant consequences for her family:

> I'm very aware of the fact that I'm not saving any money. Where you know you hear on the news about people who are living pay to paycheck and they're not saving any money and then something big happens like you need a thousand dollar repair to your car. When that happens to me I get up having to charge that on a credit card and then I end up spending the next six months taking away things that my family has become used to taking care of that … I'm a very good juggler but I also understand that I'm walking a thin line. If too many bad things happened at once, then that juggling would be out of control and I would be in debt and then things would start to be taken away. We would have to turn off Internet, we would have to reduce the amount of heat we use in the winter, do all kinds of things if things got out of hand… It's a fine line between too many emergencies happening at once.

An interesting aspect of this dimension is that material scarcity seems to lead to more material scarcity, with little opportunity to get out of the scarce situation. O explained why this seems to be the case:

> I think that a lot of people struggle with just the very, very basic things… I've heard a lot of people say, 'I can't believe you help people who are homeless, just tell them to get a job.' Well a person who smells bad and whose been wearing the same clothes for two months walks in they're like, 'Can I please have a job,' the odds are [that] the people who are there are not going to be like, 'Yeah let me get you the HR paperwork,' they're not gonna be like, 'Let's sign you up for a job.' So of course they can't get a job, which makes them homeless, which keeps them homeless, so they can't get a job.

As this respondent points out, not having the basic necessities can make it near impossible to put oneself in a position to better their circumstances, thus leaving them in a state of material scarcity.

Types of Material Scarcity

Material scarcity can result from a lack of any material resource one determines to be necessary for daily living, such as food, shelter, and clothing. At the heart of material scarcity is the sense that individuals do not have the financial resources to obtain the material resources they need. B explained how the lack of money results in the experience of material scarcity:

> It's very much about money in my mind. Because it seems like everything in society, I mean down to the ability to drive to work, to have a car, to pay insurance, to pay taxes on the car, all of that has to do with money and so its very much tied up, in my mind, with money specifically.

Some respondents (n=7) brought up a lack of food as one area in which they had experienced scarcity. These experiences ranged from not having enough to eat and going hungry, to having enough to eat to assuage hunger, but not getting adequate nutrition from these meals. O described her experience with food scarcity during her childhood:

> I just remember having cheerios 3 times a day sometimes if that's what needed to happen to get set … we were on TANF and WIC and food stamps and when she [mom] was in college still she got like day time child care when she was in classes, but like being OK means we were fed but maybe not to the point where we were satisfied but just the basic minimum to get by.

As this example demonstrates, though this respondent may have had enough food to survive, there were times when she may not have had enough to feel full and when she was not eating nutritionally balanced meals.

Two respondents disclosed that they had recently experienced homelessness. Though neither had to actually live on the streets, after losing their jobs during the recession, both experienced prolonged unemployment that resulted in losing their homes. W explained that his experience with homelessness did not just involve not having a home of his own, but also losing his other belongings as well:

> I lost my job in 2008. And I lived on savings for a while and then I had to come, a relative here in ____ county let me live with her. So I was technically homeless because I was a victim of both the real estate bust and the dot com bust. House gone, car gone, savings wiped out, stock portfolio, all gone, all gone.

A lack of appropriate clothing also contributed to the experience of scarcity. This could include having torn and tattered clothing, or not having a heavy coat in the winter. In addition, though respondents did state that this was a less serious form of scarcity, some felt that not having the kind or quality of clothing they wanted also resulted in feelings of material scarcity. This was because it may have social and professional implications. B explained how she felt not having nice enough clothing may be preventing her from getting a promotion:

> Getting a promotion to me seems to be tied to whether or not you're in a suit everyday and wearing some expensive heels and conducting yourself, as oppose to your work output and the quality of your work output. And so very frequently I worry about that because I'm looking to get promoted, I'm looking to be in a management position, and I'll look at what I would need to dress like that everyday and I don't have the extra money to buy clothes like that.

A few (n=3) respondents felt that they experienced material scarcity when they were unable to pay their medical bills or had to delay seeking treatment because of a lack of funds. T discussed the difficulty she had getting medical treatment during the time when she was unemployed and did not have insurance:

> I did have some issues that needed to be taken care of and I reached out. I did go, I go to the doctor, I called the dentist- they will turn you away if you don't have the money. And that happened to me… I had a tooth that was killing me at the time. I felt real embarrassed or humiliated at the time because as soon as I'd get in the chair … in my head I'm thinking, 'Well they're not going to do too much because I've already told them out front that I don't have any insurance, would they work with me on payment?' And when they quote you that for a root canal it's gonna be a thousand dollars and that's not even the crown, and you say this is my situation, I mean they, you just get turned [away]… I probably went on and off throughout one year, on and off penicillin before I was finally able to get the root canal and get the nerve removed.

As this example demonstrates, a lack of funds and insurance may prevent individuals from accessing the care they need.

Material scarcity also results from an inability to pay ones' bills. H stated that she experienced material scarcity when a "couple of weeks ago I didn't have enough to pay my rent so I had to ask my brother to borrow some money and I was really stressed out coz that's embarrassing to me." In addition to rent, respondents also felt that the inability to pay monthly credit card bills, cell phone bills and utilities also contributed to the experience of scarcity.

Lack of technology and not having adequate access to technology was another area in that respondents felt contributed to the experience of material scarcity. Though participants realized that the need for certain technologies might be culturally specific, they stated that they had come to rely on certain forms of technology in both their personal and professional lives. For example, C explained her need for the Internet and cellular phones:

> [Not having Internet] would make me feel like I don't have access to things that I think I might need… But I feel like so much is done online that it's a necessary part. Like the job I have right now, I applied to online, the way I communicate with people is primarily through the computer or through some other form of technology like phones, like that's an important part. Like I know cellphones aren't that old either but nowadays if you don't have one and you get broken down somewhere or stuff somewhere, people just don't want to rely on other people anymore. It's easier to just call AAA or call your family.

Because these forms of technology had become such an integral part of her daily life, she would experience scarcity were she to no longer have access to them anymore.

Some respondents felt that material scarcity also included the inability to engage in leisure activities because of a lack of finances. For these participants, all of their income was used to pay for their housing needs, utilities, food and other bills, leaving no

discretionary funds to engage in more hobbies or other activities they may enjoy. When asked what it would take for her to feel like she could finally engage in leisure activities, J stated:

> I feel like I could be able to do that [engage in leisure activities] when either a.) I have unlimited resources, of course speaking financially, or b.) I have gotten to the point in my life where I do feel prepared and independent … so what would it take? Maybe once all my bills are paid off and my credit cards are paid off, I have no other financial obligations, I can use my finances for myself, maybe go shopping for once in a lifetime… leisure time, travel, go to the beach.

Though leisure activities were not seen as a necessity, respondents did feel like not having the ability to engage in these activities because of a lack of financial resources seriously affected their quality of life.

Objective and Subjective Forms of Material Scarcity

Consistent with the general definition of scarcity, participants felt that there were both objective and subjective forms of material scarcity. Respondents stated that objective forms of material scarcity referred to not possessing needed resources, whereas subjective material scarcity resulted from feeling like they needed more of a resource or were unsatisfied with the resources they had. E described the difference between people experiencing objective forms of material scarcity and her own experience with subjective material scarcity:

> They [people experiencing objective material scarcity] can't afford good childcare, their clothing is torn, they have holes in their shoes. I think about little kids who can't afford to eat lunch at school, you know things like that… It doesn't affect my food, I'm not hungry. I'm not cold. It doesn't affect those kinds of things, it just affects the things that I might want to do or things, I have to save for things that I feel that I need instead of just being able to go and get them.

Moreover, material scarcity can also be thought of as a continuum of need, with objective material scarcity on one end and subjective on the other, as can be seen from the following excerpt from G:

> I think material scarcity the line's [a] little more blurred between what you would need and not need. So people who severely have the scarcity of material things, they actually don't have enough food, clothing, the basic necessities, but there's also the opposite end where people feel material scarcity but they just need more, more, more, and no matter how much they get they feel like they don't have enough.

This excerpt also hints at the difficulty some participants had categorizing certain forms of scarcity as objective or subjective in nature. This may be because where something is categorized on the continuum likely differs by the person experiencing material scarcity; that is, what is considered necessary for functioning in daily life will depend on the individual, society and culture. C discussed the relative nature of material scarcity:

> I think it's more relative to the person and the situation. Because people that are used to not having things like internet and cable and cell phones, if they go somewhere where all of a sudden that's what you do and how you communicate, then I think that changes depending on who you are and what you're used to. If I'm in the jungle I don't need a cell phone, you know.

Finally, many respondents felt that the majority of material scarcity experienced by Americans was subjective in nature, and the result of living in a "capitalist society" with "advertisers [who] do a really good job of convincing us that we don't have enough of something or we don't have a thing that we are supposed to have" (M). For these respondents, the experience of scarcity occurred because of comparisons made with those who had more than they had, and this created an artificial sense of need. However, it is important to note that these respondents did acknowledge that there were some

individuals in America who lived in poverty and were experiencing objective forms of scarcity.

Time Scarcity

Time scarcity is generally defined as not having enough time. This experience occurs when there is an insufficient amount of time for the tasks one must achieve or would like to achieve. All respondents acknowledged either experiencing time scarcity themselves or knowing someone who has experienced time scarcity. When reflecting on time scarcity, participants gave a general description of time scarcity, discussed the various aspects of their lives in which they feel time scarcity, and differentiated between objective and subjective forms of time scarcity.

Description of Time Scarcity

In general, "the notion of time scarcity…is a lack of time to achieve all your goals, to meet all your needs." (Y). Time scarcity is the experience of having more to do than the time to do it in, as J describes:

> Time scarcity is if you get 2 hours to do whatever you want, but you have to choose between a and b, you can't have both a and b... But if you're not scarce in your time, if you have more time, then you can do both a activity and b activity.

Most respondents gave very similar general descriptions of the experience of time scarcity. These descriptions included variations on words like "rushed," "frazzled," "overbooked," and "pressure." This can be seen from the following statement from N who said time scarcity looked like, "always rushing to get from one thing to the next. Not having any down time to think about everything going on. There's a demand on your time."

Time Scarcity in Various Life Domains

Respondents felt like they were experiencing time scarcity in a variety of life domains that included their personal lives, self care, and leisure time. Not having enough time to spend with family and friends was brought up most often as an area in which participants wished they had more time. Due to increased demands in their professional lives and everyday responsibilities, many individuals felt as though they did not have enough time, especially quality time, with the important people in their lives. B expressed this sentiment in this example:

> I wish that I did not have to work to take care of my family because I feel like there's not enough time with my daughter. She's my only child, I can't have any more kids. She's 5, I see her for 30 minutes in the morning and then by the time she gets home, we cook dinner, we do bath, any schoolwork, she's in bed and I've maybe spent another, maybe I've spent 30 minutes focused on her, maybe 2-3 hours with her doing household chores at the same time. That just doesn't seem right to me.

The increased work demands do not just result in a lack of time to spend with family and friends, but also leads to a decrease in time to spend on self-care. This includes time to sleep, eat healthy, and exercise. F offered the following example of work demands keeping her from being able to engage in healthy behaviors:

> There were times where I would be out in the field, all day literally from 5am and we wouldn't get back 'til like 10:30 at night. We'd be filtering samples until 4 o'clock in the morning, and then just like you're dead. And then you have to get up in the morning and maybe get a couple hours of sleep and then you're back in the lab. So you can't prepare healthy food, you don't have time to go grocery shopping. Although fieldwork did have physical activity it wasn't the kind that made you feel good because you're constantly knowing that this clock is ticking at any point and time.

Respondents are aware that the increased demand on their time and resulting lack of time to engage in health behaviors is affecting their health negatively. C stated:

> I've definitely sacrificed sleep. I've definitely sacrificed health and I noticed I get sick a lot more when I'm not taking care of myself and that's kind of the obvious response but I've noticed a bigger difference. When I'd be running from one thing to the next and all I could grab is a coke and a candy bar and that's not healthy, that's not getting your energy up and it's just gonna crash you later, and I've dealt with the repercussions of doing that.

Y gives a similar example of lack of time interfering with engagement in health behaviors:

> I would like to cook my food myself, I prefer to cook food at home, but due to lack of time, I have to go to closest place to get food and enjoy that. I would like to sleep for 7 ½ hours a day but sometimes I have to sleep for 5 hours a day and of course it affects me from a biological side at some point.

Despite realizing the negative consequences of poor health behaviors and trying to actively take steps to increase these behaviors, when respondents found themselves in time scarcity situations, it was hard to follow through with the intended behaviors. Moreover, they found themselves having to choose between two tasks. N describes this situation as follows:

> A lot of time I'll have meals planned, I'll take things out of the freezer and then you get home and just like "(sigh) I don't feel like doing that." So just run out and get fast food and save the healthier food options for when you have more time to prepare. For me, when I get really busy during the semester, the gym is the first thing to go out of the window so that's a health thing. You know, it would probably help manage my stress if I was able to stick to a routine but a lot of time it's like do I get up early to go to the gym or do I get up early to finish an assignment?

Time to engage in leisure activities was perhaps the area in which respondents lacked the most time. Few respondents felt like they had enough time to engage in activities for pleasure or had time to themselves to relax. U stated that he lacked time for himself as a result of too much work:

> I think sometimes I get so busy that I don't have enough time to meet needs like time by myself and relaxation and things that are enjoyable and not just serving a

> purpose of advancing some goal of like education or career related stuff, like something that I just enjoy. So I think time for relaxation gets cut out for me.

Though work demands seem to be the primary reason participants lacked time for themselves, prioritizing others' needs and managing other responsibilities in their personal lives also contributed to this experience. N described her friend's situation with time scarcity:

> My best friend, she's a single mother… she had to wake up, get her daughter ready for school, drop her off to school, and then go to work. And then afterwards, she wanted her daughter to feel to feel like she was not being raised by a single mother so she would make time to take her to gymnastics, and enroll her in different after school activities and that in turn put more demand on her time.

N's friend's responsibilities for her child, in addition to her work demands, left N's friend with little to no time for herself to engage in her own leisure activities or to just relax.

Objective and Subjective Forms of Time Scarcity

Some respondents acknowledged that it was possible to experience both objective and subjective forms of time scarcity. Objective forms of time scarcity are instances in which individuals do not have enough time to accomplish necessary tasks (e.g. "I skip meals regularly, if I don't have time I just won't eat," H) whereas subjective forms of time scarcity may refer to feeling like one does not have enough time to do everything they would like to do. Respondent U used the following example to distinguish between objective and subjective forms of time scarcity:

> As far as time scarcity in the more objective sense I think would be some of my friend's parents, especially my friends who had single parents where they, you know, I'm worried about adding a hobby and they don't have any hobbies because they're spending all their time working jobs and worrying about jobs, that sort of thing to put their children in a good position.

As this example demonstrates, respondents felt as though objective forms of time scarcity involved an inability to complete tasks necessary for survival and subjective forms of time scarcity were less serious in nature and referred to the "extras."

The majority of respondents felt that they had enough time to accomplish everything they needed to, but felt like they were experiencing subjective forms of time scarcity. However, even if individuals had enough time to accomplish the necessary tasks they must accomplish (ex. work), not having enough time for much else, including engaging in activities that make life more fulfilling could still weigh heavily on individuals. K described his experience with subjective time scarcity:

> What [time scarcity] looks like is someone not having enough time to do what they wish to do, but what it feels like is the feeling of constant pressure that you don't have the time to decompress, do things that you enjoy or realize that you're even living your life. Because at a certain point with time scarcity, it feels less that you're living a life and more that your going through motions you're required to do to continue living and at that point you're not really living anymore, you're just existing; you're just existing to do a job, get a paycheck, go to sleep so you can wake up and do some other kind of job, and that doesn't always need to be a work job.

This experience of subjective time scarcity highlights the serious, emotional consequences of time scarcity, even when not experiencing objective forms of scarcity.

As is the case with material scarcity, rather than being either objective or subjective, it is possible that each instance of time scarcity may fall somewhere on a continuum. Moreover, where each instance falls on the continuum may depend on the individual. Many participants saw work demands as being necessary tasks; however, to many, engagement in health behaviors and leisure activities was seen as less important. The same is true for non-work related responsibilities. Take, for example, the following instance of time scarcity from E:

> Well today I feel like I don't have enough time to get done what I need to get done because I'm a youth leader as well as a student and substitute teacher and my brother recently had a seizure so he can't drive for six months, he's fine and it's nothing bad, but he can't go anywhere so I have to take him. I'm here until whenever we finish, and then I leave here and I drive 45 minutes home and then I have to take him to the gym and pick him back up and then I have to go and I have to clean out my car because the lady is coming to ride with me and I have to take her somewhere and meet her to talk about youth things and then I have to go to church and actually do youth things, and then I have to come home and do my homework and then start all over again subbing tomorrow. So it's just like (sigh). It's a lot…. I just feel like I just want to sit down and close my eyes and take a breath.

E felt as though this was a case of objective time scarcity, where she had a set of tasks to complete, and just barely enough time to get them done. However, to other respondents, this example was a case of subjective time scarcity; E had taken on more than she needed to, including inessential tasks. Many participants felt that this was the case in many instances of time scarcity, where "a lot of people bite off more than they can chew." (O). Moreover, respondents felt people experienced time scarcity as a result of poor time management. C explained this position:

> I mean ultimately everyone's given the same amount of time in a day and if you're a good manager of your time and you spread things out the right way, and not cramming things that have a deadline all into one time or one day [you won't experience time scarcity].

That being said, even participants who stated that time scarcity was the result of poor management and taking on too much, did admit to experiencing subjective forms of time scarcity themselves, sometimes because of unforeseen things coming up that they could not plan for:

> I've experienced [time scarcity]. I'm pretty sure everybody's experienced it because not everybody's that great at time [management]. And there are new things that pop up while you're doing something else so you can't really expect it. (1010)

Nonetheless, as can be inferred from the previous sections discussing the experience of time scarcity in various life domains, and the stress and emotional responses that may result from both forms of time scarcity, negative consequences may result from experiences of time scarcity that fall anywhere on the objective/subjective continuum.

Psychological Resource Scarcity

Psychological resource scarcity is generally defined as not having enough psychological or mental resources to meet your needs. Though only two respondents offered examples of psychological resources scarcity when asked about scarcity in general, all respondents were able to identify instances when they or someone they knew experienced a form of psychological resource scarcity when asked about it specifically. Respondents endorsed four areas of psychological resource scarcity: emotional resources, knowledge, self-efficacy, and social resources.

Emotional Resources

Some respondents felt as though they did not have as much control or access to their emotions as they would like. This manifested itself in a variety of ways that included feeling depressed, anxious and apathetic. F explained that she felt like she did not respond appropriately to life events in the way she wanted to and she was not entirely sure why. Her inability to connect with her emotions in the way she wanted caused her some distress, as can be seen in her description of this experience:

> Like I guess in brief instances, like if someone dies, I have a tendency to get really apathetic. Just like I can't connect to my emotions because some sort of defense mechanisms has kicked in so I'm like protecting myself from being hurt so therefore I can't feel anything. And there's also the same feeling when I had a really bad, well it wasn't a really bad break-up, but I was in a four year relationship and I ended it because I was going to be happier. And I had like zero

> remorse afterwards- it was all about me and that was the reason I did it, but I felt so bad and so guilty for my partner who was visibly sick, like she was sick for like two or three weeks and we were still living together and I really had to take care of her. And it was really hard for me because I couldn't connect emotionally the way I wished that I could have. That was ridiculously hard to deal with, the fact that I couldn't control what I felt and I didn't have those emotional resources.

Though this respondent was not experiencing negative affect, not being able to feel the appropriate emotions disturbed her.

Knowledge

A large number of respondents felt that increased access to technology filled many of the gaps in knowledge they may experience; if they came across something they did not know, they felt confident that they could either look it up or ask the appropriate person for the necessary information. However, a few participants stated that there were times when they felt they did not have enough knowledge about a particular topic to fulfill their needs. F explained how she experienced scarcity of knowledge in some of her more advanced classes and described the feeling:

> When you don't have enough content knowledge to feel adequate, like to feel like you can do whatever it is that you need to do, especially in class … If someone asks you to do something and you don't know what it is, like it makes you feel- like you'd have that same reaction as if like, well I don't have enough food to eat.

To this participant, lacking in knowledge was as real an experience of scarcity as not having enough of a material resource.

In addition, some respondents were able to identify areas in which they or people they knew lacked knowledge that greatly impacted how they lived or behaved. For example, B discussed her parents' lack of knowledge about nutrition:

> Reflecting back on my childhood as an adult I do, and something that is very much an issue for me now, is that I do believe there was a scarcity of nutrition of what I was being fed and that wasn't because my parents didn't care. It was just a lack of understanding about what you need to eat to be healthy… [My mother]

> felt she was feeding me well. She did not realize that not feeding getting nutritious food in me and giving me high saturated fat, chemical laden food might cause health problems for me later in life.

B felt as though her parents did not realize that TV dinners and not eating enough nutrient dense foods was unhealthy, and this resulted in her eating less nutritious foods as a child.

Some respondents experienced times in their lives when not having enough information about how to do something interfered or delayed their ability to complete tasks or achieve certain goals. Y felt that he lacked an understanding of how graduate programs worked in the United States and the process of getting this information delayed his enrollment in a PhD program by a significant amount of time:

> When I was trying to find a school here I did know how PhD programs worked here because back home in my country there [is a] lack of support with funding for PhD programs and … I was doing research and I understood that there are some private universities that don't have funding and public universities that do give funding and what requirements I needed to satisfy to get it done. And it took about 2 years for me to find out everything about my program and finally join the program. And after I joined the program I was at some point … I was upset because I couldn't do it before.

Though Y was eventually able to figure out how to both apply and fund his doctoral degree program, he felt that he would have been farther along in his career goals if he had not had to spend two years just researching how PhD programs worked.

Respondents also acknowledged that individuals may lack knowledge about life skills and what could be considered moral behavior. O explained that problematic behavior may result from children not being taught appropriate lessons. That is, this behavior is the direct result of not knowing right from wrong:

> I think of … what kids are taught growing up which leads to how [they] form their thought process…If somebody's growing up not learning something, like it's not ok to steal, then they're gonna steal later… its things that are missing in the development and things that are missing in what you know to be true.

Self-Efficacy

A more common form of psychological resource scarcity that participants endorsed was a lack self-efficacy, that is, a lack of confidence in their ability to complete certain tasks (Bandura, 1997). C stated that psychological scarcity may feel like a general "mistrust within yourself as far as what you know, what you can accomplish, what you're capable of knowing, learning, doing." For example, some participants felt that while technology had put everything they could possible need to know at their fingertips, they may lack expertise or a complete understanding of any given topic. B spoke of this lack of skill:

> We're in the age of technology where you can Google how to do anything and you can look at videos of how to do anything… But what people lack, because we're this jack-of all-trades generation, we can figure out how to do anything; it's the skill that ends up being something that might be scarce. So anybody can figure out how to do anything, but are they skilled enough to do it well?

This lack of confidence in ability is seen as something distinct from knowledge levels, as some participants felt they had adequate knowledge about various subject matters, but they lacked practical skills that would allow them to act on the knowledge they have. U spoke of his personal experience with this form of scarcity:

> It's made me feel uncomfortable at times. I'm an engineering major and I don't have all that much experience building things and lots of my classmates do and I guess I feel inadequate at times when I don't have the intuition that they do about the way things work…It makes me feel like I'm just sort of the book smart-type person and I can't really do anything in the real world. And that's partly just an internal standard but also from the way some people who have those skills tend to talk. They're kind of cynical about people who are good in academia but not good in the real world so to speak. So I think that has affected me some.

This feeling of inadequacy when comparing themselves to colleagues was echoed in T, who felt that her coworkers were much better at their job than she was because of their greater work experience in their field:

> The two ladies that I work with, their background and their history is more in the accounting and banking and me, mine has been more limited. They've always done it throughout their lives and their work history. I just have limited, just here and there I picked up bits and pieces, and this is the most in accounting that I've done, on this job, I've been in it for three years now. I don't see that I measure up to them. They're like the two talls and I'm the shorty. And I feel like that's how I'm projected or viewed, you know, in that way…I feel quite inadequate… They're so beyond me and I'm still grateful to get any morsel I can.

Despite three years of experience and doing well in her current position, this respondent still felt like she was not up to par with her coworkers and never would be. In comparing herself to her coworkers, T felt like she was lacking in skill and experience to excel at her job.

Social Resources

Respondents recognized the importance of social support and that a lack of social support could lead to feelings of scarcity, perhaps because, as U put it, "there's not much of a point to life unless you're happy and feeling connections to people." This was true when discussing having enough meaningful relationships in their lives, and both instrumental and emotional types of social support. Respondents felt that not having enough meaningful relationships and not being able to be with those that mattered most to them left them feeling a sense of lacking. C described what it was like for her to go from being in a situation where she was with a lot of friends to another situation where she was left with a sense of isolation:

> I dealt with that coming from high school to college. I had a really big group of friends in high school…and then I went to college and it died. Like I had nothing and no one. And of course I made friends along the way but it was never like the way it was. And I struggled internally with that for a very, very long time. You know, you just start to feel alone, you start to feel like nobody cares or that people don't care enough about friendships.

This sense of social scarcity was made worse for participants who were away from loved ones when seeing other people with their friends and family, like during the holiday season. Y gave a personal example of this situation:

> I see people staying with their families for big holidays, for instance Thanksgiving and Christmas. Well I always can join them, I have many friends who have invited me to join them, but I see them with their family and friends and I cannot do it myself because at this point I do not have [them with me]. I'm not saying this is the biggest problem long term, but at this point … I don't have closeness to my relatives and siblings.

While physical separation from those participants' cared about was often the reason for this feeling of isolation, this was not always the case. Sometimes respondents felt more of a subjective sense of social resources scarcity, where they lacked significant relationships or people who understood them in their lives. H spoke about how "[she'll] just feel really, really bad, like nobody understands me, I don't have anybody."

Related to this is the sense of scarcity that results from a lack of emotional social support. This could manifest itself as not having people to share their problems or experiences with. S spoke about her mother's experience not having someone to talk to once her grandmother died:

> If you feel like there's no one to call to share something interesting that happened, or if there is someone to call but they could give a hoot about how your day went. I absolutely believe that that could cause a lot of problems for you down the road mentally and emotionally … When my grandma died, my mom felt like the little things that were happening with her life, there was no one to call and share that with. For instance if she was walking through the grocery store and saw a really cool item in the bakery or something, she normally would have called my grandma and been like, 'Hey, mom, there's this really awesome- doesn't that sound delicious?' or "Hey, I saw a really cool bird on my patio.' She would call her and then when she passed away that was gone, the little things that she wanted to share with someone, someone who cared was gone.

In additional to scarcity resulting from a lack of emotional social support, respondents also felt that psychological resources scarcity could result from a lack of instrumental social support. U worried that he may lack instrumental social support:

> If I was in a situation where I couldn't hold a job or financially support myself would I have enough people who would get me through that by giving me a place to live or feeding me?

Though he was currently able to meet his needs, this respondent worried that he lacked sufficient instrumental social support if he were suddenly unable to support himself.

Objective and Subjective Forms of Psychological Resource Scarcity

Though not as pronounced as in material and time scarcity, respondents did give some support for the existence of objective and subjective forms of psychological resources scarcity. Objective forms of scarcity can be seen in the earlier examples presented in which respondents didn't have enough content knowledge about a course they were taking (F) and lacked social resources after moving away from friends or losing a loved one (C).

Participants also endorsed subjective forms of psychological scarcity. For example, when discussing social resources, some respondents felt like they did not have enough meaningful relationships in their lives, even though they actually had enough social support when they needed it, as is the case with U:

> I think I've felt like I didn't have enough relationships, close relationships, and really that's probably never been true, but it is a psychological thing. Just feeling like I didn't have enough people that I could share my problems with, I've felt that before.

This reflects the subjective nature of social resources scarcity because even though he actually had enough people in his life to go to when he needed to, there were times when this respondent felt that he did not have that support. Similar examples exist

for scarcity of skills, as participants stated that they felt inadequate or less competent (i.e. lacked skill) in their ability to complete certain tasks when compared to their peers, even though they were successful at their jobs.

Physical Health Scarcity

One respondent offered the notion of physical health scarcity as a dimension of scarcity. After being diagnosed with an illness during adolescence, this participant experienced "times when I was just in situations where I couldn't do things physically because I was sick from treatment or because of disability." The sense of scarcity experienced as a result of his physical ability ranged from extremely debilitating, in the sense that it affected his ability to engage in everyday, normal life activities:

> I was in a lot of chronic pain because of my cancer. I was having to do so much physical therapy to reduce the pain that if I wouldn't have had the support of my family financially and otherwise, I would not have been able to survive, not necessarily stop living but go to school or do anything to help myself out of my situation because that pain was such a tax on my mental strength and my physical strength.

to more of an emotional sense of loss from not being able to participate in activities he would like to engage:

> I have a hip disability and so I can't run and jump anymore. And so I really, in daily life, I don't think about it at all, but when I'm in a situation where the expectation is that I'm going to be running and jumping, like in a basketball gym or some sort of sports event, or something like that, I really feel different from other people. That's by far the worst part of it … I see what I cannot do, and what I would be able to do if I wasn't disabled.

For this respondent, the inability to engage in both necessary life activities and those that could be considered more leisure stemmed from a lack of physical health. The sense of lacking associated with physical health scarcity is consistent with other dimensions of scarcity.

Relationships Between Dimensions of Scarcity

Though each of the dimensions of scarcity is unique, experiencing scarcity in one domain can lead to the experience of scarcity in other domains. Participants mentioned the relationship between material and time scarcity, material and psychological resources scarcity, time and psychological resource scarcity, and between various dimensions of psychological resource scarcity.

Material Scarcity and Time Scarcity

Many respondents spoke of the relationship between material scarcity and time scarcity, with both the former causing the latter and time scarcity contributing to material scarcity. Participants acknowledged that having limited access to material resources could lead to more time scarcity because more time would have to be spent trying to gain access to necessary resources. U used the following example to explain this point:

> I think somebody in material scarcity … they are having to [scramble] so that they can feed their children or maintain their job or multiple jobs and stuff like that. They just have higher stakes, their scarcity of time is just- the stakes are higher for how they spend their time.

As U points out, not having enough financial resources puts pressure on individuals to use their time to find a way to provide for themselves and their families, thereby limiting the amount of time they have to engage in other activities, like self care and leisure activities.

Respondents did also acknowledge the reverse situation, with time scarcity causing material scarcity. J felt that having too many time commitments was limiting the amount of time she had to work, and was therefore leading to a financial strain:

> If I could work more than 35 hours each week, I might not be seeing the shortages, and I might actually have more money to play with if I could devote more time to work. But because I'm in school, it's either you give more time to

> work and fail your classes or you balance the two so that you can keep them both up and running.

Material and Psychological Resources Scarcity

Respondents also stated that material scarcity could lead to experiences of psychological scarcity in a variety of ways that included higher levels of stress, depressed mood, and increased anxiety. J explained this experience as follows:

> I recall a professor telling me once… that individuals who make more money, they seem more happier, less stressed out, they age slower, and individuals who make less money are always stressing out, their grey hair comes out sooner, their health declines exponentially and it makes sense to me… when you make more money… you're less vulnerable, you're more prepared, you're independent, and in your head you have nothing to worry about, you're relaxed, you can just enjoy your time. Individuals who don't make a lot, I'm sure they have a lot of psychological problems. I've heard that some of them, a large number of individuals who have a low income actually turn to medications because of all the stress and all the fear they have from that.

H shared her own personal experience of negative affect that resulted from financial troubles:

> Sometimes if things would get really bad psychologically then I don't feel like getting out of bed… I feel really bad, like when I didn't have any money, and I felt really bad about it so I was just not doing anything, which was probably the worst thing ever.

However, it is not just material resource scarcity that affects psychological resource scarcity; it is possible that psychological resources can also affect material scarcity. J discussed a recent situation in which a lack of knowledge could have led to material scarcity; however increasing her knowledge of the situation actually prevented her from having to do without the commodity she wanted:

> He [father] always told me, the more you know, the less you pay. In the sense that, for example, I wanted a dog in my apartment, and they were like OK, $300 deposit and $20 a month and you can have a dog… An animal is for fun, but I need that money for myself, it's a waste, so I don't have a dog. But recently I found out if you get a note from your doctor, then they have to legally let you

> have this dog and they cannot charge you the deposit and they can't charge you monthly fees.

By gaining new information about the tenant laws and pet ownership (i.e. psychological resource), this respondent was able to avoid having to pay to have a dog or going without having the pet she desired (i.e. material resource).

Some respondents spoke of material scarcity affecting their ability to socialize and to maintain friendships because spending time with others, especially newer acquaintances and colleagues, requires the financial ability to go out to restaurants or bars, as N explains in the following example:

> Friends will invite me to go out for drinks, or let's hang out after class, go get dinner and sometimes I have to decline. And for me it makes it seem like I don't want to hang out with them but for me I don't want to have to explain to them that I don't have the money to do that but the alternative to that is that they think I don't want to hang out with them because I keep declining.

Instead of being able to accept impromptu invitations to hang out, O felt like "the luxury of going out to eat is something that you have to plan and it might not seem like that, but like if I'm asked, 'do I want to grab a drink?' it's like, 'maybe not tonight'" because of a lack of financial resources.

Time and Psychological Resource Scarcity

Time scarcity can lead to psychological resource scarcity, as a lack of time may prevent individuals from being able to learn everything they need to know and cause increased stress. This relationship may not just occur within the individual experiencing time scarcity, but can also have intergenerational effects, as O points out:

> If you see a kid who you know steals something, like goes into Walmart and swipes a movie or something. I always think like it's not the kid just wanting to steal stuff… I think automatically that there's something that's causing the behavior, whether it's they're bored or … they were never taught that taking something is wrong… If a parent is working three jobs and they have a teenager,

> but they're trying to give the teenager everything they can but they're busy they might miss teaching them that stealing is wrong, or you don't need that movie right away because its gonna be on Netflix next week. I think things cross over a lot and, like if a parent doesn't have time to teach their kid the alphabet, when the kid goes to kindergarten they're not going to know it. And so I think the time scarcity and the mental scarcity can totally cross over.

This example actually highlights the possible relationship between material, time and psychological resources scarcity. Individuals who experience material scarcity may need to work multiple jobs in order to try to provide the basic necessities for themselves and their families; this results in a lack of time for parents to teach their children the information needed to lead socially acceptable lives, such as the difference between right and wrong or the fundamentals of language.

In addition to effecting knowledge, time scarcity may also lead to the experience of social resources scarcity. When individuals lack time, they often cut out what they consider to be non-essential activities, such as spending time with friends and family. Respondent R discussed being too busy to keep in touch with his friends:

> I've missed so many birthdays. I haven't called or Skyped so many friends on birthdays. My best friend, my ex-roommate, I was supposed to call him and then the next morning, I got an email from my advisor that I was supposed to show up to lab and I totally forgot about [the call]. Yeah, I've missed so many things because of time scarcity.

Moreover, this respondent went on to discuss how time scarcity had actually led him to feel like he was a bad friend. He described an instance where he failed to be there for his friend during a distressing time:

> One of my friends, he had seizures and moved in with his parents, and I haven't seen him in two months. He called me twice and I didn't even have time to talk to him. I found out the other day from my other friend that he had all these circumstances and I felt so bad about it. My personal life and my friendships with other people are really affected by time scarcity.

This respondent concluded by stating that his friends had actually "started to keep away from [him]" because of how busy he was. While they understood why he was not spending time with them, they had stopped trying to socialize with him.

Relationships Within Various Components of Psychological Resource Scarcity

Respondents also stated that they thought there was a connection between the different components of psychological resource scarcity, with each affecting the other. For example, K felt that a lack of confidence may prevent individuals from reaching out to others, thereby leading them to feel isolated and lack relationships:

> The idea of a person just sitting alone, really wishing other people would be around them, but not feeling like they're able to do that. What comes to my mind would be the feeling of inadequacy, you're too inadequate to be able to be friends with another person.

It is also possible that experiencing a lack of social resources may lead to emotional resource scarcity. G felt that not having adequate social support could lead to fatigue or depression because:

> If you have an outlet, someone that you can talk to, they can kind of help you deal with the other types of scarcity. But if you have to rely heavily on yourself or solely on yourself for the other types of support, emotional support, you can kind of get in your own way so to speak. You'll overthink things. You'll create problems where there are none. It's almost like a bit of fatigue… Not having enough social support can lead you to think things or create problems in your head that aren't really there or there are viable solutions but you don't really have anyone to bounce your ideas off of or you don't have the mental capability to think outside of your problems or your scarcity or getting other viewpoints about how you can juggle different things.

H felt that a lack of social interactions greatly affected her mood and her ability to be productive:

> If I don't talk to enough people I don't really have a good enough mood and it affects how I want to do my work. Like if I'm not feeling great, I'm like I don't feel like doing anything. But if I'm feeling great, I'll go off and study for like 3 hours or something.

This example alludes to the relationship between all of the different components of psychological resource scarcity, as not having enough social resources led to emotional scarcity, which in turn influenced knowledge level.

Study One Discussion

Seven major themes emerged from the analyses: General Definition of Scarcity, Objective and Subjective Forms of Scarcity, Material Scarcity, Time Scarcity, Psychological Resource Scarcity, Physical Health Scarcity, and Relationships Between Dimensions. These themes do give support for the proposed model; however, some modifications have been made to reflect the data collected. Each theme is reviewed below and any changes to the way the theme was originally conceptualized are discussed. Figure 1 presents of the original version of the model. Figure 2 depicts the revised model.

Previous research has defined scarcity as the feeling of not having enough to meet one's needs (Mullainthan, & Shafir, 2013). Participants' responses did reflect this definition; however more so than a feeling, many participants referred to scarcity as a state of being that went far beyond just their feelings on their experience. The scarcity discussed by participants reflected not just their feelings about it, but rather described what they were actually experiencing; individuals do not just feel scarcity, they are scarce. As for what brought about the experience of scarcity, it was not only the lack of resources, but also having less of a resource than one perceives to be necessary or having a version of the resource in a form the participant thought to be adequate.

The interpretation of what exactly is necessary and the assessment of adequacy of resources lends itself to the second theme: objective and subjective forms of scarcity. Many respondents recognized that there was a difference between actual, universal needs

(i.e. objective) and the feelings of need that may be more individual-specific (i.e. subjective). In addition, participants acknowledged they experienced both times when they actually lacked a resource (i.e. objective scarcity) and other times when they felt like they didn't have enough of a resource (i.e. subjective scarcity). This supports the hypothesis that there are objective and subjective components to scarcity. Moreover, there is some evidence for objective and subjective components within each domain of scarcity.

While respondents were quick to state that objective and subjective forms of scarcity existed, they were not always able to distinguish between the two. Extreme cases may be easy to categorize as either objective or subjective in nature, but there seems to be some difficulty when it comes to other examples. For instance, one respondent was unable to determine whether access to technology was an actual necessity or merely something she depended on, but could live without if she had to (C). During her reflection on this topic, she also acknowledged that how necessary technology was to an individual would be dependent on the society in which he or she lived. Thus, rather than seeing instances of scarcity dichotomously, as either objective or subjective, it may be more accurate to see each experience as falling somewhere on a continuum between objective and subjective forms of scarcity. Furthermore, where that experience falls on the continuum may be individual or society specific.

It may also be possible that rather than instances of scarcity falling on an objective/subjective continuum, experiences of scarcity may be represented on two separate dimensions: an objective and subjective one. For example, not having enough food to survive may be high on the objective scarcity dimension and low on the

subjective dimension, whereas not having enough nutritious food may be medium on the objective dimension and high on the subjective dimension. Each instance of scarcity may be both objective and subjective to various degrees independent of their rating on the other dimension.

Even more difficult for some respondents to decide upon was whether objective and subjective experiences of scarcity felt the same to those going through it. While some respondents felt that objective forms of scarcity must feel more serious and cause more stress to the person going through it, many respondents felt that it probably would feel the same, though they could not be sure. For the latter respondents, "scarcity is scarcity" and the experience of objective or subjective forms of scarcity will result in the same feeling of "lacking." This suggests the possibility of another alternative for conceptualizing the objective and subjective aspects of scarcity using the stress response model (Lazarus and Folkman, 1984). Using this line of thought, scarcity of a resource is an objective stressor, and it is one's response to this stressor that is subjective, in that responses to the instance of scarcity will depend on one's individual appraisal of the situation. Therefore, the actual scarcity of resources is objective, but individuals' experiences of scarcity are subjective.

Material scarcity was most often the kind of scarcity discussed by participants. Participants' sense of material scarcity not only resulted from not having the basic necessities most would agree are vital to survival (e.g. food, shelter, clothing), but also from not having these things in the quantity or state they required. This is different from the proposed model in that the five areas of material scarcity included did not account for the additional resources participants felt were necessary for the pursuit of normal life

activities and the quality of those resources. Though few participants actually lacked the resources they felt were necessary for survival, many did endorse the feeling of material scarcity because they lacked a certain quality of life that included resources that would make their lives more comfortable.

It is interesting to note that quite a few respondents recognized that much of the material scarcity experienced by themselves or others in society was the result of living in a capitalistic society. They blamed advertisers for making people feel like they needed "more" to feel complete. However, these respondents did state that while they thought the majority of scarcity experienced in American society reflected a lack of wants rather than needs, the feeling of scarcity associated with this experience was real.

After material scarcity, respondents brought up time scarcity most often when describing their experiences of scarcity. The experiences of time scarcity reflected those in past research that found that an increased work demand left individuals with less time to tend to their personal lives (Jabs & Devine, 2006; Strazdinz et al., 2011). While some respondents felt that time scarcity may not actually be real- that it was the result of poor time management or choosing to take on more than they had time to complete- all respondents could think of at least one instance in which they did not have enough time to complete everything they needed or wanted to get done. This disconnect between feeling like time scarcity is not real and then going on to describe examples of time scarcity in their own lives may reflect a worldview in which some basic human needs like leisure and discretionary time are not viewed as necessary. It is also possible that this view is a result of this study's sample characteristics; few participants had children or other family members they had to care for, making family life demands minimal. It is

possible that a sample with increased family life demands may have endorsed higher rates of objective time scarcity. As Zukewich (1998) notes, parenthood places increased demands on individuals, so that parents must not only meet their own personal and professional responsibilities, but must also tend to the needs of their children (e.g. feeding, bathing, transporting, etc.). Many caregiver duties are necessary, and therefore those with family life demands are more likely to experience objective time scarcity because there are more tasks they must accomplish.

Participants endorsed psychological resource scarcity, though not necessarily in the way initially proposed. For one, participants did not mention cognitive ability scarcity. It is possible that participants were not aware of a deficit in this area (i.e. "you don't know what you don't know"), and so did not feel as though cognitive ability scarcity was an issue for them. Moreover, interview questions did not specifically probe into cognitive ability. As for knowledge, many respondents did state that there were times when they had less knowledge than they needed or would like; however technological advances have made it easier for individuals to look up anything they might need to, thereby eliminating the perception of scarcity associated with a lack of knowledge.

Though participants did not directly mention self-esteem and perceived control, a few did speak about a lack of self-efficacy, insomuch that they lacked confidence in their skills and felt like they did not measure up to their colleagues. As is consistent with the literature on skill acquisition and skilled performance (Proctor & Dutta, 1995), participants were able to distinguish between knowing how to complete a task and successfully (and skillfully) being able to complete that task. In this sample, participants experienced psychological scarcity when they considered the latter. Finally, one

respondent spoke of her inability to feel the appropriate emotions at time, suggesting a lack of emotional regulation. These examples reflect a sense of lacking in intrapersonal skills.

Many respondents mentioned the importance of social support when discussing psychological resources scarcity. Though few felt that they themselves experienced a lack of social support, they did acknowledge the role it had played in their lives and could see how not having that support could result in the experience of scarcity. This was true for both instrumental and emotional forms of social support.

Only one additional dimension of scarcity was experienced by participants: physical health scarcity. Though physical health scarcity was only discussed by one participant, there was sufficient evidence from his interview to include this dimension as a possible component of scarcity in the edited model (see Figure 2 in Appendix A). When asked what he had experienced in terms of scarcity, this respondent volunteered that his physical health prevented him from engaging in certain activities, and this resulted in a sense of lacking (i.e. scarcity). Moreover, in member checks, many participants were receptive to the notion of physical health and ability as a possible dimension of scarcity. It is possible that the lack of additional support for this dimension is a result of the good health and relatively young age of the sample used in this study.

It is worth noting that social comparisons (Festinger, 1954), both upward and downward (Latane, 1966), often played a role in whether participants endorsed experiencing scarcity. For example, one respondent (N) felt that she experienced material scarcity when she compared herself to others, since she did not have the nice house or fancy cars that her friends had. Though N may have had enough to meet her needs,

upward comparisons with friends who were farther along in their careers left her feeling a sense of scarcity. On the other hand, downward comparisons helped other respondents avoid the experience of scarcity. For example, V compared herself and most Americans to those living in developing countries who face extreme poverty. This resulted in her stating that objective material scarcity did not or very rarely existed in America.

Results from this study suggest that experiencing scarcity in one domain may lead to scarcity in other domains. There is some evidence for the relationships between material scarcity and time scarcity in the literature (Jabs & Devine, 2006; Strazdinz et al., 2011); however respondents were able to identify relationships between almost all of the other domains (the relationship between physical health scarcity and the other domains was not mentioned). This aspect of the model is important to highlight, as future research examining both the causes of scarcity and ways to address scarcity will need to examine scarcity itself as a contributor to further scarcity.

CHAPTER 4: STUDY TWO METHODS

The purpose of Study 2 was to empirically validate the dimensions of scarcity by developing and evaluating a series of items measuring scarcity. This study used the standard process of scale development (DeVellis, 2003) to generate an initial item pool, conduct item review and content validation by subject matter experts, and pilot the items in a general U.S. population sample.

Step 1: Item Development and Evaluation

Fifty-four items were developed based upon the results that emerged from Study 1. Items were created to represent the construct definition of each of the four domains that emerged by using the most commonly mentioned and most relevant themes from the data. In order to do this, the coded interviews were reviewed, and representative quotes were grouped by theme and subtheme. Twenty items were generated to represent material scarcity; 15 items were generated to represent time scarcity; 10 items were generated to represent psychological resource scarcity; and nine items were generated to represent physical health scarcity. An Internet search was conducted to ensure each item generated did not already belong to an existing measure.

The first step in the formal evaluation of items was to submit these items to a content review by subject matter experts (SME's; see Appendix C for a copy of the content evaluation form). The form included working definitions of scarcity and the dimensions of scarcity in addition to the 54 items that were being evaluated. Since only

two of the four dimensions that emerged from Study 1 were previously established in the literature as being components of scarcity (material scarcity and time scarcity), SME's (N = 11) were asked to evaluate the dimensions of scarcity developed in Study 1 prior to evaluating the items themselves. Specifically, they were asked to read the definition and description of each of the constructs, and then rate the relevancy of each potential dimension to determine the extent to which the four dimensions were significant to the overall experience of scarcity.

Next the SME's were asked to determine the items that reflected each dimension best and to rate the relevance of each item to the construct using a three-point scale (*0 = Irrelevant, 1 = Partially Relevant, 2 = Relevant*). In addition, experts were asked to rate each item as assessing either objective or subjective components of scarcity. However, the first three experts to complete the form expressed difficulty when trying to determine whether the items assessed objective or subjective aspects of scarcity and this resulted in many items being ranked as neither or both objective and subjective; therefore, this portion of the task was eliminated in subsequent SME evaluation forms.

Next, experts were asked to examine the items one last time for redundancy, clarity of wording, balance between positively and negatively worded items, and item time frame. At this time, SME's were also provided with the opportunity to comment on any of the items or to include suggestions for additional items. Finally, experts reviewed the instructions and response formatting for suitability and clarity.

Results from the item evaluation phase of the study can be found in Table 4 of Appendix B. Overall, 47 of the 54 items were rated as relevant (i.e. average rating ≥ 1.5). Dimensions and items that were consistently scored as irrelevant (i.e., average rating of

< 1.5; “partially relevant” or lower) or identified as unclear were removed. The physical health dimension of scarcity was rated as irrelevant (M = 1.45); as such all items measuring this component were removed (items: 43, 44, 46, 48, 49, 50, 51, 52, & 53). In addition, five items were rated as irrelevant (items: 41, M = 1.18; 42, M = 1.45; 45, M = 1.27; 47, M = 1.45; & 54, M = 1.45) and also removed from further analysis. No items were added to the scale and no edits were made to the remaining questions based on evaluator comments. This resulted in 40 items being assessed in the item testing stage of Study 2.

Step 2: Item Testing

Procedure

The remaining 40 items were empirically examined in a pilot study to validate findings from the qualitative data collected in Study 1. The study was posted onto MTurk, an online participant recruitment site/crowdsourcing Internet marketplace available to registered participants worldwide. Participants who met eligibility requirements were directed to the study’s online informed consent document. Participants who agreed to participate in the study were then directed to the on-line survey. Demographic and additional questionnaires were administered after the set of items being tested in order to avoid priming effects. After participants submitted the survey, they were directed to a short debriefing and thank you page. Participants were also given a survey code on the thank you page to enter into MTurk to receive their reimbursement for participation using the study’s account.

Once all data were collected, the data were downloaded onto the principal investigator’s computer. All data were imported in SPSS version 21. Before analysis on

the data, all data were cleaned, negatively worded items were reverse coded, and individual scales were mean-scored.

Participants

The pool of items was piloted using a national sample of participants recruited through Amazon MTurk. Data collection though MTurk recruitment has been demonstrated to collect nationally representative samples comparable to data collection using other online recruitment strategies (Buhrmester, Kwang, & Gosling, 2011). Participants were eligible for the study if they were 18 years of age or older, could read and undertand English, and lived in the United States. A total of 234 participants began the survey. Of those, 31 were excluded because they did not complete the survey. This resulted in the inclusion of 203 participants in the study. Participants were prodominantly European American (N = 174, 86%), and fifty-nine percent of particpants were female (N = 120, 59%). The majority of participants had at least some college education (some college = 64, 32%; 2-year degree = 28, 14%; 4-year degree = 63, 31%). The most common occupation industries for participants were Office/Administrative (N= 51, 25%), Service (N = 44, 22%) and Professional (N = 43, 21%). Household income ranged from less than $10,000 to over $150,000, with the majority of incomes falling between $30,000 to $75,000. Full demographic information for participants can be found in Table 5 of Appendix B

Materials

In addition to the scarcity scale (see below), several additional questionnaires were included in the study to provide convergent and discriminant validity evidence for the scale. Measures of material hardship, subjective social status, income and education

were included to assess convergent validity of the material scarcity subscale. Specifically, a time crunch questionnaire was included to assess convergent validity with the time scarcity subscale. Income and subjective social status were also expected to be negatively associated with time scarcity, although to a lesser degree than material scarcity. Measures of social support, self-esteem, personal achievement and interpersonal relations were included to assess convergent validity with the psychological resource scarcity subscale. Once again, subjective social status and income were also expected to be negatively associated with psychological resource scarcity, but to a lesser degree than material scarcity. Finally, the Marlowe-Crowne Social Desirability Scale was included in the scale to assess discriminant validity with each of the subscales. A copy of each of the questionnaires is included in Appendix C.

Scarcity Scale. Participants were asked to respond to the 40 items carried forward from the SME review. The following instructions were provided: "Please choose the response that best corresponds with how much you agree or disagree with each statement." The response scale was a 5-point Likert scale ranging from -2 to 2 (-2 Strongly disagree, -1 – Disagree, 0 Neither Agree or Disagree, 1 – Agree, 2 – Strongly agree).

Demographics. Participants were asked to fill out a brief demographic questionnaire assessing age, race/ethnicity, gender, marital/partnered status, annual income, education level, occupation, and some indicators of childhood SES.

MacArthur Scale of Subjective Social Status. The *MacArthur Scale of Subjective Social Status* (Adler & Stewart, 2007) was administered in this study. This scale consisted of two items in which participants are asked to indicate their placement on a

ten-rung ladder relative to American society as a whole (distal comparison), and relative to their community (proximal comparison).

Material Hardship Questionnaire. The material hardship questionnaire included items that were based on the questions included in the Poverty Tracker- Monitoring Poverty and Well-Being in NYC Report (Wimer et al., 2014). The nine items ask subjects whether they've experienced hardship in 5 categories: Food, Housing, Utilities, Medical and General Financial Difficulties. Examples of questions include: "*Does your household generally have enough food to eat?*," "*Were you unable to pay gas, electric or phone bills?*," and "*How often had you run out of money between income cycles?*" Possible responses were either "*Yes/No*" or "*Almost always, Often, Sometimes, Rarely, Almost never*." Cronbach's alpha for the scale in the present sample was $\alpha = .81$.

Time Crunch Questionnaire. Ten items included in Zukewich's (1998) study on time scarcity were used. The ten items ask subjects whether they've experienced a time crunch or felt rushed (e.g. "*When you need more time, do you tend to cut back on your sleep?,*" "*How often do you feel rushed?*"). Possible responses are either "*Yes/No*" or "*A few times a week, About once a week, About once a month, Less than once a month, Never*." Cronbach's alpha for the scale in the present sample was $\alpha = .81$.

Interpersonal Support Evaluation List- Short Form. The Interpersonal Support Evaluation List- Short Form (Cohen, Mermelstein, Kamarck, & Hoberman, 1985) is a 12-item measure of perceptions of social support. This questionnaire has three different subscales designed to measure three dimensions of perceived social support: appraisal support, belonging support, and tangible support. Each dimension is measured by 4 items on a 4-point Likert scale ranging from "*Definitely True*" to "*Definitely False.*" Sample

items include: "*I feel that there is no one I can share my most private worries and fears with,*" "*If I wanted to go on a trip for a day (for example, to the country or mountains), I would have a hard time finding someone to go with me*," and "*If I were sick, I could easily find someone to help me with my daily chores.*" Cronbach's alpha for the entire scale in the present sample was α = .93.

Rosenburg Self-Esteem Scale. The Rosenburg Self-Esteem Scale (Rosenburg, 1965) is a 10-item scale that measures global self-worth, including both positive and negative feelings about the self. All items are answered using a 4-point Likert scale ranging from "*Strongly Agree*" to "*Strongly Disagree.*" Sample items include: "*On the whole, I am satisfied with myself*" and "*I feel that I have a number of good qualities.*" Cronbach's alpha for the scale in the present sample was α = .94.

The Spheres of Control-3. The Spheres of Control-3 (Paulhus & Van Selst, 1990) is a multidimensional 30-item scale that assesses three components of control: *personal achievement, interpersonal relations,* and the *socio-political world*. Each component is measured thru a separate subscale. The personal achievement and interpersonal relations subscales were used in this study. All items were answered on a 7-point Likert scale ranging from "*Disagree*" to "*Agree.*" The rationale is that individuals' sense of control can be similar or can differ across domains. Sample items include: "*I can usually achieve what I want if I work hard for it*," and "*In my personal relationships, the other person usually has more control than I do*." Cronbach's alpha for the personal achievement subscale was α = .86, and α = .89 for the interpersonal relation subscale in this study.

Marlowe-Crowne Social Desirability Scale. Social desirability was measured using the Marlowe Crowne Social Desirability Scale – 10 item (Crowne & Marlowe,

1960). Participants were asked to agree or disagree with a series of true/false statements that reflect common but undesirable behaviors (e.g., I sometimes feel resentful when I don't get my way) or uncommon but desirable behaviors (e.g., no matter who I am talking to, I am always a good listener). Higher scores indictate greater social desirability. The 10 item scale has been found to be a reliable and valid alternative to the full 33 item scale (Reynolds, 1982) and is frequently used to assess divergent validity in questionnaire development studies. Cronbach's alpha for the scale in the present study was $\alpha = .78$.

CHAPTER 5: STUDY TWO RESULTS AND DISCUSSION

Results

Item Endorsement Rates and Item Variability

Item level descriptive statistics were evaluated first to determine whether each item shows appropriate endorsement rates and sufficient variance (DeVellis, 2003). Means were computed for each scarcity item to evaluate item endorsement rates, as this provides information on how the sample as a whole responded to the items. It is preferable for the means of each of the items to fall near the middle of the response scale (i.e. between -1 and 1 on this scale). Means near extreme anchors of the response scale suggest that the items suffer from floor effects (i.e. there are lower limits to the data values the scale can reliably specify) and/or ceiling effects (i.e. there are upper limits to the data values the scale can reliably specify). This results in the item failing to detect certain values of the construct (DeVellis, 2003). Item variability was assessed using standard deviations in order to determine whether the item could sufficiently capture differences between individuals. Reasonably sized standard deviations (in this scale, $\geq .8$ considering the 5-point response scale) signaled good variability. Small standard deviations indicated that participants generally responded the same way to the item and suggest that the item is not sensitive to differences between respondents with varying levels of scarcity.

The majority of items had moderate means (see Table 6 in Appendix B). However, four items (23, 24, 34, and 40) had means below -1, indicating that on average participants reported less scarcity on those items. Only one of the four items with extreme means also yielded a lower variability; therefore this item was deleted from further analysis (item 23: "*I have access to all the technology I need (computers, phones, internet, etc.)*.").

Exploratory Factor Analysis

An exploratory factor analysis (EFA) using maximum likelihood extraction with oblique rotation was effected on the remaining 39 scarcity items. EFA was used to examine the factor structure underlying the items, as well as to assess the degree to which the items load on common factors. Although it was hypothesized that scarcity would be comprised of multiple components (i.e. time scarcity, material scarcity, etc.), it is possible that scarcity may be unidimensional. Thus, an EFA was conducted to empirically assess the likely number of factors defined by the set of 39 items.

Seven eigenvalues above 1.0 emerged. Based on the Kaiser rule, this would suggest a maximum of seven factors were possible. Three factors were required to account for at least 50% of the total item variance, suggesting that a minimum of three factors may be required. The scree plot demonstrated an "elbow" after the second and fourth factor, also suggesting that a two, three, or four-factor structure may be appropriate.

Based on these considerations, as well as the conceptualizations of scarcity that emerged from Study 1, two EFA's were conducted, one specifying three factors and one specifying four factors, and compared. The four-factor model failed to demonstrate a

reasonable solution; namely, this model did not yield distinct factors with items that aligned conceptually. In addition, there were a large number of cross-loadings and items that did not load on any of the factors; therefore this model was rejected on the basis that a simple structure could not be achieved.

The three-factor model was determined to be the most empirically sound and conceptually meaningful model (see Table 6 in Appendix B). Examination of the items that loaded on Factor 1 (items 6, 11, 13, 15, 16, 18, 25, 26, 32, 36, 37, 38, and 40) reflect the common theme of *time scarcity;* the items that loaded on Factor 2 (items 3, 9, 10, 14, 20, 21, 27, 28, 31, and 39) reflect the common theme of *psychological resource scarcity;* and the items that loaded on Factor 3 (items 1, 2, 4, 5, 7, 8, 12, 17, 19, 22, 24, 29, 30, 33, 34 and 35) reflect the common theme of *material scarcity.* Unlike the four-factor model, there were only two cross-loadings (items 19 and 37), and only two items loaded on a factor that did not conceptually fit (items 1 & 21). Item 1 was rated as psychological resource scarcity by the SME's, but loaded on the material scarcity factor. Item 21 was rated as material scarcity, but loaded on the psychological resource scarcity factor. As such, items 1 and 21 were removed from the scale. All of the other scarcity items that were rated as material scarcity or psychological resource scarcity loaded on the appropriate factor. All of the items that were rated by the SME's as time scarcity loaded on the time scarcity factor. Though item 37 did load on both Factors 1 and 2, it had a higher loading on the time scarcity dimension, which fit conceptually. In addition, though item 19 did load on both Factors 1 and 3, it had a higher loading on the material scarcity dimension, which also fit conceptually. Therefore, both items were retained.

Having removed some items, the three-factor EFA was re-run with the remaining set of items to check the final fit of the model and the factor loadings were examined to determine which items would be included on the final measure. Though items 19 and 37 still cross-loaded, they were retained because their primary loadings were on the conceptually correct factors. See Table 7 in Appendix B for EFA results with retained items for the final version of the scarcity scale.

Item Discrimination and Internal Reliability

Once the final set of items was determined, item discrimination and internal consistency of the total and subscales were assessed. Item discrimination examines how well each item can differentiate between individuals with different levels of the construct by correlating the item with the total score of all other items on the scale (Crocker & Algina, 1986). Internal consistency was estimated using Cronbach's Alpha, which measures the degree to which the sets of items are homogenous (i.e., measure the same sources of variance).

Corrected item-total correlations were computed for both the entire scale and for each of the subscales (see Table 7 in Appendix B). Item-total correlations for the entire scale ranged from .38 to .73. For each of the subscales, item-total correlations ranged from: .53 to .78 for the time scarcity subscale, .51 to .76 for the psychological resource scarcity scale and .40 to .72 for the material scarcity subscale. Typically, item-total correlations should be greater than or equal to .20; therefore all items met the minimum criteria for adequate item discrimination.

Internal consistency reliability estimates for the entire scale and subscales were computed using Cronbach's alpha. The Alpha coefficient for the entire scale was $\alpha = .94$.

Internal consistency for each of the subscales was: time scarcity $\alpha = .93$, psychological resource scarcity $\alpha = .88$, and material scarcity $\alpha = .89$. All of these values are indications that the scales are sufficiently homogeneous; for example 94% of variance displayed by the entire set of items is stable enough to be assessed by all items and only 6% of the total score variance is due to unique item specific variance.

Convergent and Discriminate Validity

Finally, correlations between the new scarcity scales and existing measures were examined to begin to evaluate convergent validity for the scarcity subscales (see Table 8 in Appendix B). Correlations between the full scale and the subscales were high (time scarcity $r = .87$, $p < .01$; psychological resource scarcity $r = .70$, $p < .01$; material scarcity $r = .88$, $p < .01$), and between each of the subscales were medium to high (r's range from .47 to .61). This is consistent with the conceptual model developed in Study 1.

In addition, correlations between each of the subscales and corresponding measures included for convergent validity were appropriate. Material scarcity was strongly correlated with the material hardship scale ($r = .82$, $p < .01$), indicating strong convergent validity. In addition, material scarcity correlated negatively with distal SSS ($r = -.51$, $p < .01$), proximal SSS ($r = -.40$, $p < .01$), income ($r = -.48$, $p < .01$), and education ($r = -.19$, $p < .01$). These predictive relations support construct validity inferences, as the literature supports a relationship between material scarcity and measures of both subjective and objective SES (i.e. SSS, income, and education).

Time scarcity and time crunch were strongly associated ($r = .79$, $p < .01$), indicating strong convergent validity. However the associations between time scarcity and distal SSS ($r = -.29$, $p < .01$), proximal SSS ($r = -.21$, $p < .01$), and income ($r = -.18$,

p = .01) were small. Despite small effect sizes, these correlations do support construct validity inferences, since time scarcity was expected to negatively correlate with SSS rankings and income.

Psychological resource scarcity was strongly correlated with social support (r = -.79, p < .01), moderately correlated with self-esteem (r = -.64, p < .01) and personal achievement (r = -.68, p < .01), and moderately to strongly correlated to interpersonal relations (r = -.71, p < .01). These results indicate strong convergent validity for this subscale. The relationships between psychological resource scarcity and distal SSS (r = -.37, p < .01), proximal SSS (r = -.38, p < .01), and income (r = -.42, p = .01) were moderate. Construct validity inferences are supported by these relationships because the literature supports a negative relationship between psychological resource scarcity, and SSS and income. Education level was not associated with either time scarcity (r = .05, n.s.) or psychological resource scarcity (r = -.08, n.s.).

Finally, none of the subscales were associated with scores on the Marlowe Crowne Scale of Social Desirability. This indicates that the scarcity items are not highly susceptible to response bias due to impression management. This provides some initial evidence of discriminant validity for the scarcity scale.

Discussion

The purpose of Study 2 was to develop a scale to validly measure scarcity. First, fifty-four items were developed to represent the four dimensions of scarcity that emerged from Study 1. Subject matter experts reviewed and rated both the dimensions of scarcity and the generated items. Three of the four dimensions (material scarcity, time scarcity, and psychological resource scarcity) and 40 items that were rated as relevant by the

experts were tested in the second part of Study 2. Descriptive statistics were evaluated to ensure adequate item endorsement rates and item variability. These analyses resulted in an additional item being removed before exploratory factor analyses were conducted.

Exploratory factor analyses suggested that a three-factor model best fit the data. The three factors represent: time scarcity, psychological resource scarcity, and material scarcity, which is consistent with the model of scarcity developed based on the literature (Gallo & Matthews, 2003; Jabs & Devine, 2006; Wimer et al., 2014; Zukewich, 1998). Two additional items were removed from the scale after the factor analyses for failing to load on the appropriate factor. Item-total correlations on the final 37 items suggest adequate item discrimination and item variability, as both the total scale and subscales were able to discriminate between participants who were high and participants who were low on the time scarcity, psychological scarcity, and material scarcity subscales. Moreover, internal consistency values for the entire scale and each of the subscales were acceptable; this suggests that items from the entire scale and each subscale are measuring the same common sources of variance.

Finally, correlations between the full scale and each of the subscales, and between the newly developed subscales and existing measures provide further evidence for the validity of the scarcity scale developed in this project. Higher levels of material hardship were strongly correlation with higher ratings of material scarcity, indicating convergent validity for the material scarcity subscale, while negative predictive relationships with subjective social status, income and education provide support for construct validity inferences. These results are consistent with the literature on lower incomes and education levels resulting in limited access to basic resources (Saegert et al., 2007;

Wimer et al., 2014). Those who reported more time scarcity also scored higher on the time crunch questionnaire. In addition, time scarcity was associated with subjective social status and income, but to a lesser degree than material scarcity. Those who reported higher levels of psychological resources scarcity scored lower on the measures of social support, self-esteem, personal achievement and interpersonal relations. These findings do support the hypothesis that lower levels of interpersonal and intrapersonal resources result in increased psychological resource scarcity. Like time scarcity, psychological resource scarcity was also associated with subjective social status and income, but to a lesser degree than was material scarcity. Although education level was associated with material scarcity, no relationship was found between education and time scarcity, or between education and psychological resource scarcity. No relationship was found between the subscales and the Marlowe Crowne Scale of Social Desirability, which suggests that responses to the subscales were not influenced by social desirability.

CHAPTER 6: GENERAL DISCUSSION

Overview

This dissertation attempted to develop a comprehensive model of scarcity. The traditional indicators used in most of the literature fail to fully capture the relationship between SES and health outcomes (Saegert et al., 2007). The use of additional concepts that assess a broader array of actual and perceived economic and social resources may prove beneficial in addressing the direct and indirect causes of health disparities beyond the influence of education, income and occupation. Scarcity is one such concept.

The development of a comprehensive model of scarcity contributes to the body of literature on this subject, as none previously existed. The literature on material hardship (Wimer et al., 2014) and time pressure (Jabs & Devine, 2006; Zukewich, 1998), as well as the literature on cognitive ability (Gottfredson, 2004), and interpersonal and intrapersonal resources (Gallo & Matthews, 2003) were used to inform the development of the initial model of scarcity (Figure 1, Appendix A). This project employed both qualitative and quantitative methods to ensure the construct was covered as comprehensively as possible.

In Study 1, a phenomenological approach was used in order to understand individuals' shared experiences of scarcity. Semi-structured qualitative interviews were conducted with 24 individuals. Results from this study identified the aspects of scarcity

that were most salient to participants across the SES spectrum. This study yielded seven major themes, including four possible dimensions that were both objective and subjective in nature.

In Study 2, quantitative data collection was used to validate the dimensions of scarcity that emerged from Study 1 (Figure 2, Appendix B) by developing a scarcity scale. Fifty-four items were developed to measure the experience of scarcity across the four proposed dimensions of scarcity. The definitions of the dimensions of scarcity as well as the developed items were evaluated by subject matter experts. The physical health component was determined to be irrelevant; therefore all items referencing physical health scarcity were eliminated, as well as five additional items. The remaining items were tested in a national sample. Exploratory factor analyses were conducted to initially validate the proposed model, and end results suggest a three-factor model of scarcity (Figure 3, Appendix A).

Support for the Proposed Model

Overall, evaluation of the proposed model confirmed hypotheses about the structure of scarcity. Three of the components that emerged from Study 1 did correspond with the proposed model of scarcity based on the literature. Respondents did endorse material, time and psychological resource scarcity, and were able to provide examples of each. In addition, participants acknowledged that experiences of scarcity may be either objective or subjective. Moreover, in order to ensure that study results did in fact reflect participants' experience of the studied phenomena, member checks were completed with a portion of study respondents (33%). Results from member checks did support the model.

However, there were some differences between the proposed model and the conceptualization of scarcity that resulted from Study 1. For one, a fourth component of scarcity, physical health scarcity, was suggested. There is some support in the literature to suggest that physical illness and disability can lead to feelings of scarcity, as individuals are confronted by what they cannot, or can no longer, do. Similar to experiences of scarcity in the other domains, these limitations can result in negative health consequences such as increased negative affect, decreased positive affect and fatalistic coping (Buelow, 1991; Caputo & Simon, 2013). Although this additional dimension did not receive sufficient empirical support in the current study to include it in the new measure of scarcity developed here, this concept should be further investigated to determine if perhaps it should be included in the overall conceptualization of scarcity.

In addition, this study aimed to distinguish between the objective and subjective aspects of each dimension of scarcity. However, results from the qualitative portion of the study did not lead to a conclusive understanding of the objective/subjective aspects of scarcity, and it is possible that this framework is entirely inappropriate when conceptualizing scarcity. That is, scarcity may be entirely subjective, or may not be objective or subjective at all.

Nonetheless, examination of the data does point to three possible ways of conceptualizing the objective and subjective aspects of scarcity. First, rather than experiences of scarcity being either objective or subjective in nature, it is possible that experiences fall somewhere along an objective-subjective continuum. It may also be possible for objective and subjective experiences of scarcity to represent two separate dimensions of scarcity altogether; or for instances of scarcity to be objective, and for

individuals' responses to scarcity to be subjective. The inability to define this aspect of scarcity in a conclusive manner, and the difficulty expert raters had when trying to assess items as either objective or subjective suggest the need for further qualitative research to fully understand the objective/subject nature of scarcity.

By developing a valid scale to measure scarcity, Study 2 confirmed most of the findings from Study 1. First, content validity was provided by having subject matter experts review the items that were developed based on the rich, descriptive data that resulted from Study 1. Secondly, endorsement rates for the items included on the scarcity scale in a national sample suggest that individuals are experiencing scarcity in the way it was conceptualized in this study. Next, exploratory factor analyses showed that a three-factor model of scarcity best fit the data, and evaluation of each of the factors confirmed a *time scarcity*, a *psychological resource scarcity*, and a *material scarcity* dimension. Adequate reliability scores on the total scale and subscales further confirmed that the measure was assessing common sources of variance. Finally, correlations between the subscales, and income, education level and existing measures provided convergent and divergent evidence for the model.

Limitations and Future Directions

This dissertation had several limitations; however future research may address these issues to gather further support for the developed model of scarcity. Sampling is one area that may be improved upon in subsequent studies. While Study 1 did have adequate diversity in terms of race/ethnicity, gender, and income, all participants either had or were in the process of obtaining a bachelor's degree. This education level is above the national average, which may be one reason why participants did not endorse a lack of

knowledge. Additionally, the sample was relatively young. This may help to explain the lack of additional support for the physical health scarcity dimension. It will be important to collect additional data from more culturally diverse samples in order to determine of additional dimensions of scarcity may exist in other populations. Moreover, as more diverse samples are used, further validation studies will be needed to confirm any additional dimensions that may emerge.

Once the scarcity scale has been fully validated in additional samples, future research should be employed to determine the value of scarcity as a more useful construct than both traditional and alternative measures of SES. Specifically, it will need to be determined whether scarcity does in fact predict health and social outcomes better than income, education, and occupation, and subjective social status. Moreover, additional research is needed to establish whether scarcity outperforms existing measures (i.e. material hardship, time crunch, etc.) when examining health disparities.

Both studies relied on self-report to collect data. Despite being a common form of measurement, there are issues with using this form of data collection. Specifically, people tend to respond in ways that paint them in a more favorable light (Dunning, Heath, & Suls, 2004). Given the sensitive nature of some of the questions, namely those related to experiences of poverty and psychological ability, it is possible that respondents may have answered in a way that implied less scarcity. However, in order to address this limitation, the Marlowe-Crowne Scale of Social Development was included in Study 2. Results indicate that respondents did not answer in a socially desirable way, as no relationship was found between this scale and the other questionnaires included in the study.

Implications and Conclusion

The proposed model has implications for both theory and application. This model ensured that the construct of scarcity is as fully covered as possible by identifying the dimensions of scarcity that are most significant to individuals. Moreover, the results of this study provided the basis for the development of a scarcity scale that can be used in future projects assessing the relationship between SES and health disparities. Since the scarcity scale only partially correlated with traditional measures of SES, it is very possible that the inclusion of this construct may provide additional predictive information beyond what is offered by traditional measures.

The proposed model provides a strong theoretical framework from which to conduct future research on scarcity. Rather than having to uniquely operationalize scarcity or artificially create situations of scarcity for each study, this model, and the ensuing fully validated scale, can be used to assess both how much and on which domains individuals are already experiencing scarcity. This in an enormous contribution in that it will allow for future research addressing the influence of internalized indicators of SES on health.

Finally, findings from this dissertation have practical implications as well. The health literature points to a host of illnesses that result from a lack of resources (Pampel et al., 2010). Using the newly developed scarcity model may assist health providers in identifying areas that should be addressed when treating illnesses. Moreover, this model can be used to inform health policies aimed at improving the overall health of populations most affected by health disparities.

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APPENDIX A: FIGURES

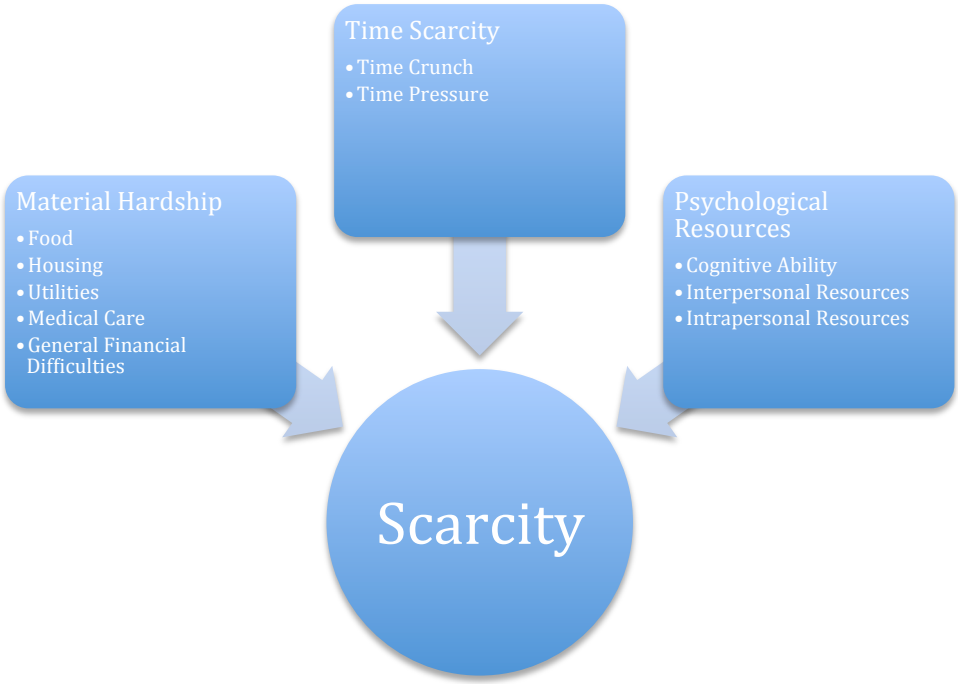

Figure 1: A Model of scarcity based on current literature

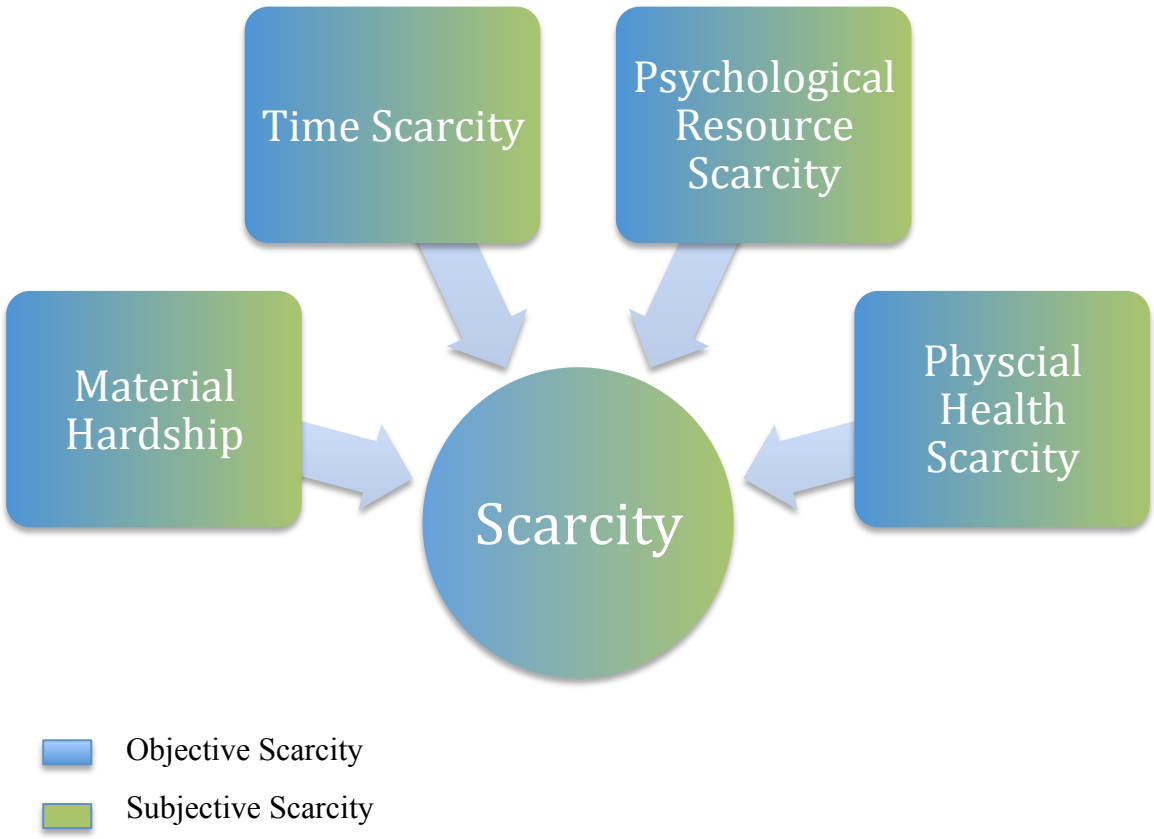

Figure 2: A Model of scarcity based on study 1 results

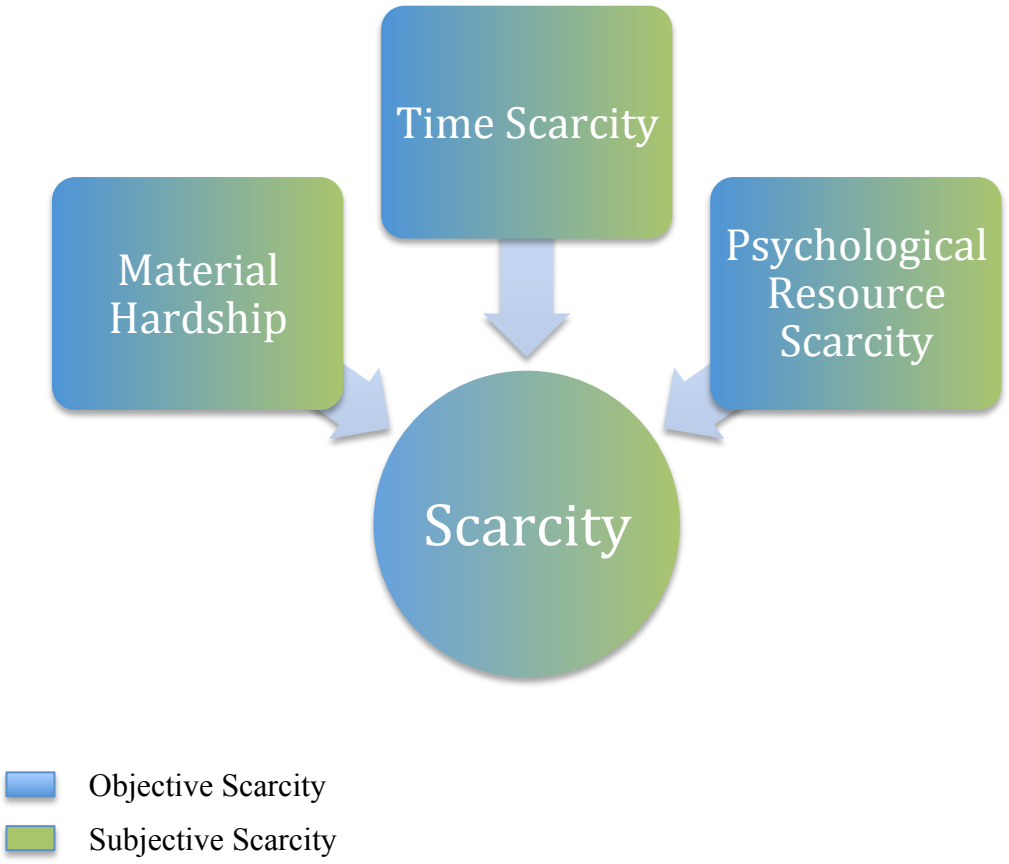

Figure 3: A model of scarcity based on study 2 results

APPENDIX B: TABLES

Table 1: Study 1 participant demographics

ID	Age	Gender	Race/ Ethnicity	Education	Marital Status	Income	Occupation	SSS[α] USA	SSS[α] C
B	36	Female	White	Master's Degree	Married/Living with partner	50,000-74,999	Professional	3	4
C	23	Female	White	Bachelor's Degree	Married/Living with partner	50,000-74,999	Office/ Administration	5	4
D	40	Female	White	Terminal Degree	Married/Living with partner	75,000-99,999	Professional	8	7
E	23	Female	White	Associate's Degree	Single	50,000-74,999	Undergraduate Student*	4	6
F	27	Female	White	Master's Degree	Single	15,000-19,999	Graduate Student*	5	4
G	20	Female	Multiethnic	Associate's Degree	Single	75,000-99,999	Undergraduate Student*	5	4
H	23	Female	Latino	Some College	Single	10,000-14,999	Undergraduate Student*	5	4
J	21	Female	White	Some College	Married/Living with partner	15,000-19,999	Graduate Student*	2	2
K	25	Male	White	Associate's Degree	Single	10,000-14,999	Undergraduate Student*	5	5
L	19	Male	White	Some College	Single	75,000-99,999	Undergraduate Student*	6	7
M	30	Male	White	Associate's Degree	Single	15,000-19,999	Undergraduate Student*	4	4
N	28	Female	Black	Bachelor's Degree	Single	10,000-14,999	Graduate Student*	7	8
O	25	Female	White	Bachelor's Degree	Married/Living with partner	40,000-49,000	Graduate Student*	4	4
P	25	Female	Multiethnic	Master's Degree	Married/Living with partner	10,000-14,999	Service	7	9
Q	24	Female	Multiethnic	Bachelor's Degree	Single	40,000-49,000	Graduate Student*	2	4
R	24	Male	Asian	Master's Degree	Single	10,000-14,999	Graduate Student*	5	9
S	30	Female	White	Bachelor's Degree	Married/Living with partner	50,000-74,999	Office/ Administration	5	4
T	55	Female	White	Some College	Divorced	25,000-29,999	Office/ Administration	2	1
U	25	Male	White	Some College	Single	100,000-149,999	Undergraduate Student*	6	4
V	50	Female	Multiethnic	Master's Degree	Single	75,999-99,999	Professional	7	8
W	52	Male	Black	Terminal Degree	Single	20,000-24,999	Graduate Student*	3	3
X	40	Male	Latino	Bachelor's Degree	Married/Living with partner	50,000-74,999	Graduate Student*	9	5
Y	29	Male	White	Master's Degree	Single	20,000-24,999	Graduate Student*	3	5
Z	29	Male	Asian	Master's Degree	Single	20,000-24,999	Graduate Student*	3	8

Note: * Participant also works at least part-time. SSS = Subjective Social Status. [α]Higher numbers indicate higher self-ratings of SSS on a scale from 1-10.

Table 2: Study 1 Demographics

Variables	N	Percentage	Mean	SD	Range
Age	24		30.13	10.17	19-55
Gender					
Male	9	37.5			
Female	15	62.5			
Race/Ethnicity					
African American	2	8.33			
Asian	2	8.33			
European American	14	58.33			
Hispanic	2	8.33			
Native American	0	0			
Pacific Islander	0	0			
Multiethnic	4	16.67			
Education					
Less than High School	0	0			
High School	0	0			
Some College	5	20.83			
2-Year Degree	4	16.67			
4-Year Degree	4	16.67			
Some Post-Bac	2	8.33			
Masters Degree	7	29.16			
Terminal Degree	2	8.33			
Household Income					
≤ 10,000	0	0			
$10,000-$14,999	5	20.83			
$15,000-$19,999	3	12.50			
$20,000-$24,999	3	12.50			
$25,000-$29,999	1	4.17			
$30,000-$39,999	0	0			
$40,000-$49,999	2	8.33			
$50,000-$74,999	5	20.83			
$75,000-$99,999	4	16.67			
$100,000-$149,999	1	4.17			
≥ $150,000	0	0			

Note. Bac = Baccalaureate; SD = Standard Deviation

Variables	N	Percentage	Mean	SD	Range
Occupation Industry					
Management, Business, Financial	0	0			
Professional	3	12.50			
Service	1	4.17			
Sales	0	0			
Office, Administrative	3	12.50			
Farming, Fishing, Forestry	0	0			
Construction	0	0			
Installation, Maintenance, Repair	0	0			
Production	0	0			
Transportation	0	0			
Armed Forces	0	0			
Undergraduate Student	7	29.16			
Graduate Student	10	41.67			
Family Finances During Childhood					
Poor	8	33.33			
Average	13	54.17			
Well-off	3	12.50			
Moved Due to Finances During Childhood					
No	17	29.17			
Yes	7	70.83			
Food Stamps During Childhood					
No	18	75			
Yes	6	25			
Government Assistance During Childhood					
No	18	75			
Yes	6	25			
SSS USA	24		4.79	1.91	2-9
SSS Community	24		5.13	2.15	1-9

Note. SSS = Subjective Social Status; SD = Standard Deviation

Table 3: Scarcity definitions

Terms	Definition
Scarcity	Not having enough of something of importance and may reflect a lack of resources to fulfill perceived basic needs and pursue normal life activities. That is, individuals may experience scarcity if they are without a resource they consider to be vital to their ability to function, or if they feel they require additional or better resources beyond what they currently have. A key characteristic of the experience of scarcity is the recognition of a difference between what you have and what you need. Individuals may experience objective forms (i.e. not having enough of a resource) or subjective forms (i.e. feeling like you do not have enough of a resource) of scarcity.
Material Scarcity	Not having enough material resources. This includes not having basic necessities, not having the tools that allow you to complete your basic functions, not being able to cover your expenses, or settling for less than you would like. The experience of material scarcity may be either objective, as in not possessing the resources you need, or more subjective, such as feeling like you need more of a resource.
Time Scarcity	Not having enough time. This experience occurs when there is an insufficient amount of time for the tasks we must achieve or would like to achieve. Time scarcity may be objective (i.e. not having enough time to complete a task) or subjective (i.e. feeling like you need more time to complete a task).
Psychological Resource Scarcity	Not having enough psychological or mental resources to meet your needs or having less psychological or mental resources than you would like. Some psychological resources may be things like cognitive abilities, having enough knowledge or skills, social support or social relationships, or emotional resources. Psychological resources scarcity may be objective (i.e. not having enough of a psychological resource to fulfill a need) or subjective (i.e. feeling like you need more of a psychological resource).
Physical Health Scarcity	Not having the physical ability to accomplish what you need or would like to achieve. This may be due to an illness or disability. Physical health scarcity may be objective (i.e. not having the physical health necessary to perform activities for daily living) or subjective (i.e. feeling like you are not able to physically engage in the activities you would like to participate in).

Table 4: Content validation results for the initial pool of items: Subject matter expert ratings

	Item	Scarcity Dimension	SME Agreement (%)
1	I often feel like I know less about my field than my peers/coworkers.	Psychological	100
2	I often eat the same thing many days in a row to save money.	Material	100
3	I feel alone.	Psychological	100
4	I have had to move in with friends/family because I could not afford to live on my own.	Material	100
5	I have taken out credit card debt to pay my bills.	Material	100
6	I have enough time to meet all of my responsibilities.	Time	100
7	I skip meals to save money.	Material	100
8	I do not have health insurance because it is not offered, I am unemployed, and/or I cannot afford to purchase it.	Material	91
9	There are people I can talk to when I have a problem.	Psychological	100
10	If I were unable to provide for myself, there are people in my life who would help me make ends meet.	Psychological	73
11	I have enough time to get done what needs to get done for my family.	Time	100
12	I have had to borrow money from family or friends to pay my bills.	Material	100
13	I have enough time to exercise.	Time	91
14	I have enough knowledge to succeed in my profession/classes.	Psychological	100
15	I sleep less in order to get more done around the house.	Time	100
16	Even though I am able to get done what needs to get done, I often feel like I do not have enough time.	Time	91
17	I go hungry because I cannot afford to buy more food.	Material	100
18	I have more to do than I have time to do it in.	Time	91
19	I buy less nutritious foods because I cannot afford healthier options.	Material	91
20	I am confident in my ability to make good choices for myself.	Psychological	100
21	I am satisfied with my living accommodations.	Material	100
22	I have not sought the health/medical care I needed because I could not afford it.	Material	82
23	I have access to all the technology I need (computers, phones, internet, etc.).	Material	100

24	I have had my utilities (ex. heat, water, etc.) turned off because I could not pay my bill.	Material	100
25	I skip meals because I do not have time to eat.	Time	100
26	I have the time to engage in leisure activities.	Time	100
27	I have meaningful relationships in my life.	Psychological	100
28	There are people in my life I can go to for support when I need it.	Psychological	100
29	I have had my phone turned off because I could not pay my bill on time.	Material	100
30	I have enough money to pay my bills.	Material	100
31	I have the knowledge and/or skills to achieve my goals.	Psychological	100
32	I have enough time to get done what needs to get done for work/school.	Time	100
33	I am able to buy new clothing as often as I need to.	Material	100
34	I have been homeless.	Material	100
35	I can afford to take a vacation when I feel like it.	Material	100
36	I have enough time to cook healthy meals.	Time	100
37	I have enough time to spend with family/friends.	Time	100
38	I have enough time to engage in hobbies or engage in activities I enjoy.	Time	100
39	If there is something I need to know, I know who to ask for help or where to look up the information.	Psychological	100
40	I give up sleep in order to get more work done.	Time	91
41	I am able to buy new clothing as often as I want to.	Material	100
42	I wish I had more time for myself.	Time	91
43	My physical health prevents me from engaging in certain activities I would like to do.	Physical	100
44	My physical health prevents me from getting the exercise I need.	Physical	91
45	Others have much nicer things than me.	Material	91
46	My physical health can be distracting.	Physical	100
47	I am satisfied with my means of transportation.	Material	91
48	I need others to help me engage in self-care activities (ex. bathing, dressing) because of my physical health.	Physical	73
49	I often experience physical pain	Physical	91
50	My physical health prevents me from doing some household chores.	Physical	100
51	I am physically limited in what I can do.	Physical	100
52	My physical health has made me change some of my goals for the future.	Physical	91
53	My physical health prevents me from being able to work/go to school.	Physical	100

54	I give up sleep in order to spend more time with friends/family.	Time	100

Note. N= 11; SME = Subject Matter Experts; Items 41-54 removed from further analysis due to low SME relevancy ratings or belonging to the Physical Scarcity dimension.

Table 5: Study 2 demographics

Variables	N	Percentage	Mean	SD	Range
Age	203		37.76	11.26	21-69
Gender					
Male	81	39.90			
Female	120	59.11			
Other	2	.99			
Race/Ethnicity					
African American	9	4.43			
Asian	11	5.42			
European American	174	85.71			
Hispanic	5	2.46			
Native American	1	.49			
Pacific Islander	0	0			
Multiethnic	2	.99			
Other	1	.49			
Education					
Less than High School	7	3.45			
High School	20	9.85			
Some College	64	31.53			
2-Year Degree	28	13.79			
4-Year Degree	63	31.03			
Some Post-Bac	8	3.94			
Masters Degree	8	3.94			
Terminal Degree	5	2.46			
Household Income					
≤ 10,000	16	7.88			
$10,000-$14,999	15	7.38			
$15,000-$19,999	14	6.90			
$20,000-$24,999	15	7.38			
$25,000-$29,999	16	7.88			
$30,000-$39,999	33	16.46			
$40,000-$49,999	20	9.85			
$50,000-$74,999	48	23.65			
$75,000-$99,999	14	6.90			
$100,000-$149,999	11	5.42			
≥ $150,000	1	.49			

Note: Bac = Baccalaureate; SD = Standard Deviation

Variables	N	Percentage	Mean	SD	Range
Occupation Industry					
Management, Business, Financial	26	12.81			
Professional	43	21.18			
Service	44	21.67			
Sales	25	12.32			
Office, Administrative	51	25.12			
Farming, Fishing, Forestry	2	0.99			
Construction	3	1.48			
Installation, Maintenance, Repair	5	2.46			
Production	2	0.99			
Transportation	1	0.49			
Armed Forces	1	0.49			
Family Finances During Childhood					
Poor	48	23.65			
Average	131	64.53			
Well-off	24	11.82			
Moved Due to Finances During Childhood					
No	174	85.71			
Yes	25	12.32			
Decline to Answer	4	1.97			
Food Stamps During Childhood					
No	166	81.77			
Yes	34	16.75			
Decline to Answer	3	1.48			
Government Assistance During Childhood					
No	168	82.76			
Yes	30	14.78			
Decline to Answer	3	1.48			
SSS USA*	203		2.46	0.81	1-4
SSS Community*	203		2.61	0.79	1-5

Note. SSS = Subjective Social Status, SD = Standard Deviation

Table 6: Exploratory factor analysis, and item means and standard deviations: Full three-factor model

Items	Time	Psychological	Material	M	SD
38	0.85			-0.48	1.06
13	0.83			-0.41	1.12
18	0.82			-0.14	1.14
26	0.76			-0.54	0.97
6	0.74			-0.42	1.04
32	0.70			-0.67	0.91
16	0.67			0.14	1.22
11	0.65			-0.65	0.95
37*	0.63			-0.66	0.99
36	0.62			-0.47	1.08
40	0.54			-0.44	1.24
15	0.50			-0.56	1.24
25	0.36			-0.87	1.12
28		0.92		-0.97	0.97
9		0.88		-0.88	0.99
27		0.88		-0.91	1.02
10		0.66		-0.78	1.01
3		0.59		-0.49	1.17
20		0.50		-0.94	0.74
39		0.42		-1.09	0.73
21		0.41		-0.53	1.11
31		0.40		-0.90	0.83
14		0.33		-0.88	0.86
29			0.76	-1.00	1.27
24			0.73	-1.15	1.13
12			0.70	-0.44	1.29
30			0.58	-0.47	1.13
19*			0.55	-0.20	1.36
4			0.51	-0.61	1.32
8			0.50	-0.67	1.51
22			0.49	-0.13	1.39
7			0.49	-0.72	1.17
17			0.45	-0.98	1.07
35			0.43	0.70	1.21
33			0.41	0.15	1.25
2			0.39	0.00	1.25
34			0.34	-1.38	1.02
5			0.32	-0.55	1.35
1			0.31	-0.79	0.96

Note. *N* =203. Item value range = -2 - 2. M= mean; SD = standard deviation; Computed only using items within factor. λ < .30 not shown. *Item with cross-loading, only higher loading shown.

Table 7: Exploratory factor analysis and item-total correlations for retained items for the final version of the scarcity scale

Items	Time	Psych	Material	I-T$^{\alpha}$	I-T$^{\beta}$
38. I have enough time to engage in hobbies or engage in activities I enjoy.	0.84			0.69	0.78
13. I have enough time to exercise.	0.83			0.55	0.70
18. I have more to do than I have time to do it in.	0.82			0.52	0.71
26. I have the time to engage in leisure activities.	0.75			0.70	0.77
6. I have enough time to meet all of my responsibilities.	0.74			0.63	0.71
32. I have enough time to get done what needs to get done for work/school.	0.70			0.7	0.74
16. Even though I am able to get done what needs to get done, I often feel like I do not have enough time.	0.68			0.47	0.61
11. I have enough time to get done what needs to get done for my family.	0.65			0.66	0.69
37.* I have enough time to spend with family/friends.	0.62			0.72	0.72
36. I have enough time to cook healthy meals.	0.61			0.73	0.73
40. I give up sleep in order to get more work done.	0.54			0.56	0.65
15. I sleep less in order to get more done around the house.	0.50			0.50	0.59
25. I skip meals because I do not have time to eat.	0.36			0.57	0.53
28. There are people in my life I can go to for support when I need it.		0.93		0.43	0.75
9. There are people I can talk to when I have a problem.		0.89		0.46	0.76
27. I have meaningful relationships in my life.		0.88		0.44	0.76
10. If I were unable to provide for myself, there are people in my life who would help me make ends meet.		0.66		0.42	0.54
3. I feel alone.		0.59		0.53	0.63
20. I am confident in my ability to make good choices for myself.		0.50		0.51	0.63
39. If there is something I need to know, I know who to ask for help or where to look up the information.		0.42		0.42	0.50
31. I have the knowledge and/or skills to achieve my goals.		0.40		0.57	0.60
14. I have enough knowledge to succeed in my profession/classes.		0.33		0.47	0.51

29. I have had my phone turned off because I could not pay my bill on time.	0.77	0.41	0.55
24. I have had my utilities (ex. heat, water, etc.) turned off because I could not pay my bill.	0.74	0.44	0.55
12. I have had to borrow money from family or friends to pay my bills.	0.70	0.38	0.54
30. I have enough money to pay my bills.	0.58	0.64	0.68
19.* I buy less nutritious foods because I cannot afford healthier options.	0.56	0.69	0.72
7. I skip meals to save money.	0.49	0.47	0.65
22. I have not sought the health/medical care I needed because I could not afford it.	0.49	0.38	0.62
4. I have had to move in with friends/family because I could not afford to live on my own.	0.49	0.58	0.51
8. I do not have health insurance because it is not offered, I am unemployed, and/or I cannot afford to purchase it.	0.49	0.69	0.46
17. I go hungry because I cannot afford to buy more food.	0.46	0.69	0.66
35. I can afford to take a vacation when I feel like it.	0.43	0.6	0.62
33. I am able to buy new clothing as often as I need to.	0.41	0.59	0.6
2. I often eat the same thing many days in a row to save money.	0.38	0.41	0.45
34. I have been homeless.	0.34	0.38	0.34
5. I have taken out credit card debt to pay my bills.	0.31	0.44	0.40

Note. N =203. Psych= Psychological Resource. I-T = Item Total Correlations. $^{\alpha}$ I-T computed using entire scale; $^{\beta}$ I-T computed only using items within subscale. $\lambda < .30$ not shown. *Item with cross-loading, only higher loading shown.

Table 8: Means, Standard Deviations, and Correlations

	M	SD	2	3	4	5	6	7	8	9	10	11
1. Scarcity	-0.58	0.64	0.87*	0.70*	0.88*	0.67*	0.73*	-0.59*	-0.54*	-0.55*	-0.57*	-0.09
2. Time Scarcity	-0.47	0.80		0.48*	0.61*	0.79*	0.55*	-0.43*	-0.41*	-0.34*	-0.43*	-0.06
3. Psych Scarcity	-0.87	0.67			0.47*	0.31*	0.32*	-0.79*	-0.64*	-0.68*	-0.71*	-0.05
4. Material Scarcity	-0.50	0.78				0.48*	0.82*	-0.41*	-0.40*	-0.46*	-0.40*	-0.10
5. Time Crunch	0.82	0.38					0.47*	-0.30*	-0.30*	-0.13*	-0.28*	-0.12
6. Material Hardship	0.52	0.46						-0.31*	-0.23*	-0.33*	-0.30*	-0.06
7. Social Support	2.97	0.71							0.47*	0.59*	0.72*	0.03
8. Self-Esteem	2.98	0.64								0.59*	0.59*	0.05
9. Personal Achievement	4.90	0.96									0.72	0.03
10. Interpersonal Relations	4.62	1.10										0.03
11. Marlowe Crowne	0.40	0.26										

Note: All scales were mean-scored. Psych = Psychological Resources, M = Mean, SD = Standard Deviation; * p <.01

APPENDIX C: QUESTIONNAIRES

Qualitative Interview Guide

Introduction:
Thank you for agreeing to participate in the study! I'm going to turn the tape recorder on now.

Let's get started with the interview.

Part 1
1. Scarcity is generally defined as "the feeling of not having enough."
1a. What have you experienced in terms of scarcity?
1b. What contexts or situations have typically influenced or affected your experiences of scarcity?
Probes:
What does scarcity mean to you?
How would you define scarcity?
What does scarcity look like to you?
In what aspects of your life do you experience scarcity?
In what aspects of your friends or family's lives do you see them experience scarcity?
Have you experienced objective forms of scarcity?
Have you experienced subjective forms of scarcity?
If so, do objective forms of scarcity feel different from subjective forms of scarcity?

Part 2
2. Material scarcity is generally defined as "not having enough material resources."
2a. What do you think about the notion of material scarcity?
2b. What does material scarcity look like to you?
2c. Have you or anyone you know experienced material scarcity? If so, what did that look like?
Probes:
Please tell me about a time when you did not have enough to make ends meet.
Please tell me about a time when you did not have enough to meet your needs.
Please tell me about a time when you did not feel like you had enough.

3. Time scarcity is generally defined as "not having enough time."
3a. What do you think about the notion of time scarcity?
3b. What does time scarcity look like to you?
3c. Have you or anyone you know experienced time scarcity? If so, what did that look like?
Probes:
Please tell me about a time when you did not have enough time to do what you needed to get done.
Please tell me about a time when you did not have enough time to you're your needs.

Please tell me about a time when you may have had enough time to do what you needed to get done, but you did not feel like you had enough time.

Have there been times when not having enough time prevented you from taking care of yourself, like being able to exercise, get enough sleep, or prepare a healthy meal? If so, please tell me about that experience (s).

Have there been times when you didn't have enough time to engage in leisure activities, like spending time with friends, reading, or watching movies? ? If so, please tell me about that experience (s).

Do you feel like you have enough time for leisure activities? Why or why not?

4. Some people have talked about scarcity in relation to psychological or mental resources. (If necessary: some psychological resources may be things like cognitive abilities, having enough knowledge about something, social support or social relationships, or emotional resources).

4a. What do you think about the notion of psychological scarcity?

4b. What does psychological scarcity look like to you?

4c. Have you or anyone you know experienced psychological scarcity? If so, what did that look like?

Probes:

Have there been times when you did not have enough of a psychological resource to meet your needs?

Have there been times when you did not have enough knowledge about something prevented you from doing what you needed to get done? (If necessary) Like when making a medical decision?

Have there been times when not having enough of a psychological resource, like knowledge or information, prevented you from taking care of yourself. (If necessary) Like being able to make the best choice for you or a family member?

Possible probes:

Can you expand on that further?

Please tell me more about that.

Part 1 Survey

Instructions: As part of the process of developing items for potential use in a measurement device, we are asking you to evaluate the degree to which each component appears to be relevant to the construct of scarcity. Below are the definitions of the constructs. Please read and familiarize yourself with the definitions before starting the task.

Scarcity is generally defined as "not having enough" of something of importance and may reflect a lack of resources to fulfill perceived basic needs and pursue normal life activities. That is, individuals may experience scarcity if they are without a resource they consider to be vital to their ability to function, or if they feel they require additional or better resources beyond what they currently have. A key characteristic of the experience of scarcity is the recognition of a difference between what you have and what you need. Individuals may experience objective forms (i.e. not having enough of a resource) or subjective forms (i.e. feeling like you do not have enough of a resource) of scarcity.

Material Scarcity is generally defined as not having enough material resources. This includes not having basic necessities, not having the tools that allow you to complete your basic functions, not being able to cover your expenses, or settling for less than you would like. The experience of material scarcity may be either objective, as in not possessing the resources you need, or more subjective, such as feeling like you need more of a resource.

Time Scarcity is generally defined as not having enough time. This experience occurs when there is an insufficient amount of time for the tasks we must achieve or would like to achieve. Time scarcity may be objective (i.e. not having enough time to complete a task) or subjective (i.e. feeling like you need more time to complete a task).

Psychological Resources Scarcity is generally defined as not having enough psychological or mental resources to meet your needs or having less psychological or mental resources than you would like. Some psychological resources may be things like cognitive abilities, having enough knowledge or skills, social support or social relationships, or emotional resources. Psychological resources scarcity may be objective (i.e. not having enough of a psychological resource to fulfill a need) or subjective (i.e. feeling like you need more of a psychological resource).

Physical Health Scarcity is generally defined as not having the physical ability to accomplish what you need or would like to achieve. This may be due to an illness or disability. Physical health scarcity may be objective (i.e. not having the physical health necessary to perform activities for daily living) or subjective (i.e. feeling like you are not able to physically engage in the activities you would like to participate in).

After you have a clear understanding of the concept of *Scarcity* and its possible components, please continue with the task. Please use the scale provided to rate each possible component's level of relevancy to *Scarcity* (as defined above). If appropriate, please a.) explain your rating of the four identified domains of scarcity and b.) make any suggestions for additional domains in the *Additional Comments* section below the scale.

	Relevancy to Scarcity		
	Irrelevant	*Partially*	*Relevant*
Material Scarcity			
Time Scarcity			
Psychological Resources Scarcity			
Physical Health Scarcity			

Additional Comments:

Part 2 Survey

Instructions: As part of the process of developing items for potential use in a measurement device, we are asking you to evaluate the degree to which each item shown on the next three pages appears to be relevant to the construct of interest. Please use the definitions of the constructs in Part 1 or on the separate document provided to you. Please read and familiarize yourself with the definitions before starting the task.

First, regardless of how relevant you rated each component to be to the concept of scarcity, *for each item* please indicate which component you feel the item is primarily measuring. Provide an "M" for material scarcity, "T" for time scarcity, "P" for Psychological scarcity, or "H" for physical health scarcity. If you do not think the item reflects any of the components, please provide an "N/A."

Second, please use the scale provided to rate its level of relevancy to the construct defined above.

Third, please rate whether you think the item reflects an objective or subjective aspect of the component. An objective item would be one that is fact-based, measurable or observable. A subjective item would be one that is based on personal opinions, interpretations, points of view, emotions or judgments. In the last column, please provide an "O" for an objective item or an "S" for a subjective item.

Finally, please circle any item you feel is confusing and if appropriate, please mark suggested corrections for that item in the item box. In addition, please make any suggestions or additional comments you have below the scale.

		Relevancy			
	Component	*Irrelevant*	*Partially*	*Relevant*	*O/S*
1. I often feel like I know less about my field than my peers/coworkers.					
2. I often eat the same thing many days in a row to save money.					
3. I feel alone.					
4. I give up sleep in order to spend more time with friends/family.					
5. My physical health prevents me from being able to work/go to school.					
6. I have taken out credit card debt to pay my bills.					
7. I have enough time to meet all of my responsibilities.					
8. I skip meals to save money.					
9. I do not have health insurance because it is not offered, I am unemployed, and/or I cannot afford to purchase it.					
10. There are people I can talk to when I have a problem.					
11. If I were unable to provide for myself, there are people in my life who would help me make ends meet.					
12. I have enough time to get done what needs to get done for my family.					
13. I wish I had more time for myself.					
14. I have had to borrow money from family or friends to pay my bills.					
15. I have enough time to exercise.					
16. My physical health prevents me from engaging in certain activities I would like to do.					
17. I have enough knowledge to succeed in my profession/classes.					

18. I sleep less in order to get more done around the house.					
19. Even though I am able to get done what needs to get done, I often feel like I do not have enough time.					
20. I go hungry because I cannot afford to buy more food.					
21. I am satisfied with my means of transportation.					
22. I have more to do than I have time to do it in.					
23. I buy less nutritious foods because I cannot afford healthier options.					
24. My physical health prevents me from getting the exercise I need.					
25. Others have much nicer things than me.					

		Relevancy			
	Component	*Irrelevant*	*Partially*	*Relevant*	***O/S***
26. My physical health can be distracting.					
27. I need others to help me engage in self-care activities (ex. bathing, dressing) because of my physical health.					
28. I have not sought the health/medical care I needed because I could not afford it.					
29. I have access to all the technology I need (computers, phones, internet, etc.).					
30. I have had my utilities (ex. heat, water, phone, etc.) turned off because I could not pay my bill.					
31. I often experience physical pain.					
32. I have the time to engage in leisure activities.					
33. I have meaningful relationships in my life.					
34. My physical health prevents me from doing some household chores.					
35. I have had my phone turned off because I could not pay my bill on time.					
36. I have enough money to pay my bills.					
37. I am physically limited in what I can do.					
38. I am able to buy new clothing as often as I want to.					
39. I have enough time to get done what needs to get done for work/school.					
40. I am able to buy new clothing as often as I need to.					
41. I have been homeless.					
42. I can afford to take a vacation when I feel like it.					
43. I have enough time to cook healthy meals.					

44. I have enough time to spend with family/friends.					
45. I have enough time to engage in hobbies or engage in activities I enjoy.					
46. If there is something I need to know, I know who to ask for help or where to look up the information.					
47. I give up sleep in order to get more work done.					
48. I have the knowledge and/or skills to achieve my goals.					
49. I am confident in my ability to make good choices for myself.					
50. There are people in my life I can go to for support when I need it.					
51. I skip meals because I do not have time to eat.					
52. I am satisfied with my living accommodations.					
53. I have had to move in with friends/family because I could not afford to live on my own.					
54. My physical health has made me change some of my goals for the future.					

Additional Comments:

Scarcity Scale

Please choose the response that best corresponds with how much you agree or disagree with each statement.

		Strongly Disagree	Disagree	Neither Agree or Disagree	Agree	Strongly Agree
1	I often feel like I know less about my field than my peers/coworkers.					
2	I often eat the same thing many days in a row to save money.					
3	I feel alone.					
4	I have had to move in with friends/family because I could not afford to live on my own.					
5	I have taken out credit card debt to pay my bills.					
6	I have enough time to meet all of my responsibilities.					
7	I skip meals to save money.					
8	I do not have health insurance because it is not offered, I am unemployed, and/or I cannot afford to purchase it.					
9	There are people I can talk to when I have a problem.					
10	If I were unable to provide for myself, there are people in my life who would help me make ends meet.					
11	I have enough time to get done what needs to get done for my family.					
12	I have had to borrow money from family or friends to pay my bills.					
13	I have enough time to exercise.					

14	I have enough knowledge to succeed in my profession/classes.					
15	I sleep less in order to get more done around the house.					
16	Even though I am able to get done what needs to get done, I often feel like I do not have enough time.					
17	I go hungry because I cannot afford to buy more food.					
18	I have more to do than I have time to do it in.					
19	I buy less nutritious foods because I cannot afford healthier options.					
20	I am confident in my ability to make good choices for myself.					
21	I am satisfied with my living accommodations.					
22	I have not sought the health/medical care I needed because I could not afford it.					
23	I have access to all the technology I need (computers, phones, internet, etc.).					
24	I have had my utilities (ex. heat, water, etc.) turned off because I could not pay my bill.					
25	I skip meals because I do not have time to eat.					
26	I have the time to engage in leisure activities.					
27	I have meaningful relationships in my life.					
28	There are people in my life I can go to for support when I need it.					
29	I have had my phone turned off because I could not pay my bill on time.					
30	I have enough money to pay my bills.					

31	I have the knowledge and/or skills to achieve my goals.					
32	I have enough time to get done what needs to get done for work/school.					
33	I am able to buy new clothing as often as I need to.					
34	I have been homeless.					
35	I can afford to take a vacation when I feel like it.					
36	I have enough time to cook healthy meals.					
37	I have enough time to spend with family/friends.					
38	I have enough time to engage in hobbies or engage in activities I enjoy.					
39	If there is something I need to know, I know who to ask for help or where to look up the information.					
40	I give up sleep in order to get more work done.					

Demographics

AGE: _____

GENDER: _____

RACE:

BLACK/AFRICAN AMERICAN

ASIAN AMERICAN/ASIAN

HISPANIC/LATINO

NATIVE AMERICAN/AMERICAN INDIAN or ALASKA NATIVE

NATIVE HAWAIIAN OR PACIFIC ISLANDER

WHITE

MULTIETHNIC

OTHER: _____

HIGHEST LEVEL OF EDUCATION:

LESS THAN HIGH SCHOOL GRADUATE

HIGH SCHOOL GRADUATE/ GED

SOME COLLEGE BUT NO DEGREE

2 –YEAR COLLEGE DEGREE/ASSOCIATES DEGREE

4- YEAR COLLEGE DEGREE

SOME POSTBACCALAUREATE WORK BUT NO DEGREE

MASTERS DEGREE OR EQUIVALENT

TERMINAL DEGREE (E.G. PHD, MD)

MARITAL STATUS:

SINGLE

MARRIED/LIVING WITH PARTNER

SEPARATED

DIVORCED

WIDOWED

NUMBER OF PEOPLE IN HOUSEHOLD: _____

HOUSEHOLD INCOME:

LESS THAN $10,000

$10,000 – $14,999

$15,000 – $19,999

$20,000 – $24,999

$25,000 – $29,999

$30,000 – $39,999

$40,000 – $49,999

$50,000 – $74,999

$75,000 – $99,999

$100,000 – $149,999

$150,000 – $249,999

$250,000 – $499,999

$500,000 OR MOE

OCCUPATION:

Management, business, and financial occupations

Professional and related occupations

Service occupations

Sales and related occupations

Office and administrative support occupations

Farming, fishing, and forestry occupations

Construction and extraction occupations

Installation, maintenance, and repair occupations

Production occupations

Transportation and material moving occupations

Armed Forces

Thinking back to when you were a child, which of the following words best describes your family's financial situation? (Circle one)

Poor Average Well-off

Thinking back to when you were a child, did your family ever have to move because of financial problems? (Circle one)

YES NO Decline to answer

If you circled yes for the question above, how many times did this happen? _____

Did your family receive food stamps when you were a child?

YES NO Decline to answer

Did your family receive any other form of government assistance when you were a child (e.g., AFDC, welfare)?

YES NO Decline to answer

MacArthur Scale of Subjective Social Status- USA version

Think of this ladder as representing where people stand in the United States.

At the **top** of the ladder are the people who are the best off – those who have the most money, the most education and the most respected jobs. At the **bottom** are the people who are the worst off – who have the least money, least education, and the least respected jobs or no job. The higher up you are on this ladder, the closer you are to the people at the very top; the lower you are, the closer you are to the people at the very bottom.

Where would you place yourself on this ladder?

Please place a large **"X"** on the rung where you think you stand at this time in your life, relative to other people in the United States.

MacArthur Scale of Subjective Social Status- Community Version

Think of this ladder as representing where people stand in their communities.

People define community in different ways; please define it in whatever way is most meaningful to you. At the **top** of the ladder are the people who have the highest standing in their community. At the **bottom** are the people who have the lowest standing in their community.

Where would you place yourself on this ladder?

Please place a large **"X"** on the rung where you think you stand at this time in your life, relative to other people in your community.

Material Hardship Questionnaire

Food

How often have you run out of food without money to buy more?

Almost always Often Sometimes Rarely Almost never

How often have you worried about doing so?

Almost always Often Sometimes Rarely Almost never

Does your household generally enough food to eat?

Yes No

Housing

Were you unable to pay rent or mortgage owed in the last year?

Yes No

Have you stayed in a shelter, or moved in with others for financial reasons?

Yes No

Utilities

Were you unable to pay gas, electric or phone bills?

Yes No

Have these services been shut off?

Yes No

Medical

Has anyone in your household avoided seeking necessary medical or dental care because of the cost?

Yes No

General Financial Difficulties

How often have you run out of money between paychecks?

Almost always Often Sometimes Rarely Almost never

Time Crunch Questionnaire

1. Do you consider yourself a workaholic?
YES NO

2. When you need more time, do you tend to cut back on your sleep?
YES NO

3. At the end of the day, do you often feel that you have not accomplished what you had set out to do?
YES NO

4. Do you worry that you don't spend enough time with your family or friends?
YES NO

5. Do you feel that you're constantly under stress trying to accomplish more than you can handle?
YES NO

6. Do you feel trapped in a daily routine?
YES NO

7. Do you feel that you just don't have time for fun anymore?
YES NO

8. Do you often feel under stress when you don't have enough time?
YES NO

9. Would you like to spend more time alone?
YES NO

10. How often do you feel rushed? Would you say it is…
Every day
A few times a week
About once a week
About once a month
Less than once a month
Never

Interpersonal Support Evaluation List- Short Form

Instructions: This scale is made up of a list of statements each of which may or may not be true about you. For each statement circle "definitely true" if you are sure it is true about you and "probably true" if you think it is true but are not absolutely certain. Similarly, you should circle "definitely false" if you are sure the statement is false and "probably false" if you think it is false but are not absolutely certain.

1. If I wanted to go on a trip for a day (for example, to the country or mountains), I would have a hard time finding someone to go with me.

1. definitely false 2. probably false 3. probably true 4. definitely true

2. I feel that there is no one I can share my most private worries and fears with.

1. definitely false 2. probably false 3. probably true 4. definitely true

3. If I were sick, I could easily find someone to help me with my daily chores.

1. definitely false 2. probably false 3. probably true 4. definitely true

4. There is someone I can turn to for advice about handling problems with my family.

1. definitely false 2. probably false 3. probably true 4. definitely true

5. If I decide one afternoon that I would like to go to a movie that evening, I could easily find someone to go with me.

1. definitely false 2. probably false 3. probably true 4. definitely true

6. When I need suggestions on how to deal with a personal problem, I know someone I can turn to.

1. definitely false 2. probably false 3. probably true 4. definitely true

7. I don't often get invited to do things with others.

1. definitely false 2. probably false 3. probably true 4. definitely true

8. If I had to go out of town for a few weeks, it would be difficult to find someone who would look after my house or apartment (the plants, pets, garden, etc.).

1. definitely false 2. probably false 3. probably true 4. definitely true

9. If I wanted to have lunch with someone, I could easily find someone to join me.

1. definitely false 2. probably false 3. probably true 4. definitely true

10. If I was stranded 10 miles from home, there is someone I could call who could come and get me.

1. definitely false 2. probably false 3. probably true 4. definitely true

11. If a family crisis arose, it would be difficult to find someone who could give me good advice about how to handle it.

1. definitely false 2. probably false 3. probably true 4. definitely true

12. If I needed some help in moving to a new house or apartment, I would have a hard time finding someone to help me.

1. definitely false 2. probably false 3. probably true 4. definitely true

Rosenburg Self-Esteem Scale

Instructions:
Below is a list of statements dealing with your general feelings about yourself. Please indicate how strongly you agree or disagree with each statement.

1. On the whole, I am satisfied with myself.

Strongly Agree Agree Disagree Strongly Disagree

2. At times I think I am no good at all.

Strongly Agree Agree Disagree Strongly Disagree

3. I feel that I have a number of good qualities.

Strongly Agree Agree Disagree Strongly Disagree

4. I am able to do things as well as most other people.

Strongly Agree Agree Disagree Strongly Disagree

5. I feel I do not have much to be proud of.

Strongly Agree Agree Disagree Strongly Disagree

6. I certainly feel useless at times.

Strongly Agree Agree Disagree Strongly Disagree

7. I feel that I'm a person of worth, at least on an equal plane with others.

Strongly Agree Agree Disagree Strongly Disagree

8. I wish I could have more respect for myself.

Strongly Agree Agree Disagree Strongly Disagree

9. All in all, I am inclined to feel that I am a failure.

Strongly Agree Agree Disagree Strongly Disagree

10. I take a positive attitude toward myself.

Strongly Agree Agree Disagree Strongly Disagree

Spheres of Control Scale

Instructions: Select a number from 1 to 7 to indicate how much you agree with each statement.

1. I can usually achieve what I want if I work hard for it.

1 2 3 4 5 6 7
Disagree Neutral Agree

2. In my personal relationships, the other person usually has more control than I do.

1 2 3 4 5 6 7
Disagree Neutral Agree

4. Once I make plans, I am almost certain to make them work.

1 2 3 4 5 6 7
Disagree Neutral Agree

5. I have no trouble making and keeping friends.

1 2 3 4 5 6 7
Disagree Neutral Agree

7. I prefer games involving some luck over games requiring more skill.

1 2 3 4 5 6 7
Disagree Neutral Agree

8. I'm not good at guiding the course of a conversation with several others.

1 2 3 4 5 6 7
Disagree Neutral Agree

10. I can learn almost anything if I set my mind to it.

1 2 3 4 5 6 7
Disagree Neutral Agree

11. I can usually develop a personal relationship with someone I find appealing.

1 2 3 4 5 6 7
Disagree Neutral Agree

13. My major accomplishments are entirely due to my hard work and ability.

1 2 3 4 5 6 7
Disagree Neutral Agree

14. I can usually steer a conversation toward the topics I want to talk about.

1 2 3 4 5 6 7
Disagree Neutral Agree

16. I usually do not set goals because I have a hard time following through on them.

1 2 3 4 5 6 7
Disagree Neutral Agree

17. When I need assistance with something, I often find it difficult to get others to help.

1 2 3 4 5 6 7
Disagree Neutral Agree

19. Bad luck has sometimes prevented me from achieving things.

1 2 3 4 5 6 7
Disagree Neutral Agree

20. If there's someone I want to meet, I can usually manage it.

1 2 3 4 5 6 7
Disagree Neutral Agree

22. Almost anything is possible for me if I really want it.

1 2 3 4 5 6 7
Disagree Neutral Agree

23. I often find it bard to get my point of view across to others.

1 2 3 4 5 6 7
Disagree Neutral Agree

25. Most of what happens in my career is beyond my control.

1 2 3 4 5 6 7
Disagree Neutral Agree

26. In attempting to smooth over a disagreement, I sometimes make it worse.

1	2	3	4	5	6	7
Disagree				Neutral		Agree

28. I find it pointless to keep working on something that's too difficult for me.

1	2	3	4	5	6	7
Disagree				Neutral		Agree

29. I find it easy to play an important part in most group situations.

1	2	3	4	5	6	7
Disagree				Neutral		Agree

Marlowe-Crown Social Desirability Scale – 10-item

1. I'm always willing to admit it when I make a mistake.

TRUE FALSE

2. I always try to practice what I preach.

TRUE FALSE

3. I never resent being asked to return a favor.

TRUE FALSE

4. I have never been irked when people expressed ideas very different from my own.

TRUE FALSE

5. I have never deliberately said something that hurt someone's feelings.

TRUE FALSE

6. I like to gossip at times.

TRUE FALSE

7. There have been occasions when I took advantage of someone.

TRUE FALSE

8. I sometimes try to get even rather than forgive and forget.

TRUE FALSE

9. At times I have really insisted on having things my own way.

TRUE FALSE

10. There have been occasions when I felt like smashing things.

TRUE FALSE

APPENDIX D: OTHER STUDY DOCUMENTS

Scarcity Study Codebook

1. Definition of scarcity
    1. Not enough/ Lack of necessities
    2. Not enough to take care of self and family
    3. Dissatisfied
    4. Other

2. Material Scarcity
    1. Definition
        1. Wanting more
        2. Consumerism/"American" marketing
        3. Lacking basic necessities
    2. Relative
        1. Individual situations
        2. America vs. other countries
    4. Not enough of basic needs
        1. Food
        2. Shelter/homelessness
        3. Tattered/old clothes
        4. Unable to pay bills
        5. Transportation
        6. Electronics/Computers/Internet
    5. Objective forms
    6. Subjective forms
    7. Other

3. Time Scarcity
    1. Cause
        1. Time mismanagement/ procrastination
        2. Taking on too much
        3. Increased demands
            1. Family
            2. Work/schoolwork
    2. Not enough time with family
    3. Not enough time with friends/social
    4. Not enough "me" time
    5. Prohibits taking care of self
        1. Eating
        2. Sleeping
        3. Exercising
    6. Captures attention/focus
    7. Other

4. Psychological Scarcity
    1. Lack social support
        1. Emotional support
            1. Isolation
            2. No one to talk to
            3. Help with problems
            4. Someone to talk to
        2. Instrumental support
            1. Financial/ material support if ill/unable to work
            2. Other
    2. Lack meaningful relationships
        1. Close friends
        2. Romantic relationship
    3. Confidence in abilities
        1. Work/ Field of study
        2. Ability to find answers/information need
    4. Other

5. Physical Health/ Ability Scarcity
    1. Hindering work/school work
    2. Hindering participation in activities
    3. Pain
    4. Other

6. Relationships Between Dimensions
    1. Material and Time
    2. Material and Psychological
    3. Time and Psychological
    4. Between kinds of Psychological

7. Objective vs. Subjective Scarcity
    1. Different
    2. Feel different
        1. Objective feels worse
        2. Subjective feels worse
    3. Feel the same
    4. Undecided/Unsure
    5. Other

8. Consequences
    1. Decision-making
    2. Captures focus/attention
    3. Childhood Scarcity
        1.Influence on current behavior
            1. Prepare for times of scarcity
            2. Saving/Couponing

3. Hoarding
4. Other

2. Food
3. Homelessness
4. Other

3. Other

UNC CHARLOTTE

Department of Psychology
9201 University City Boulevard, Charlotte, NC 28223-0001

Informed Consent for
"An Initial Conceptualization of Scarcity"

Project Title and Purpose:
You are being asked to participate in a research study, "An Initial Conceptualization of Scarcity." The purpose of this research study is to better define the concept of scarcity. Please read the information carefully. At the end, you will be asked to sign this document if you agree to participate in the study.

Investigator(s):
This study is being conducted by Maysa De Sousa, a UNC Charlotte Doctoral Student in the Department of Psychology. Dr. Amy Peterman, who is a UNC Charlotte Associate Professor, will be supervising Ms. De Sousa

Description of Participation:
You will be asked to participate in an interview about your experiences with scarcity. This interview will be audio recorded. In addition, you will be asked to fill out a brief questionnaire about basic demographic information, your social status, hardship, and time pressure.

Length of Participation
Your participation in this project will take about 1 hour. If you decide to participate, you will be one of 40 subjects in this study. You will also be asked if we can contact you at a later date to set up a meeting to discuss the analysis of the information you provided. During this meeting, you'll be asked whether the summary of results reflects your experience. You do not have to participate in this meeting in order to participate in the interview. This meeting will take about 30 minutes to complete.

Risks and Benefits of Participation:
The risk associated with this study is that talking about scarcity and your socioeconomic status could make you feel uncomfortable. You are welcome to skip any questions that make you feel uncomfortable, and you may also stop the interview at any time.
You are not expected to personally benefit from participating in this study; however, this study will benefit society by adding to the body of knowledge on scarcity and how it affects health.
You will receive a $15 Target gift card as compensation for your time.

Volunteer Statement:
You are a volunteer. The decision to participate in this study is completely up to you. If you decide to be in the study, you may stop at any time. You will not be treated any differently if you decide not to participate or if you stop once you have started.

Confidentiality:
Any information about your participation, including your identity, will be kept confidential to the extent possible. The following steps will be taken to ensure this confidentiality: participants will be assigned an identification number. This number will be used during the interview, and to identify all demographic information and data collected from participants. The participant's name will be used on the consent and reimbursement forms, and neither form will be kept with participant data or include the participant's assigned identification number. A separate document will be kept with the names, contact information, and identification number of participants who agree to be contacted at a later date for member checks. Only subjects who agree to be contacted will be included in this document. No participant data will be included in the document. This document will be saved in a password protected file accessible only to the research team. All audio recordings and digital transcripts will be stored in password protected electronic files accessible only to the Principal Investigator and research team. All hard copies, including the participant consent and reimbursement forms, will be stored in a locked file cabinet accessible only to the Principal Investigator and research team.

Fair Treatment and Respect:
UNC Charlotte wants to make sure that you are treated in a fair and respectful manner. Contact the University's Research Compliance Office (704-687-1871) if you have any questions about how you are treated as a study participant. If you have any questions about the project, please contact Maysa De Sousa (XXXXX@uncc.edu) or Dr. Amy Peterman (XXX-XXX-XXXX, XXXXX@uncc.edu).

This form was approved for use on 10/7/2014 for a period of one (1) year.

Participant Consent
I have read the information in this consent form. I have had the chance to ask questions about this study, and those questions have been answered to my satisfaction. I am at least 18 years of age, and I agree to participate in this research project. I understand that I will receive a copy of this form after it has been signed by me and the Principal Investigator.

_____ _____
Participant Name (PRINT) DATE

_____ _____
Participant Signature DAT

_____ _____
Investigator Signature DATE

The University of North Carolina at Charlotte
9201 University City Boulevard
Charlotte, NC 28223-0001

An Initial Validation of the Scarcity Scale

Welcome to "An Initial Validation of the Scarcity Scale " a web-based survey that examines the experiences of scarcity. Before taking part in this study, please read the consent form below and click on the "I Agree" button at the bottom of the page if you understand the statements and freely consent to participate in the study.

Informed Consent

This study is being conducted by Maysa De Sousa, Doctoral Candidate of Health Psychology at UNC Charlotte, under the supervision of Dr. Amy Peterman, Associate Professor of Psychology at UNC Charlotte. This study involves a web-based experiment designed to understand how people experience scarcity. If you decided to participate, you will be asked to participate in an online survey scarcity. During the survey, you will be asked questions about various aspects of your experiences with scarcity, You will also be asked to provide demographic information and fill out questionnaires about interpersonal support and spheres of control. In order to be eligible for this study, you must be at least 18 years old, be able to read and understand English, and live in the United States.

If you agree to participate in the study, you will be asked to complete 1 online survey. The survey will take approximately 20-30 minutes to complete. If you decide to participate in the study, you will be one of approximately 200 participants in this study.

All of your responses will be anonymous. The data collected by the Investigators will not contain identifying information. Your responses will be associated with a randomly generated unique identifier. Additionally, only those researchers directly involved in the project will have access to the data. All materials and data will be kept in a password-protected file on the University's server and treated as confidential information. Be aware that confidentiality will be maintained to the extent possible. There is always the risk of compromising privacy, confidentiality and/or anonymity when using email and the internet. However, the risk to your physical, emotion, social, professional or financial well-being is considered to be less than minimal. Also, please be aware that you are able to skip questions within the survey. That is, you can choose not to answer a question and still proceed through the survey.
It is possible that you may become distressed while completing the survey. If this happens, you will be able to take a break or to end participation in the study.

You will receive $1.00 credit for your participation in today's session.

Participation is voluntary. Refusal to take part in the study involves no penalty or loss of benefits to which participants are otherwise entitled, and participants may withdraw from the study at any time without penalty or loss of benefits to which they are otherwise entitled.
UNC Charlotte wants to make sure that you are treated in a fair and respectful manner. Contact the University's Research Compliance Office (704-687-1871) if you have any questions about how you are treated as a study participant. If you have any questions about the project, contact Maysa De Sousa (856-266-1608 or XXXXX@uncc.edu) or Dr. Peterman (XXX-XXX-XXXX or XXXXX@uncc.edu).

You may print a copy of this form. If you are 18 years of age or older, understand the statements above, and freely consent to participate in the study, click on the "I Agree" button to begin the experiment.

I Agree

Scarcity

Researchers in the Department of Psychology are looking for individuals at least 18 years of age to participate in an interview about scarcity. Participants will be asked to discuss their experiences with the feeling of not having enough.

Participants will receive a $15 Target gift card for their time.
All information will be kept confidential.

For more information, please email:
Maysa De Sousa
Dept. Of Psychology
University of North Carolina at Charlotte
at: mdesousa@uncc.edu

UNC CHARLOTTE

THIS PROJECT HAS BEEN REVIEWED BY THE UNIVERSITY OF NORTH CAROLINA AT CHARLOTTE INSTITUTIONAL REVIEW BOARD FOR THE PROTECTION OF HUMAN SUBJECTS IN RESEARCH. ADDITIONAL CONCERNS AND COMPLAINTS, OR QUESTIONS REGARDING YOUR RIGHTS AS A RESEARCH PARTICIPANT SHOULD BE DIRECTED TO: 704) 687-1876.

Scarcity Study Maysa De Sousa XXXXX@uncc.edu	Scarcity Study Maysa De Sousa XXXXX@uncc.edu	Scarcity Study Maysa De Sousa XXXXX@uncc.edu	Scarcity Study Maysa De Sousa XXXXX@uncc.edu	Scarcity Study Maysa De Sousa XXXXX@uncc.edu	Scarcity Study Maysa De Sousa XXXXX@uncc.edu	Scarcity Study Maysa De Sousa XXXXX@uncc.edu	Scarcity Study Maysa De Sousa XXXXX@uncc.edu	Scarcity Study Maysa De Sousa XXXXX@uncc.edu	Scarcity Study Maysa De Sousa XXXXX@uncc.edu

Recruitment Scripts
Below is a template of what the email to interested individuals who contact the investigator will look like:

Good [morning/afternoon/evening],

Thank you for contacting me regarding your interest in the study "An Initial Conceptualization of Scarcity."

The purpose of this study is to develop a comprehensive conceptualization of scarcity, which is the feeling of not having enough to meet your needs. During the interview I will be asking you about your thoughts and feelings about scarcity and how you think different kinds of scarcity may have affected your health. The interview should take about 45 minutes. In addition, I will be asking you to complete some brief questionnaires about some basic demographic questions, your social status and any material hardship you may have experienced. The questionnaires should only take about 5 minutes to complete. If you participate in the study, you will be compensated for your time with a $15 gift card.

In order to determine whether you are eligible for the study, I just need you to answer a few questions. Please email back your responses to the following questions:

How old are you?

What is your annual household income? (pick one of the following): < $25, 000
$25,000 - $100,000 > $100,000

Can anyone claim you as a dependent on their income taxes?

Or if you prefer, you can call me at 856-266-1608 to complete this screening.

I will email you back to let you know if you are eligible for the study.

Thank you!

Maysa De Sousa

If individuals are eligible, this is the email they will receive:

Good [morning/afternoon/evening],

Thank you for completing the eligibility questions for the study "An Initial Conceptualization of Scarcity." You are eligible for the study and I would love to set up a time to meet to do the interview if you are still interested.

Please email me back with three different days and times when you are available to meet in the upcoming weeks and I will get back to you with an appointment time. If you prefer, you can reach me at XXX-XXX-XXXX to set up an appointment time.

Thank you,

Maysa De Sousa

If individuals are not eligible this is the email they will receive:

Good [morning/afternoon/evening],

Thank you for completing the eligibility questions for the study "An Initial Conceptualization of Scarcity." We greatly appreciate your interest in the project. Unfortunately, you are not eligible for the study.

Thank you,

Maysa De Sousa