2018

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Ari B. Silverman
University of Montana, Missoula

Recommended Citation

Silverman, Ari B., "Well-being, meaningful activity, and social closeness for persons with disabilities: Findings from the American Time Use Survey (ATUS)" (2018). *Graduate Student Theses, Dissertations, & Professional Papers*. 11279.
https://scholarworks.umt.edu/etd/11279

WELL-BEING, MEANINGFUL ACTIVITY, AND SOCIAL CLOSENESS FOR PERSONS WITH DISABILITIES: FINDINGS FROM THE AMERICAN TIME USE SURVEY (ATUS)

By

ARI BENJAMIN SILVERMAN

Bachelor of Arts, Middlebury College, Middlebury, Vermont, 2009

Thesis

presented in partial fulfillment of the requirements
for the degree of

Master of Arts
in Clinical Psychology

The University of Montana
Missoula, MT

December 2018

Approved by:

Scott Whittenburg, Dean of The Graduate School
Graduate School

Dr. Jennifer Waltz, Chair
Department of Psychology

Dr. Craig Ravesloot
Department of Psychology, Rural Institute for Inclusive Communities

Dr. Bryce Ward
Rural Institute for Inclusive Communities

Silverman, Ari, M.A., Fall 2018 *Clinical Psychology*

Well-being, meaningful activity, and social closeness for persons with disabilities: Findings from the American Time Use Survey (ATUS)

Chairperson: Dr. Jennifer Waltz

Persons with disabilities (PWD) constitute close to one fifth of the U.S. population and tend to experience both mental and physical health disparities when compared to the general populace. Improving well-being is paramount to enhancing the health status of these individuals. Two areas that have demonstrated promise in facilitating increases in global well-being in the general population are 1) engagement in meaningful activity and 2) experiences of social closeness. Although previous research has examined the global assessment of meaningful activity and social closeness on well-being over longer time frames, few studies have investigated the *direct* and *short-term* influence of these two experiences on subjective well-being (SWB) for PWD. To fill this gap in the research, this study uses daily reconstruction data from the Well-Being Module of the American Time Use Survey (ATUS), which includes a large and representative sample of the U.S. population. The within-subjects, within-day nature of this study allows for each participant to serve as their own control, eliminating potential between-subjects confounds inherent in many large-scale, representative studies. Using this data to advance knowledge concerning the direct and short-term impact of meaningful activity and socially-close experiences on SWB for PWD may advance the development of interventions that enhance well-being for PWD.

Keywords: persons with disabilities (PWD), subjective well-being (SWB), meaningful activity, social closeness

Introduction

Compared to individuals without disabilities, persons with disabilities (PWD) report higher rates of physical and mental symptoms, and have been characterized as a health disparity population (e.g. Krahn, Walker, & Correa-De-Araujo, 2015; Iezzoni, 2011; Jones & Sinclair, 2008). This group of individuals tends to face logistical challenges in obtaining and maintaining employment, engaging in their communities, and accessing healthcare services. PWD often lack opportunities to engage in meaningful experiences and activities, and may be predisposed to feeling socially isolated or experiencing a sense of inadequate social closeness with others. PWD often experience high levels of depression, suicide, and a lack of hope and meaning or purpose in life relative to the general population (Lyons, 1993; Turner, Lloyd, & Taylor, 2006).

The current body of research regarding daily interventions and supports that can improve well-being for PWD does not include sufficient information about daily activities that directly influence subjective well-being (SWB). Two areas that have demonstrated promise in improving global well-being in the general population are 1) engagement in meaningful activity, and 2) experiences of social closeness. For example, Park (2010) highlights the importance of meaning making in overall well-being, noting how those who lack meaning and purpose in their lives often suffer from their directionless trajectory. Similarly, Baumeister and Leary (1995) posit a need for belonging as a prerequisite for well-being, such that feeling separated or alienated from social relationships leads to poor well-being. Specifically, experiencing an unmet need for belonging seems to exert a negative influence on well-being, but this relationship is partially mediated through feelings of loneliness stemming from the unmet need (Mellor, Stokes, Firth, Hayashi, & Cummins, 2008). Thus, global well-being is influenced by both the experience of belonging and the experience of inadequate social closeness, or loneliness. Despite promising links between meaningful activity and social closeness with positive global ratings of SWB, there is a gap in the literature concerning whether specific daily experiences, that are meaningful in nature and allow individuals to feel socially close to others, have the potential to directly influence SWB for PWD and for the general population.

The following literature review will first explore the topics of well-being, meaningful activity, and social closeness, and then lay the foundation to examine how the well-being of PWD will likely be influenced by engagement in meaningful activity and experiences that promote social closeness. Following the literature review is the framework of the study. It identifies the objectives of the study, introduces the dataset, establishes the hypotheses, and presents the methodology, material, and procedures that will be used during the course of the study.

Well-being

A recent trend in psychological research moves away from exclusively examining psychopathology and other “negative” aspects of functioning, and towards strengths-based psychology (e.g. Seligman). Strengths-based psychology highlights the importance of positive psychological constructs (e.g. happiness, character strengths, values, etc.). One of these constructs, which has received extensive attention, is well-being. Well-being refers to optimal psychological functioning and experience (Ryan & Deci, 2001), and can be separated into two types: hedonic and eudaimonic well-being.

Hedonic well-being consists of pleasure or happiness, as well as individual appraisal of the positive or negative aspects of life (Ryan & Deci, 2001), or “what makes experiences and life pleasant and unpleasant” (Kahneman, Diener, & Schwarz, 1999, p. ix). Hedonic well-being has also been referred to as “emotional well-being,” or the “emotional quality of an individual’s everyday experience—the frequency and intensity of experiences of joy, fascination, anxiety, sadness, anger, and affection that make one's life pleasant or unpleasant" (Kahneman & Deaton, 2010, p. 16489). Eudaimonic well-being, on the other hand, focuses on meaning and self-realization that is fulfilled by reaching one's full potential, and thus expressing one's true nature or spirit (Ryan & Deci, 2001). Aristotle believed that well-being included expressing virtue rather than pursuing happiness. More contemporary interpretations of eudaimonic well-being (e.g. Fromm) incorporate implementing what is worth achieving, in line with the requirements of human nature (Ryan & Deci, 2001). Hedonic well-being generally provides a more accurate depiction of one's well-being in reaction to specific life experiences or engagements, while eudaimonic well-being tends to encapsulate more long-term or overarching lifetime well-being.

Hedonic well-being is also more succinctly operationalized and measured in real time compared to the one-size-fits-all eudaimonic well-being. Defining well-being as current experiences of pleasure or pain allows for clearer target outcomes, and provides insight into the variability of well-being throughout the course of a day or week. For instance, reports of well-being tend to change depending on the judgments that individuals form on the spot, and thus more accurately reflect hedonic well-being compared to a stable inner state of well-being (Schwarz & Strack, 1999). Daily or momentary experiences tend to impact hedonic well-being more than eudaimonic well-being. For example, acute physical symptoms (e.g. illness, headaches) or spending the day alone have more negative impact on hedonic well-being than eudaimonic well-being (Kahneman & Deaton, 2010).

Hedonic well-being has primarily been assessed using measures of subjective well-being (SWB). SWB is defined as "a person's cognitive and affective evaluations of his or her life. These evaluations include emotional reactions to events as well as cognitive judgments of satisfaction and fulfillment” (Diener, Lucas, & Oishi, 2002, p. 63). SWB serves as a template for operationalizing hedonic well-being, and provides unique information separate from eudaimonic well-being (Keyes, Shmotkin, & Ryff, 2002). The appropriateness of using SWB as an operationalized measure of hedonic well-being is illustrated by the finding that individuals report higher SWB when in a good rather than a bad mood (Schwarz & Strack, 1999). SWB measurements are sensitive to individuals’ appraisal of a specific situation, one that encapsulates their experience of hedonic well-being.

Meaning/Purpose in Life

“Contemporary psychology increasingly integrates SWB and meaning as major faculties of the good life” (Shmotkin & Shrira, 2012, p. 146). Although defining meaning or purpose in one’s life is a daunting task and is at the heart of existential crises, studies suggest that engaging in activities that feel meaningful or purposeful are strongly linked with well-being. For instance, individuals’ experience heightened well-being when they are involved in a personally valued and desired task (Csikszentmihalyi, 1975). Similarly, approaching goals and tasks purposefully helps individuals cope with adverse situations in life and increases well-being (Cantor & Sanderson, 1999).

Recently, the concept of “Meaningful Activity” was developed to further parse out these types of behaviors and determine how they may influence other domains of functioning. Meaningful activity has been defined as “generally positive subjective experiences composed of a breadth of unique and identifiable aspects that are associated with human action or doing” (Eakman, 2013, p. 101). These experiences often include activities that are pleasurable or enjoyable, that provide an opportunity for completing important tasks that allow for creativity, and foster a sense of being valued, of being in-control, of satisfaction, and of feeling socially connected with others (Eakman, 2012).

According to the Meaningful Activity and Life Meaning (MALM) model (Eakman, 2013), engaging in specific meaningful activities influences an individual's overall sense of meaning and purpose in life, as well as fulfills basic psychological needs. Fluctuations in the proportion of meaningful activity over time directly influence overarching experiences of meaning in life (Eakman, 2014), such that increasing the amount of day-to-day meaningful activity will increase one's overall experience of a meaningful life, and decreasing daily meaningful activity will have the opposite effect. Thus, everyday engagement in meaningful activity can have the long-term effect of fulfilling psychological needs and improving well-being (Eakman, 2014).

Social Closeness

Major psychological theories argue that forming and maintaining strong interpersonal relationships with others is a fundamental component of well-being (e.g. Hazan & Shaver, 1987; Baumeister & Leary, 1995). Social closeness has been defined as "a belief or perception about a person's degree of embeddedness in a social network or networks. In this formulation, social closeness may or may not be related to actual behaviors from relationship partners: what matters is the individual's perception of their relationships with others" (Kok & Fredrickson, 2014, p. 1). Feeling socially connected to others through warm, trusting, and supportive interpersonal relationships is so essential to well-being that it has been categorized as a basic human need (Baumeister & Leary, 1995). Importantly, the experience of true intimacy in social closeness does not stem from the quantity of connections. Instead, it is the quality of relationships that kindles well-being, as individuals who have more intimate or strongly connected relationships tend to demonstrate greater well-being (Ryan & Deci, 2001).

When social closeness is lacking, individuals tend to feel lonely. Loneliness stems from the discrepancy between desired and actual social relationships (Peplau & Perlman, 1982), such as when intimate, romantic partners fail to satisfy the need for connectedness, when sincere, confiding friendships leave individuals wanting additional relational connectedness, and when social groups that one values leave the individual feeling out of place (Hawkley & Cacioppo, 2013). Loneliness has numerous psychological, psychosocial, and physiological consequences across the lifetime, some of which are believed to be causal. Vice Admiral Vivek H. Murthy, former Surgeon General of the U.S. from 2014-2017, recently labeled loneliness as a national epidemic. Murthy (2017) noted how, for many individuals from diverse backgrounds, loneliness is often related to clinical illness, contributing to disease and impeding patients' ability to cope and heal.

Loneliness has been directly linked to depression (e.g. Cacioppo, Hughes, Waite, Hawkley, & Thisted, 2006), anxiety (e.g. Lasgaard et al., 2011), suicidal behavior (e.g. Schinka et al., 2013), behavioral withdrawal, lack of active coping, and failure to seek emotional support (Hawkley & Cacioppo, 2007), cardiovascular functioning and heart disease (Caspi, Harrington, Moffitt, Milne, & Poulton, 2006), increased blood pressure over several years (Hawkley & Cacioppo, 2010), and mortality (Shiovitz-Ezra & Ayalon, 2010; Luo et al., 2012). A recent meta-analysis of the effect of social relationships on mortality followed over 300,000 individuals for an average of 7.5 years, and revealed that individuals with poor or insufficient social relationships had a 50% greater likelihood of dying compared to those with adequate relationships (Holt-Lunstad, Smith, & Layton, 2010). The significant influence of loneliness on mortality is comparable to excessive cigarette smoking, and exceeds other common risk factors for mortality such as obesity, lack of physical activity, and excessive consumption of alcohol. Lack of social closeness is associated with significant impairment in well-being, and is a vital area of public health that requires intervention.

Disability

PWD constitute a large percentage of the U.S. population. According to a recent study published by the Centers for Disease Control (CDC), more than 1 in 5 adults, or over 53 million individuals in the U.S., have a disability (Courtney-Long et al., 2015). These rates are even higher for older adults, as one third of individuals over the age of 65 reported having a disability. Mobility disabilities are the most prevalent type, followed by disabilities in cognition, independent living, vision, and self-care. Rates of disability tend to be higher in marginalized populations, including individuals who are unemployed, who have lower levels of income, and who have less education (Courtney-Long et al., 2015). The CDC study also found disability to be more common in females, non-Hispanic blacks, and Hispanics.

Although the term PWD often refers to a single population, this is a diverse group of individuals with a wide array of disabilities. In addition, two individuals with the same disability may experience their impairments uniquely, and may exhibit disparate related symptoms. The World Health Organization’s (WHO) International Classification of Functioning, Disability and Health (2001) outlines three dimensions of disability, and persons with a disability can fall along any point of each of the three spectrums. According to the CDC, the first dimension includes “impairment to a person’s body structure or function, or mental functioning” and includes examples such as “loss of a limb, loss of vision, or memory loss.” The second dimension of disability is “activity limitation,” and entails challenges such as difficulty seeing, hearing, walking or problem solving. The final dimension of disability according to the WHO is “participation restrictions in normal daily activities such as working, engaging in social and recreational activities, and obtaining health care and preventive services.”

PWD also vary in the manner in which they acquire their disabilities. Some individuals are born with a disabling condition such as cerebral palsy or Down syndrome, or are diagnosed or develop a condition in childhood or early adulthood, such as autism or schizophrenia. Other individuals acquire a disability through physical injury, such as damage to the spinal cord, or as the result of a chronic condition, such as limb loss due to diabetes. Finally, some individuals develop a disability later in life, such as Alzheimer's or mobility impairment due to body deterioration in old age.

Regardless of the manner in which individuals come to have their disability, many experience significant limitations in functioning, which often manifest in challenges with integration and participation in their communities (Krahn et al., 2015). Historically, this marginalization from communities, along with mass institutionalization, has led to a narrative of social, economic, and environmental disadvantages for this population (Krahn et al., 2015). Like many marginalized populations, the effects of these disadvantages influence day-to-day functioning, physical health, and mental well-being.

Individuals with a disability often exhibit disproportionately poorer physical health outcomes than those without a disability. Documented physical health differences for this population include higher prevalence rates of cardiac disease, high blood pressure, high cholesterol, diabetes, stroke, arthritis, asthma and obesity (Reichard, Stolzle, & Fox, 2011). In addition, PWD often report lower health status, and are less likely to receive important preventative screenings compared to the general population, despite maintaining a regular source of care (Reichard et al., 2011). These differences highlight the unmet healthcare needs, harmful health behaviors, and social determinants of poor health for PWD (Krahn et al., 2015). Furthermore, obesity and chronic health conditions can exacerbate functional limitations and place individuals at greater risk for developing additional adverse health conditions or premature death (Reichard et al., 2011). This discrepancy in risk for adverse health outcomes suggests that PWD should be characterized as a health disparity population (Krahn et al., 2015). Many of the health issues for PWD are preventable (Courtney-Long et al., 2015), and public health organizations should target this vulnerable population (Krahn et al., 2015).

Not only do individuals with a disability tend to exhibit poorer physical health outcomes than those without a disability, but mental health well-being of PWD is often in jeopardy as well. In general, studies have demonstrated that PWD experience high levels of depression, social isolation, suicide, and a lack of hope and meaning or purpose in life (Lyons, 1993). For example, one study found that lifetime prevalence of psychiatric and substance use disorders for individuals with a physical disability (37%) is almost double the rate of individuals without a disability (22.3%) (Turner, et al., 2006). Furthermore, as many as 45% of the participants with a lifetime disability met criteria for a psychiatric disorder within the year preceding the study (Turner et al., 2006). Physical impairments in a person's body structure or function are associated with depression, and serious impairment can double or quadruple the frequency of depression (Mirowsky & Ross, 1999).

The World Mental Health Survey Initiative, a project of the Assessment, Classification, and Epidemiology (ACE) group at the WHO, analyzes epidemiologic surveys of mental, substance use, and behavioral disorders around the world. Findings from the World Mental Health Survey highlight the substantial comorbidity of mental disorders with physical ailments (e.g. Chatterji et al., 2013). Although focusing on chronic physical conditions instead of the WHO's disability dimensions, the survey found that among the 17 countries surveyed, depression and anxiety were significantly linked to a variety of chronic, potentially disabling, physical conditions including arthritis, ulcers, heart disease, back/neck problems, chronic headaches, and multiple pains (Scott et al., 2007). One explanation as to why these associations between physical ailments and poor mental health are common is that activity limitations may increase the risk for feeling alienated, isolated, or unable to live life in a desirable manner. It is important to keep in mind, however, that although many individuals with disabilities share a similar feeling of marginalization, and often lack the ability to fully participate in life, this experience is not held by all.

Despite significant mental health disparities between PWD and those without a disability, this relationship is not necessarily causal. Instead, the association between disability and well-being depends on the individual's self-definition, view of the world, and appraisal of their disability. Thus, objective evaluations of disability by others must include the specific individual's subjective interpretation of impairment in order to accurately understand the unique impact of the disability (Power, Green, & The WHOQOL-Dis Group, 2010). The research of Albrecht and Devlieger (1999) highlights the dimensional nature of the experience of living with a disability, noting that regardless of potential limitations in daily living, difficulties fulfilling social roles, and discriminatory challenges, many PWD report an excellent or good quality of life. Albrecht and Devlieger (1999) labeled this phenomenon the "Disability Paradox." Furthermore, throughout the course of their disability, psychological adjustments to the disability can be made (Power et al., 2010), with the potential to improve mental health functioning and overall well-being. Thus, an individual's evaluation of their disability, in conjunction with their ability to engage in meaningful activities with socially-close others, may be fundamental to their well-being, and a potential area for intervention.

Well-being for Persons with Disabilities

Research indicates that in general, PWD may be at risk for experiencing poor outcomes in terms of well-being (e.g. Mehnert, Krauss, Nadler, & Boyd, 1990; Lyons, 1993; Turner et al., 2006; Ryff, 2014), although other studies, depending on the type of disability and the specific constructs of well-being tested, reveal contrary results. For example, one meta-analysis found that individuals with a major mental disorder (MMD), such as schizophrenia or an affective disorder, reported above average levels of quality of life (QOL) compared to those without a mental disorder (Vatne & Bjørkly, 2008). As previously mentioned, the Disability Paradox notes that many PWD report an excellent or good quality of life, indicating that having a disability and experiencing poor subjective well-being are not causal.

Despite previous research examining disparate constructs of well-being (e.g. QOL, life satisfaction, health status, psychological well-being, happiness) for individuals with unique disabilities (e.g. physical disability, spinal cord injury, cognitive disability, etc.) no large-scale research has examined the direct impact of meaningful activity with socially-close others on well-being for persons with any type of disability. By determining the direct influence of engagement in various daily activities on well-being, this study will demonstrate which activities and social interactions tend to promote positive well-being for PWD.

Life Meaning for PWD

Having meaning in life appears particularly salient to the well-being of PWD. This population tends to have a significant amount of free time compared to those without a disability, and individuals often have difficulty filling this time with meaningful activities (Lyons, 1993). A large Canadian study examining the influence of engagement in meaningful activities on well-being for older PWD demonstrated a strong positive correlation between severity of disability and inactivity (Environics Research Group of Toronto, 1989, as cited in Lyons, 1993). PWD who are able to fill their time with meaningful activities appear to benefit physically, psychologically and emotionally. For instance, for individuals coping with the development of a new physical disability, having meaning in life served as a protective factor against developing depressive symptomatology (Psarraa & Kleftaras, 2013). Conversely, individuals who lacked meaning in their lives tended to experience apathy, boredom, and indifference about their lives, making the transition to living with a disability psychologically taxing (Psarraa & Kleftaras, 2013). Similarly, for individuals coping with a disabling spinal cord injury, having meaning and purpose in life was positively correlated with psychological well-being (deRoon-Cassini, de St. Aubin, Valvano, Hastings, & Horn, 2009), while lacking meaningful activity contributed to psychological distress (Kinney & Coyle, 1989). Furthermore, engagement in leisure activities may provide meaning for PWD by helping to meet higher order needs, such as improving self-esteem, increasing a sense of belongingness, and self-actualization (Coyle, Lesnik-Emas, & Kinney, 1994).

Populations with various disabilities appear to benefit from having meaning in life as well. Associations between meaning in life and well-being appear strong for chronically ill individuals. In one study, experiencing meaning predicted increased well-being in individuals with a chronic disease (Dezutter et al., 2013). As noted earlier, the severity of the disability or disease seems less important than the individual's appraisal of their disability, and having meaning and purpose in life tends to increase appraisals, resulting in improved well-being (Dezutter et al., 2013).

Although a slightly different construct than SWB, QOL research has demonstrated a link between finding meaning in life and positive mental health outcomes for PWD. For instance, in a meta-analysis, engaging in meaningful leisure activities predicted good QOL for individuals with major mental disorder, indicating that these types of meaningful activities are related to the overall well-being of this population (Vatne & Bjørkly, 2008). In addition, for individuals with spinal cord injury, perceived degree of control and purpose in life predicted life satisfaction and mental health (Van Leeuwen, Kraaijeveld, Lindeman, & Post, 2012). This link was found to be a dose-response relationship, such that higher scores on each determinant were related to greater QOL. A similar connection between engagement in meaningful activities and positive ratings of satisfaction of daily activities and functioning was found in persons disabled by mental illness (Goldberg, Brintnell, & Goldberg, 2008). However, within the relationship of engagement in meaningful activities and satisfaction with life as a whole, the greatest influence on QOL was the extent of depressive and anxious symptomatology (Goldberg et al., 2008). Thus, overall quality of life may be influenced by engagement in meaningful activity, but this relationship occurs primarily in the absence of mental illness.

Although previous research has determined that engagement in meaningful activities is linked with experiences of fulfillment of basic psychological needs and of having purpose in life (e.g. Eakman, 2014), no research has examined the *direct* impact of engagement in meaningful activities on well-being for PWD. As Kahneman et al. (1999) note, research should investigate and identify the situations in which people experience the most enduring pleasures. Specifically, little is known about how taking part in activities that are meaningful influences momentary experiences of well-being compared to engaging in those activities that are not considered meaningful. Similarly, research on within-day temporal association between engagement in meaningful activity and well-being is lacking in the literature, such that it is unknown whether engagement in meaningful activity has the potential to influence well-being relatively quickly, such as within the same day. Finally, although some prior research has demonstrated that leisure activities (e.g. Vatne & Bjørkly, 2008) and work activities (e.g. Saunders & Nedelec, 2014) can be particularly meaningful for PWD, specific indicators about exactly which types of activities are considered most meaningful for PWD is generally lacking. As Goldberg et al. (2008) note, future research should identify the types of activities engaged in and the intrinsic value (meaningfulness) of these activities. This information will provide additional insight into potential meaningful activity interventions to improve the daily well-being of PWD.

Social Closeness for PWD

Social connectedness appears fundamental to the well-being of all, as perceptions of a lack of social connectedness are the most important contributor to feelings of loneliness (Hawkley & Cacioppo, 2013). PWD may be particularly vulnerable to loneliness (e.g. Hawkley & Cacioppo, 2007). Compared to non-disabled individuals, PWD have been found to experience significantly higher rates of feelings of social inadequacy and alienation from others (Rokach, Lechcier-Kimel & Safarov, 2006). Also, one study found that PWD rarely experienced loneliness as an opportunity for personal growth and development as is sometimes the case with non-disabled individuals (Rokach et al., 2006). In addition, physical disabilities or illness can make it difficult to travel to group or individual therapy sessions, further alienating these individuals from potential mental health services (Kok & Fredrickson, 2014). Finally, for individuals with a major mental disorder, social relations were a strong predictor of well-being, suggesting that a positive appraisal of one’s social network likely inhibits feelings of loneliness

(Vatne & Bjørkly, 2008). Thus, numerous studies demonstrate that social closeness can serve as a protective factor for PWD.

It is important to note that the relationship between social closeness and well-being for PWD may not be as strong as it is for individuals without a disability. For example, in a narrative synthesis review, social support predicted scores of mental health for individuals with a physical disability, although there was less evidence for a connection between social support and symptoms specific to anxiety, depression, and well-being, as many studies reported non-significant associations between social support and these constructs (Tough, Siegrist, & Fekete, 2017). Furthermore, the link between social support and depression appeared to be stronger for the general population compared to individuals with a physical disability (Tough et al., 2017). Thus, some research highlights the idea that PWD may not be more susceptible to loneliness, or lacking social closeness. Despite these contrasting findings, adequate social connectedness likely provides some type of benefit, as is evident from a variety of studies, as well as the data in this review on overall mental health.

Although a substantial amount is known about the role of social closeness in the well-being of PWD, a number of questions remain. The existing body of research focuses primarily on global assessments of well-being, and is lacking in terms of the examining the more direct, real-time impact of different types of social activities on well-being. Results from previous research with individuals without disabilities indicate that many individuals’ happiest moments are in the presence of their friends, while time spent with family members may be met with ambivalence (e.g. Kahneman et al., 1999). Other research results highlight the importance of spending time with family (e.g. King & Hicks, 2012) in improving a sense of connection and well-being. Specifically, little is known about with whom PWD are spending their time in the moments when they experience their strongest sense of well-being. There is also some evidence for the importance of spending time with coworkers for increasing well-being of PWD (e.g. Saunders & Nedelec, 2014). Thus, there is a gap in the literature about the relative influence of various relationships for these individuals.

In addition to positively influencing well-being directly, experiences of social connectedness are also considered an important type of meaningful activity (Eakman, 2014). Little is known about various types of activities involving others that are considered meaningful and allow PWD to experience social closeness. Understanding whether people in specific relational roles are more likely to be involved during meaningful activity for PWD would provide new insight into the correlates of meaningful activity and help inform meaningful activity interventions with others.

Social Connectedness and Meaning

Prior research has found that for individuals without disabilities, meaning in life is associated with appraisals of social support or emotional closeness from family members and close friends (e.g. Krause, 2007) and that close relationships serve as the most common source of meaning (Debats, 1999). Additionally, relationships that promote a sense of belonging and a secure feeling of fitting-in have been found to be the most likely to provide meaning in life (Lambert et al., 2013). In particular, family relationships operationalized in terms of closeness and support have emerged as particularly salient sources of meaning (Lambert et al., 2010).

For PWD, active and meaningful engagement in activities has been viewed as a means to experience social connectedness with others as well as the greater community (Hammel et al., 2009). Similarly, meaningful activities with younger people allow older adults in residential aged care facilities to combat feelings of isolation and loneliness by providing opportunities for social connection (Annear, Kate-Ellen, Tierney, Lea, & Robinson, 2017). Finally, from an occupational therapy standpoint, meaningful social activities, such as sharing dinner with friends, provide an opportunity to allow people to relate to each other in a deeper way (Persson, Erlandsson, Eklund & Iwarsson, 2001). This study will examine the combination of meaningful activities with socially close others as a potential catalyst for the well-being of PWD.

The Current Study

This study sought to advance knowledge concerning the simultaneous impact of potentially meaningful engagement and social experiences on well-being for PWD. The study adds to the research literature, which currently focuses almost exclusively on more global assessment of well-being over a longer timeframe (Kahneman et al., 1999). Understanding the more direct effects of different types of activities could be useful for developing interventions to enhance well-being for PWD (Stone, Schneider, Krueger, Schwartz, & Deaton, 2016).

In order to look at the more direct effects of different life experiences, this study utilized data collected through the recording of events and responses to those events the day after they occurred. This data collection process is a version of the Daily Reconstruction Method (DRM), in which participants recall all the events of the previous day and then provide information on their affective experiences of three randomly selected events. This approach has demonstrated validity as a method for determining variations in affective state during the course of a normal day, and provides insight into which circumstances have a direct influence on well-being (Kahneman, Krueger, Schkade, Schwarz, & Stone, 2004).

In order to determine the direct association between meaningful activity and well-being for PWD, individuals' self-reports of sense of well-being during three random activities throughout the course of the day were assessed. Within-person ratings of well-being were compared across activities with different levels of meaningfulness of the activity. Comparisons also provided insight into the association between meaningful activity and well-being for PWD compared to those without a disability. Furthermore, this research explored potential connections between engagement with relationally-close others and well-being by differentiating between the types of relationships with which PWD share their greatest experiences of well-being.

The current study explored the intersection of meaningful activities and those that involve social closeness. This research tested whether activities that combine a sense of meaning with socially close others had a strong association with well-being. Although we had intended to examine temporal associations between meaningful activity and well-being, the structure of the data was inadequate to assume associations between earlier activities and later experiences of well-being. Finally, this investigation provided insight into the link between the type of meaningful activity and well-being for PWD. By examining which types of activities are linked with the greatest simultaneous well-being, this study highlighted the value of various experiences on well-being.

In sum, this research provided novel information concerning the links between meaningful activity, socially-close relationships, and well-being for PWD. Looking in depth at correlates of well-being for PWD may provide insight into potential interventions.

Existing Dataset

This study utilized a large, existing dataset (the ATUS) that included variables relevant to the current study, and is comprised of a very large number of participants, both PWD and persons without disabilities. There are advantages and disadvantages to using such a dataset. The very large sample size, which is a representative sample of the U.S. population, is one clear advantage. This allows for a high level of statistical power and the ability to generalize to the general population of the U.S. The dataset also includes a large number of PWD, which is essential for addressing the proposed research questions. Conversely, using an existing dataset does not allow the researcher to control the specific measures used and other aspects of the methodology. This reduces flexibility and requires that questions be limited to those that can be addressed by the existing data.

Taking these pros and cons together, the ATUS dataset overall provides many important advantages for studying the direct and within-day influence of meaningful activities with socially close others on SWB for PWD. Accessing this population is very resource intensive, and the ATUS dataset made it possible to address questions that would otherwise not be feasible to address in a study with the scope of the current project. In addition, the within-person comparisons examined in this study allowed for each individual to serve as their own control, eliminating confounds such as sex, race, ethnicity, SES, intelligence, personality, genetic make-up, personal preferences, and so on.

Hypotheses

1) It was hypothesized that participating in activities with a higher versus lower degree of meaningfulness would be related to higher well-being scores for PWD and for the general population. Relatedly, participating in meaningful activities was expected to be associated with significantly greater SWB for PWD compared to the general population.

2) It was hypothesized that participating in any activities with certain others who were likely to provide higher levels of social closeness (family and friends), would be related to greater overall SWB for PWD compared to participating in activities with less well-known individuals (co-workers, neighbors, acquaintances, other non-household individuals, bosses,

managers, people whom the respondent supervises, customers) or alone. It was hypothesized that this result would also be found for the general population.

3) It was hypothesized that the experiences that combine meaningful activity with being with close others would result in greater SWB for PWD. More specifically, we expected that participating in meaningful activities with socially-close others (e.g. family and friends) would be linked with greater overall well-being compared to participating in meaningful activities with less well-known individuals (co-workers, neighbors, acquaintances, other non-household individuals, bosses, managers, people whom I supervise, customers) or alone. We anticipated that this finding would hold true for the general population as well.

4) It was hypothesized that PWD would demonstrate significant increases in SWB during meaningful leisure and employment activities involving non-family members (friends, acquaintances, neighbors, acquaintances, other non-household individuals, boss or manager, people whom I supervise, co-workers, customers) compared to those without a disability. PWD may tend to rely on individuals outside their household for support and aid in engaging in activities. This relationship may promote SWB in PWD.

5) It was hypothesized that engagement in meaningful activity would have a temporal effect on SWB for PWD, such that participating in a more meaningful activity earlier in the day would predict higher SWB scores later in the day.

6) It was hypothesized that the type of meaningful activity would influence SWB for PWD, such that participating in meaningful leisure and work activities would be associated with the highest ratings of well-being compared to other types of activities (e.g. eating and drinking, household activities, purchasing goods and services).

Methods

Participants

Participants in this study completed the ATUS in 2010, 2012, and 2013, a follow-up study to the Current Population Survey (CPS) sponsored by the U.S. Census Bureau and the Bureau of Labor Statistics (BLS). A total of 34,565 participants completed the Well-Being Module (WBM) for three different activities for a total of 102,633 activities (few participants did not complete all 3 iterations of the WBM). All individuals over the age of 15 living in a U.S. household are eligible to participate in the CPS survey with the exception of those serving as active military personnel and individuals residing in institutions such as inpatient hospitals, nursing homes, and prisons. After completion of the CPS survey, the sample of individuals in the CPS is subsampled to get the ATUS sample. Like the CPS sample, the ATUS sample is designed to produce reliable estimates of the U.S. population at the national level. A stratification processes is used to illicit a representative sample of households. From this representative sample of households, a random person in each household is selected to be the designated person (DP), or participant, for ATUS.

Materials & Procedure

Data were collected adhering to the BLS's protocol for the ATUS. Data are collected from households that have already completed all eight interviews through the CPS. Within this sample of households, a person aged 15 or older is randomly selected to serve as the ATUS DP. Each DP is assigned a day of the week about which to report their activities. On the day directly following the preassigned reporting day, the ATUS interviewer contacts the DP and proceeds with the interview. If for any reason the DP is not able to be contacted or cannot complete the interview, no data is collected. Another household member cannot be substituted for the DP.

Specific information about the methodology is available through the BLS website (https://www.bls.gov/tus/).

Upon speaking with the DP, telephone interviewers asked a series of questions including household roster (demographics of everyone who lives in the home), presence of children in the home, employment status for all household members (hours spent at job, desire to be employed), and disability status of the DP (if the disability previously reported in the CPS has prevented the designated participant from working in the past, currently, or will prevent them from working in the future).[1]

After collecting demographic information, the interviewer records a detailed account of every activity the participant engaged in between the hours of 4:00 a.m. the previous day to 4:00 a.m. on the interview day. The duration (hours and minutes), with whom the participant was with (e.g. alone, household (HH) members and non-household children, all household members, parents, other non-HH family members <18, other non-HH family members and older [including parents-in-law], friends, neighbors, acquaintances, other non-HH children <18, other non-HH adults 18 and older [including parents-in-law], boss or manager, people whom I supervise, co-workers, customers) and where the activity took place (e.g. DP's home or yard, DP's workplace, someone else's home, restaurant/bar, place of worship, grocery store, other store/mall, school, outdoors away from home, library, bank, gym/health club, post office, mode of transportation, other place [specify]) are recorded before moving onto the next activity. ATUS does not collect data on simultaneous activities. If the DP reports engaging in two activities at once, and cannot

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[1] The CPS uses the following questions to assess for disability. Is anyone deaf or does anyone have serious difficulty hearing? Is anyone blind or does anyone have serious difficulty seeing even when wearing glasses? Because of a physical, mental, or emotional condition, does anyone have serious difficulty concentrating, remembering, or making decisions, or difficulty doing errands alone such as visiting a doctor's office or shopping? Does anyone have serious difficulty walking or climbing stairs? Does anyone have difficulty dressing or bathing?

separate the activities as one preceding the other, the interviewer asks which activity was the main activity and records that activity. Activities are then coded in a 3-tiered classification system resulting in a specific 6-digit activity code for each of the DP's activities.

The WBM of the ATUS is used to measure the participant's health and well-being during three randomly selected activities in their daily reconstruction. The interviewer reminds the DP of the activity they described, noting that between one specific time and another specific time the DP reported doing a certain activity. The interviewer then asks the DP to respond to the following affect questions about how the DP felt during the particular activity. A Likert scale (0-6), where a 0 means that the DP did not experience the feeling at all and a 6 means that the feeling was very strong is used to allow the DP to rate their experience. The WBM then asks the DP to respond (0-6) concerning how happy, tired, stressed, sad, and how much pain they were experiencing. The order of these questions are randomized by participant. Next, the WBM asks how meaningful the participant considered the activity (0-6). Finally, the DP is asked if they were interacting with anyone during this time, including over the phone.

The 2012 and 2013 versions of the ATUS WBM included two additional general well-being questions which were absent in the 2010 version. Participants were asked to think about their life in general, not just in terms of the specific activities. They were then prompted with the following questions. "Please imagine a ladder with steps numbered from zero at the bottom to ten at the top. The top of the ladder represents the best possible life for you and the bottom of the ladder represents the worst possible life for you. If the top step is 10 and the bottom step is 0, on which step of the ladder do you feel you personally stand at the present time? Thinking about yesterday as a whole, how would you say that your feelings, both good and bad, compared to a typical [day of the week]? Were they better than a typical [day of the week], the same as a typical [day of the week], or worse than a typical [day of the week]?"

Data Management

In general, the affect items in the well-being module of the ATUS show sufficient reliability and validity, and moderate variability, although covariation effects indicate that grouping positive and negative affect items may provide clearer results (Lee, Hofferth, Flood, & Fisher, 2016). For this reason, both individual well-being analyses and grouped well-being analyses were performed. Individual well-being analyses examined a single well-being construct (e.g. meaningfulness or happiness), while grouped well-being scores combined negative well-being scales (pain, sadness, stress, fatigue) into a composite score. This method of using more than one factor was found to encapsulate a greater proportion of variance explained in a principal component analysis with the ATUS WBM (Lee et al., 2016).

It is important to note the complicated, multilevel nature of the ATUS data. Specifically, the participant is at the highest level, level two. Activities are at the lower level, level one, and are nested within each individual. The well-being module is used to assess well-being during three randomly selected, level-one activities. Thus, well-being analyses for various activities will be conducted in a within-subjects manner. This will help control for between subjects confounds.

Results

To determine the association between the independent variables and well-being outcome variables, we conducted within-subjects, fixed effects Multivariate Multilevel Analyses (MMAs). Outcome variables were the happiness single-item response, and the average of the negative well-being items (i.e., pain, sadness, stress, and fatigue). This separation allowed for us to determine both the positive well-being and negative well-being associations of each of our predictor variables. In addition, when the meaningfulness of the activity was not included as a predictor variable, we determined the association between the predictor variable and meaningfulness as an outcome variable.

Demographic Information

We ran descriptive statistics to examine the distribution of demographics of our sample. Consistent with the aim of the ATUS, the sample appeared to be a relatively representative cross-section of the U.S. population age 15 and over. The sample for our analyses had an average age of 47.6, and was primarily female (55.7%), and white non-Hispanic (65.7%). PWD (11.8%) were adequately represented in the sample. With regard to education, a small proportion did not graduate from high school (15%), about a quarter graduated high school (25.6%), another quarter attended some college (27.1%), about a third graduated from college (32.3%) and a small proportion reported having graduate degrees.

Hypothesis 1: Meaningful Activity

To test hypothesis 1, we regressed the meaningfulness of activities on happiness ratings and negative well-being ratings using separate MMAs. We also evaluated the effects of having a disability on the association between meaningfulness and well-being. In these analyses, having a disability did not account for statistically significant variation. Next, we ran separate analyses for people with and without disabilities. A significant effect was found for PWD (Beta = 0.200, $p<.01$; $R^2 = .038$) and those without a disability (Beta = 0.229, $p<.01$; $R^2 = .059$), indicating that there were similar positive effects between the meaningfulness of the activity and happiness of the activity. These effect sizes are considered small in magnitude (Cohen, 1992) and reflect that around 4% to 6% of the proportion of variance in happiness an individual experiences can be accounted for by the meaningfulness of the activity in which they are participating. It is important to remember that our analyses are comparing individuals to themselves in various contexts throughout the same day, and that our effect sizes reflect this within-person variation. Although there was also a significant negative association between the meaningfulness of the activity and grouped negative well-being outcomes for PWD (Beta = -.047, $p<.01$; $R^2 = .004$), and those without (Beta = -.036, $p<.01$; $R^2 =.003$), the effect sizes of these relationships were minimal, indicating that little of the magnitude of the proportion of variance in an individual's negative well-being can be accounted for by the meaningfulness of the activity. These findings suggest that meaningful activities seem to be associated with a slight but significant increase in happiness, but have little effect on an individual's immediate experience of pain, sadness, stress, and fatigue for people with disabilities.

Hypothesis 2: Socially Close Others

To test hypothesis 2, we regressed activities with socially close others on happiness ratings and negative well-being ratings using separate MMAs. We operationalized socially close others as family members (spouse, unmarried partner, children, grandchildren, siblings, parents, other related persons), others living within the DP's household (foster child, housemate/roommate, roomer/boarder, other non-relative) and friends. We also evaluated the effects of having a disability on the association between engaging in activities involving socially close relationships and well-being. Again, having a disability did not account for statistically significant variation in these analyses. Next, we ran separate analyses for people with and without disabilities. A significant effect was found for PWD (Beta = 0.231, $p<.01$; $R^2 = .011$) and those without a disability (Beta = 0.243, $p<.01$; $R^2 = .019$), indicating that there were positive effects between activities with socially close others and happiness ratings of the activity. These effect sizes are considered small in magnitude (Cohen, 1992) and reflect that close to 1%

to 2% of proportion of variance in happiness experienced by an individual can be accounted for by engagement in activity with socially close others. Although there was also a significant negative association between activities with socially close others and grouped negative well-being outcomes for PWD (Beta = -.067, p<.01; R^2 = .003), and those without (Beta = -.069, p<.01; R^2 =.002), the effect sizes of these relationships were minimal, indicating that little of the magnitude of the proportion of variance in negative well-being can be accounted for by whom else was present during the activity. These results indicate that spending time with socially close others is associated with a slight increase in happiness and is significantly related to pain, sadness, stress, and fatigue, but accounts for little of the variation in these well-being components.

Hypothesis 3: Meaningful Activity with Socially Close Others

To test hypothesis 3, we used the two previous predictor variables, the meaningfulness of the activity and activities that included socially close others, and regressed this combination on happiness ratings and negative well-being ratings using separate MMAs. We also evaluated the effects of having a disability on the association between meaningful activity with socially close others and well-being. In these analyses, having a disability accounted for statistically significant variation. Next, we ran separate analyses for people with and without disabilities. A significant effect was found for those without a disability (Beta = 0.061, p<.01; R^2 = .071), but not for PWD (Beta = 0.034, p>.05; R^2 = .046), indicating that there was a positive association between more meaningful activities with socially close others for persons without a disability and the happiness of the activity. This effect size is considered small in magnitude (Cohen, 1992) and reflects that around 7% of the proportion of variance in happiness can be accounted for when an individual is engaging in more meaningful activity with socially close others compared to when that individual is not in meaningful contexts with socially close others. Although there was also a significant negative association between meaningful activities with socially close others for those without a disability and grouped negative well-being outcomes (Beta = -.031, $p<.01$; R^2 =.006), the effect size of this relationship was minimal, indicating that little of the magnitude of the proportion of variance in negative well-being for individuals can be accounted for by the combination of meaningfulness of the activity with socially close others. Thus, for persons without disabilities, meaningful activity with socially close others is significantly associated with increases in happiness and is associated with pain, sadness, stress, and fatigue, but does not explain much of the variation in these negative well-being outcomes. For PWD, engagement in meaningful activity with socially close others appears related to well-being, but in a small, statistically insignificant manner.

Table 1

Multivariate Multilevel Analyses Predicting Happiness

	No Disability				PWD			
Predictor Variable	N	β	SE	R^2	N	β	SE	R^2
Meaningfulness of activity	90000	0.229**	0.005	0.059	11368	0.200**	0.015	0.038
Presence of socially close others	88278	0.243**	0.008	0.019	11478	0.231**	0.027	0.011
Meaningfulness with socially close others	87716	0.061**	0.008	0.071	11281	0.034	0.028	0.046

Note. Within-person, fixed effects comparisons of meaningful activity, being in the presence of socially close others, and the combination of meaningful activity in the presence of socially close others for persons with and without disabilities.
*p <.05, ** p <.01

Hypothesis 4: Meaningful Leisure and Employment Activities

Hypothesis 4 stated that PWD will demonstrate significant increases in well-being during meaningful leisure and employment activities involving non-family members. Upon closer examination of the structure of the data, we modified the manner in which we tested this hypothesis in an effort to do so more parsimoniously. Instead of combining meaning, disability, leisure and employment activities, and non-family members as blocking variables, we examined the extent to which work and leisure activities were associated with happiness, meaning, and grouped negative well-being components for PWD and those without disabilities. Comparing an individual's average well-being experienced while working with their average well-being experienced while not working provided a more complete picture of potential associations between variables, and helped eliminate overly specific qualifiers. We later examined which types of relationships were associated with the highest ratings of well-being to examine this facet of our original question.

To run the analyses for hypothesis 4, we regressed employment activities and leisure activities on happiness, meaning, and negative well-being ratings using separate MMAs for PWD and persons without disabilities. In these analyses, having a disability accounted for statistically significant variation. For employment activities, significant effects were found for persons without disabilities on happiness (Beta = -0.255, $p<.01$; $R^2 = .007$), meaning (Beta = 0.094, $p<.01$; $R^2 = .001$), and grouped negative well-being components (Beta = 0.215, $p<.01$; $R^2 = .009$), indicating that there was a negative association between work activities and happiness, and a positive association between work activities and negative well-being components, and meaningfulness. However, the effect sizes of these relationships were minimal, indicating that little of the magnitude of the within-person proportion of variance in meaning or well-being can be accounted for by engagement in employment activities. Contrary to our hypothesis, no significant effects were found between employment activities and well-being for PWD.

In terms of the association between participation in leisure activities and well-being, having a disability accounted for statistically significant variation. Significant effects were found for PWD on happiness (Beta = -0.073, p<.01; R^2 = .002) and meaning (Beta = -0.081, p<.01; R^2 = .001), but not on grouped negative well-being components. For persons without disabilities, significant effects were present for leisure activities on happiness (Beta = 0.087, p<.01; R^2 = .002), meaning (Beta = -0.047, p<.01; R^2 = .001), and grouped negative well-being components (Beta = -0.014, p<.01; R^2 = 0). This finding denotes that for persons without disabilities, there is a positive correlation between leisure activities and happiness, and a negative correlation between leisure activities and negative well-being, and leisure activities and meaning. However, the effect sizes of these within-person associations were minute, indicating that little of the magnitude of the proportion of variance in meaning or well-being can be accounted for by engagement in all leisure activities.

Table 2
Work and Leisure Activities Predicting Happiness, Negative Well-Being, and Meaning

	No Disability			PWD		
Predictor Variable	Happiness	Negative well-being	Meaning	Happiness	Negative well-being	Meaning
Employment	-0.255**	0.215**	0.094**	0.114	-0.081	0.074
Leisure	0.087**	-0.014**	-0.047**	-0.073**	-0.003	-0.081**
Leisure (No TV)	0.167**	-0.044**	0.184**	-0.040	-0.009	-0.106**
TV watching	-0.038**	0.028**	-0.331**	-0.063*	-0.003	0.044

Within-person, fixed effects standardized coefficients of working, leisure time, leisure time excluding TV watching, and TV watching for persons with and without disabilities on happiness, negative well-being and meaning.
*p <.05, ** p <.01

To answer the second part of Hypothesis 4, and determine if the presence of others during an activity was associated with well-being, we regressed the technical who category of relationship of person with whom the activity was performed on happiness, meaning, and negative well-being ratings using separate MMAs for PWD and persons without disabilities. In these analyses, having a disability often accounted for statistically significant variation. Contrary to our hypothesis, for PWD, activities with non-family members were not significantly associated with well-being. The relationships that demonstrated the greatest correlation with well-being for PWD were foster children, roommer/boarders, and own non-household children <18. While with foster children, PWD's rated significantly higher feelings of meaning (Beta = 1.854, $p<.01$; $R^2 = 0$), as well as significantly lower ratings of happiness (Beta = -0.657, $p<.01$; $R^2 = 0$). PWD rated activities with roomer/boarders as less negative (Beta = -0.512, $p<.05$; $R^2 = 0$) and activities with non-household children younger than 18 as less happy (Beta = -0.501, $p<.05$; $R^2 = 0$). For persons without disabilities, activities involving own household child, own non-household child under 18, other non-household family members under 18, and other non-household children under 18, had the greatest association with positive well-being. A full list of results can be seen in Table 3.

Table 3

Who else is Present Predicting Happiness, Negative Well-Being, and Meaning

	No Disability			PWD		
Relationship	Happiness	Negative well-being	Meaning	Happiness	Negative well-being	Meaning
Alone	-0.191**	0.031**	-0.306**	-0.010	0.025	0.058*
Spouse	0.173**	-0.056**	0.154**	-0.016	0.098**	-0.054
Friend	0.284**	-0.132**	0.290**	0.031	-0.033	-0.021
Roomer/boarder	-0.010	0.051	-0.137	0.476	-0.512*	0.009
Own household child	0.264**	-0.064**	0.342**	0.049	-0.059	-0.075
Foster child(ren)	0.346	-0.079	0.208	-0.657**	0.079	1.854**
Own non-household child(ren) <18	0.279**	-0.081	0.595**	-0.501*	-0.476	-0.652

Within-person, fixed effects standardized coefficients of who else is present for persons with and without disabilities on happiness, negative well-being and meaning.

*p <.05, ** p <.01

We conducted a post-hoc analysis to determine if watching TV had an effect on the association between leisure activities and experiencing meaning and well-being. We conducted the same analyses as previously mentioned for leisure activities, but removed leisure activities in which the DP was watching TV. Results indicated that for PWD, leisure activities that did not include watching TV were significantly negatively correlated with meaning (Beta = -0.106, $p<.01$; $R^2 = .006$), and unrelated to happiness or negative well-being. For persons without disabilities, leisure activities that did not include watching TV had a stronger positive correlation with happiness (Beta = 0.167, $p<.01$; $R^2 = .005$) and meaning (Beta = 0.184, $p<.01$; $R^2 = .006$), and a stronger negative correlation with grouped negative well-being components (Beta = -0.044, $p<.01$; $R^2 = .001$).

In another post hoc analysis, we examined the association between watching TV and well-being for PWD and persons without disabilities. Results indicated that for PWD, there was a significant negative association between watching TV and happiness (Beta = -0.063, $p<.05$; $R^2 = 0$), although the effect size was minimal. For persons without disabilities, watching TV was significantly negatively correlated with happiness (Beta = -0.038, $p<.01$; $R^2 = 0$) and meaning (Beta = -0.331, $p<.01$; $R^2 = .016$) and positively correlated with the negative well-being components (Beta = 0.028, $p<.01$; $R^2 = 0$). Although these effect sizes are small, watching TV appears to be associated with greater negative well-being outcomes for persons without disabilities compared to PWD.

Hypothesis 5: Meaningful Activity throughout the Day

Hypothesis 5 stated that engagement in meaningful activity would have a temporal effect on SWB for PWD, such that participating in a more meaningful activity earlier in the day would predict higher SWB scores later in the day. Although this type of question seemed plausible to answer using the time use data, upon further reflection, we deemed that it was inadequate to assume associations between earlier activities and later experiences of well-being. The primary reason for this decision was that in order to understand changes in well-being, the difference between the first activity of the day and the second activity of the day serves as the baseline for change. Using the first two activities as the baseline only provides one other data point to compare change. Thus, it seemed inappropriate to assume an association between these two differences, especially given that the three activities could be selected at any three random times throughout the day, meaning that they could be 5 minutes apart or 23 hours apart. This type of question is better suited to be answered using data that involves significantly more time points throughout the day, such as in the case of Daily Reconstruction Method (DRM) that examines all activities in a day, or Ecological Momentary Assessment (EMA), that entails repeated sampling of participants randomly throughout the day.

Hypothesis 6: Type of Activity

Hypothesis 6 stated that meaningful leisure and work activities would be associated with the highest ratings of well-being compared to other types of activities (e.g. eating and drinking, household activities, purchasing goods and services) for PWD. Similar to hypothesis 4, the structure of the data steered us to modify the manner in which we tested this hypothesis. Instead of using a rating of meaningfulness as a blocking variable, we used the ATUS tier 1 activities as our blocking variable to examine any associations with happiness, meaning, and grouped negative well-being components for PWD and persons without disabilities. This allowed us to examine which types of activities were associated with the highest ratings of well-being for PWD and those without. To test hypothesis 6, we regressed the groupings of tier 1 activities on happiness, meaning, and negative well-being ratings using separate MMAs for PWD and persons without disabilities. Results indicated that in addition to the above mentioned findings from Hypothesis 4, there were significant associations between numerous activities and well-being for PWD and those without, and that many of the associations depended on whether or not a disability was present. A full list of results can be seen in Table 4.

Notably, for PWD, the strongest standardized correlation coefficients between the type of activity and well-being was found when PWD reported that they were happy when participating in government services and civic obligations (Beta = 0.911, $p<.05$; $R^2 = .000$). This indicates that for PWD, participating in government services and civic obligations was associated with a 0.911 point increase in happiness rating. The second strongest relationship for PWD was found when experiencing meaning while participating in household services (Beta = 0.748, $p<.01$; $R^2 = .000$), denoting that participating in household services was associated with a 0.748 point increase in meaningfulness rating. Household services include such activities as housework, food/drink preparation and clean up, household maintenance, repair, and decoration, taking care of lawn, garden, and house plants, taking care of pets, maintaining appliances, tools, toys and vehicles, and household management such as finances, planning, and organizing.

For persons without disabilities, the strongest predicting activities were the association between participation in religious and spiritual activities and meaning (Beta = 0.481, $p<.01$; $R^2 = .005$), and participating in sports, exercise, and recreation and meaning (Beta = 0.429, $p<.01$; $R^2 = .005$). In contrast to PWD, for persons without disabilities, participation in government services and civic obligations was significantly negatively correlated with happiness (Beta = -0.414, $p<.05$; $R^2 = .000$), and participating in household services was significantly negatively associated with happiness (Beta = -0.266, $p<.05$; $R^2 = .000$).

Table 4

Activities Predicting Happiness, Negative Well-Being, and Meaning

	No Disability			PWD		
Activity	Happiness	Negative well-being	Meaning	Happiness	Negative well-being	Meaning
Government services and civic obligations	-0.414*	0.013	0.339	0.911*	-0.116	-1.018^
Household services	-0.266*	-0.032	-0.068	0.181	0.125	0.748**
Religious and spiritual activities	0.196**	-0.172**	0.481**	0.040	-0.025	-0.042
Sports, exercise, and recreation	0.234**	0.047**	0.429**	-0.189*	0.010	-0.095

Within-person, fixed effects standardized coefficients of the effect of activity on happiness, negative well-being and meaning for persons with and without disabilities.
^p<.10, *p <.05, ** p <.01

Discussion

One purpose of this study was to examine whether meaningful activities and time spent with socially close others are associated with greater subjective well-being using a large population sample. In order to look at the effects of different life experiences, this study utilized the Daily Reconstruction Method (DRM), which involves the recording of events and responses in well-being to those events, as recalled the day after they occurred. Broadly speaking, we found several interesting relationships between these variables that we believe contribute to the current understanding of this topic. Specifically, engagement in activity that was more meaningful was associated with greater happiness compared to engagement in activity deemed less meaningful. Likewise, being in the presence of socially close others was associated with greater happiness when compared with being alone or being in the presence of less well-known individuals. Concurrent associations between more engagement in meaningful activities and feelings of happiness, and being in the presence of socially close others and happiness, are not well documented in well-being literature.

A second goal of this study was to determine if meaningful activities and time spent with socially close others were associated with well-being similarly for both persons with disabilities (PWD) and for individuals without disabilities. A clearer understanding of potential links between participation in various types of activities and well-being for PWD may help inform interventions targeted at enhancing quality of life for this marginalized population. Our findings suggest that in some areas the two groups were similar, while in others they were quite different. We highlight the significance of these findings for future well-being research and interventions, and discuss possible explanations for the convergent and divergent experiences of PWD and individuals without disabilities.

Life Meaning and Activity

Prior meaning research has demonstrated that engagement in meaningful activities is associated with long-term meaning and purpose in life (e.g. Eakman, 2014; Park, 2010). We therefore expected that activities that were more meaningful would simultaneously be associated with greater happiness, and involve less of the negative well-being outcomes of pain, sadness, stress, and fatigue. Our results confirmed these predictions, demonstrating that meaningful activity is associated with an experience of happiness and less negative overall well-being for both PWD and persons without disabilities. Meaningful activities accounted for more variance in happiness than in negative well-being, denoting that meaningfulness and happiness may be more closely linked (e.g. Lee et al., 2016) than meaningfulness and negative well-being components. Thus, participation in meaningful activities is more likely be associated with greater increases in happiness than greater decreases in stress, fatigue, pain or sadness.

To our knowledge, no studies have demonstrated that participation in meaningful activity is associated with greater happiness and less negative well-being during the actual experience of the activity, although previous research has linked meaningful activity to improvements in subjective well-being over time. By highlighting this simultaneous connection, our findings have implications for well-being interventions. For example, participation in meaningful activities may be a method for altering momentary experiences of well-being. Although not specifically aimed at enhancing meaningful activity, Behavioral Activation (BA), an effective treatment for depression, works in a similar manner. BA targets well-being by increasing engagement in adaptive activities, which often involve mastery or pleasure, and thus are naturally rewarding (Dimidjian, Barrera, Martell, Muñoz, & Lewinsohn, 2011). By increasing the number and rate of these rewarding activities, individuals improve their well-being and become more engaged in their lives. Similar to the mechanism of BA, if individuals experience a given activity as more meaningful, they may be more likely to experience happiness during that same activity. The findings of this study point to the value of engaging in meaningful activities that are aligned with goals and values, both as a means to feel happier and to experience a sense of purpose in the moment. Acceptance and Commitment Therapy (ACT) champions these same core elements, and focuses heavily on values as a "necessary component of a meaningful life, and meaningful course of treatment" (Hayes, 2004, p. 647).

Participation in daily meaningful activities can also influence long-term or global feelings of meaning or purpose in life, which may be particularly helpful for interventions targeting PWD. Previous research has found that increasing the amount of day-to-day meaningful activity over time has a direct influence on overarching experiences of meaning in life (Eakman, 2014), but this relationship has yet to be examined in PWD. Although PWD can experience excellent well-being and quality of life, they often have a significant amount of free time compared to those without a disability, and many have difficulty filling free time with meaningful activities

(Lyons, 1993). PWD may not be aware of the benefits of meaningful activities, or may need additional support or resources in order to participate in such activities. In addition, helping PWD add meaningful activities to their daily routine may lead to enhanced global experiences of meaning. Developing a global sense of meaning tends to improve this population's appraisals of their current disability experience, and results in improved eudaimonic well-being (e.g. Dezutter et al., 2013). Targeting daily free time as an opportunity to participate in meaningful activity may be an effective intervention for improving global experiences of meaning for PWD.

PWD seem to especially benefit from activities that foster a sense of mastery. Our results indicate that some of the most meaningful activities for PWD include household activities that can be completed on a daily basis, such as housework and household maintenance, meal preparation and clean up, caring for pets and plants, and planning and organizing. This finding has been corroborated in other studies demonstrating that these types of self-care and maintenance activities can be very meaningful. Household activities can provide an opportunity for mastery by posing a specific challenge, and result in feelings of accomplishment and satisfaction upon completion (e.g. Pentland, Harvey, & Walker, 1998). Additionally, engagement in these types of meaningful activities without assistance allow PWD to decide if and when they participate in an activity, without having to consider another person's time and availability, and the exact specification of how the activity is completed (Tollen, Fredriksson, & Kamwendo, 2008). Similarly, meaningful activities that increase feelings of control have been linked to increased quality of life for PWD (Goldberg et al., 2008). Thus, partaking in these types of everyday household and self-care activities may help PWD establish a feeling of mastery, and contribute to meaningful appraisals of these everyday tasks.

Self-efficacy is another theme of many of the activities associated with the greatest well-being for PWD. Self-efficacy is an individual’s belief in their ability to influence their behavior and environment (Bandura, 1977). For PWD, there was a significant association between participating in government services and civic obligations, and happiness. These types of activities may provide an opportunity for PWD to participate in their communities in much the same way that persons without disabilities are able to, without limitations or restrictions, and potentially provide experiences that reflect feelings of shaping their surroundings. Engaging with social services, participating in civic obligations, such as voting or jury duty, and advocacy are all activities that fall under this category. Opportunities for disability advocacy and involvement in public policy may be driving this association with happiness, as these types of activities provide PWD opportunities to feel that they are part of something larger. Similarly, disability advocacy allows PWD to have a stronger presence and louder voice in policy decisions, and can help strengthen self-efficacy (Harris, Owen, & De Ruiter, 2012).

Self-efficacy and mastery are two themes that seem closely tied to well-being for PWD. In contrast, persons without disabilities associated the greatest well-being with activities that revolve around themes of spirituality and recreation. Specifically, religious or spiritual activities and leisure activities, such as sports, exercise, and recreation, were significantly associated with meaning for persons without disabilities. Two possibilities for this discrepancy between populations are that unlike people without disabilities, PWD may experience common accessibility challenges and barriers to participation.

Often times, religious or spiritual events take place at a community location such as a church, synagogue, or mosque. Given that PWD often have difficulty leaving their homes due to accessibility challenges, it makes sense that attending these types of community spiritual or religious events may involve a significant amount of frustration or require dependence on a caregiver or family member. Furthermore, if the location of the spiritual or religious event is not publicly owned, the owners of the location are not required to adhere to Americans with Disabilities Act (ADA) accommodation regulations. Similarly, any number of participation challenges are likely to inhibit the ease of engaging in sports, exercise and recreation for PWD. These activities may require special accommodations or adaptive equipment for the PWD to be able to participate, especially in the manner in which the PWD wishes. Thus, several environmental limitations could be driving these differences in well-being experienced by these two populations for these type activities, with PWD feeling the need to experience self-efficacy and mastery, while persons without disabilities feeling able to participate with fewer limitations.

Social Closeness & Relationships

We expected that social closeness would play a significant role in well-being. Our study confirmed this prediction, highlighting the tendency for individuals to experience greater happiness in situations that involved socially close others who we operationalized as family members, any household members, or friends. Unique to our study is the finding that merely being in the presence of socially close others is associated with greater experiences of happiness. This held true across the type or location of activity, time of day, or extent of interpersonal interaction, signifying that being around someone socially close is associated with improved well-being across many situations and contexts. The association between greater well-being while in the presence of socially close others helps to expand on previous research that demonstrates that strong interpersonal relationships with others are a fundamental component of well-being (e.g., Hazan & Shaver, 1987; Baumeister & Leary, 1995).

Interestingly, although statistically significant, being with socially close others did not account for much of the variance in negative well-being for PWD or those without, despite explaining more of the variance in happiness for both groups. It appears that being with socially close others does not explain a significant portion of lower feelings of sadness, stress, fatigue, or pain. The existing literature is mixed in terms of these types of findings. For PWD, some research demonstrates that a positive appraisal of one’s social network likely is related to lower feelings of loneliness (e.g. Vatne & Bjørkly, 2008), while other studies note that the links between social support and symptoms specific to anxiety, depression, and well-being are weak Tough et al., 2017). For persons without disabilities, our findings were contrary to previous research demonstrating that social support is associated with lower negative well-being (e.g. Tough et al., 2017). These differences, between previous research and our findings, may be the result of previous studies assessing social support, that involves feeling connected to another, and the current study simply assessing being in the presence of socially close others. Being with others could certainly at times be aversive.

Our results indicated that different relationship categories were associated with different well-being outcomes for PWD and those without. Persons without disabilities experienced the greatest happiness while in the presence of children. In contrast, PWD seemed to experience the greatest meaning while in the presence of foster children, but also experienced significantly less happiness during these times. Interestingly, experiencing significantly less happiness did not negate the experience as being meaningful. For PWD, being with a foster child may be particularly meaningful because it provides another opportunity to experience self-efficacy above and beyond that of being with a biological child. Foster children often come from disadvantaged or marginalized backgrounds, and spending time with them may be viewed as essential to altering their environment. Furthermore, experiencing self-efficacy during this role as a foster parent may serve as a protective factor for PWD. Parenting self-efficacy has been shown to mitigate experiences of stress, anxiety and depression that foster parents experience as effects of a foster child's challenging behavior (Morgan & Baron, 2011).

Both PWD and those without feel more happiness when they are spending time with socially close others compared to when they are spending time alone or with more distant others. If PWD are particularly vulnerable to experiencing loneliness (e.g., Hawkley & Cacioppo, 2007), an argument can be made for encouraging PWD to spend time with socially close others in an effort to experience more happiness. Although loneliness and happiness are not orthogonal, previous research has demonstrated that happiness has the capacity to offset the negative consequences of loneliness in the long run (Newall, Chipperfield, Bailis, & Stewart, 2013). Thus, experiencing more happiness while in the presence of socially close others may help mitigate momentary experiences of loneliness.

Providing more time for PWD to be in the presence of socially close others may be a relatively easy adjustment. It may entail actively seeking out additional opportunities for spending time with friends. It could involve mitigating accessibility challenges, a common barrier for PWD, so that they may more easily leave their homes and visit with socially close non-household others. Finally, something as simple as a concerted effort to schedule time each day to spend in direct contact with friends and loved ones may beneficially influence happiness. The importance of these types of interventions is critical to improving well-being for PWD who often experience significantly higher rates of feelings of social inadequacy and alienation from others (Rokach, Lechcier-Kimel, & Safarov, 2006).

Meaningful Activity with Socially Close Others

We hypothesized that combining participation in activities that are deemed meaningful, with the presence of socially close others, would result in improved well-being. Our results for persons without disabilities supported this hypothesis, and this combination explained the greatest proportion of variance in association to happiness of any of our predictor variables. Our findings support previous research that demonstrates that meaning can stem from experiences with socially close others. For example, meaning is associated with appraisals of emotional closeness with family members and close friends (e.g. Krause, 2007), and these types of close relationships serve as the most common source of meaning (Debats, 1999). Family relationships that involve closeness and support have emerged as particularly salient sources of meaning (Lambert et al., 2010). Additionally, relationships that promote a sense of belonging and a secure feeling of fitting in have been found to be the most likely to provide meaning in life (Lambert et al., 2013). Our results build upon these findings by indicating that interventions aimed at improving experiences of happiness may best be approached through daily engagement in these types of meaningful activities with socially close others.

Unexpectedly, there was no added benefit of combining meaningful activity with socially close others for PWD. Although meaningful activity and being with socially close others were both independently associated with happiness for PWD, the integration of the two was not significantly related to experiences of happiness. One explanation for this discrepancy is that participating in meaningful activity with socially close others may sometimes serve to prevent PWD from experiencing a sense of competence or mastery that they typically experience on their own within these meaningful contexts. The presence of socially close others may attenuate any experience of mastery and relative happiness if the activity at hand is taken over or managed in a way that decreases ownership for the PWD. For example, Tollen et al. (2008) noted that for some PWD, bathing alone provided an opportunity for experiencing independence, feeling in control, and completing an activity exactly as personally desired. However, when the PWD was assisted in bathing by a family member, the researchers found that the PWD no longer experienced autonomy or a sense of accomplishment with the activity, and instead felt dependent on their family member.

Self-Determination Theory (Ryan & Deci, 2000) supports the idea that competence in the context of independence is essential to well-being, positing that the need for autonomy must be satisfied for individuals to experience an ongoing sense of integrity and well-being. An essential component of experiencing autonomy, mastery, and self-efficacy is the notion of causal agency, the belief that it is the individual who makes or causes things to happen in their life (Wehmeyer & Abery, 2013). Unfortunately, many PWD who have the capacity to exercise additional control over their lives are often overshadowed in their ability to do so by others in decision-making roles (Stancliffe, Abery, Springborg, & Elkin, 2000). Thus, participation in meaningful experiences when the need for autonomy and self-efficacy are not met (such as having to depend on socially close others) may cause PWD to undergo relatively weaker experiences of happiness when compared to the general population.

Another explanation why PWD may have a different experience than persons without disabilities is that they often experience challenges in community participation without the assistance of socially close others. For instance, PWD may require help from socially close others to aid with transportation, communication, or accessibility. Previous research has demonstrated that assistance from relatives of this sort can be experienced as a threat to the independence of PWD, and something that is intentionally avoided (Tollen et al., 2008).

Dependence on socially close others to participate in community activities may serve to reduce the sense of control or self-efficacy, resulting in less experienced happiness.

The lack of significant positive well-being outcomes for PWD in situations involving meaningful activities and socially close others sheds light on the disparity between this group and individuals without disabilities. Enhancing autonomous experiences of meaningful activity is essential to improving the well-being of PWD. The Independent Living (IL) movement, often referred to as the Civil Rights Movement for PWD, strives to address these independence and equality issues by creating a paradigm shift in how disability is viewed. The IL Movement shifts the identity of PWD from a medicalized population of patients whose impairments are treated by professionals claiming to know what is best for them, to the independent role of consumer, who experiences autonomy in determining how to overcome physical and psychological barriers that are the result of the environment, not the individual (Dejong, 1979). The IL Movement champions advocacy, peer counseling, self-help, consumer control, and barrier removal (Dejong, 1979) in an effort to enhance causal agency and counteract the lack of autonomy, opportunities for mastery, and self-efficacy prevalent in many previous interventions targeted at improving well-being for PWD. This movement has allowed PWD to have more of "a voice in their own future" and "a new sense of dignity and pride that for too long has been denied them" (Dejong, 1979, p. 446). Although half a century old, the principles of the IL Movement are still relevant today. Many of the findings in our study, notably that PWD seem to benefit from activities that allow for mastery and enhancing self-efficacy, are in direct alignment with the IL Movement ideology.

In the spirit of the IL Movement, we want to reiterate that it is essential to remember that each individual is unique. Although our research steers us to make recommendations or suggest potential explanations for our findings, by no means are we suggesting that these inferences or ideas serve as a blanket statement for any group of individuals. What is considered meaningful or is associated with happiness for some people may not be so for the next person or group of people. Each individual should determine for themselves the types of activities they find most closely tied to well-being. Decisions concerning what would be helpful for someone should be driven by the individuals themselves, as this is a fundamental principle of experiencing a sense of self-efficacy in regards to one’s own well-being.

Limitations and Future Directions

There are several limitations to this study. First, using an existing dataset did not allow us to control the specific measures used and other aspects of the methodology. This reduced our flexibility and required that the research questions we asked be limited to those that could be addressed by the existing data. However, using the American Time Use Survey (ATUS) made it possible to access data from a large number of PWD, a population that can be difficult to reach. In addition, the ATUS dataset made it possible to address questions that would otherwise not be feasible to address in a study given the scope of the current project.

Second, the well-being measures used were fairly crude. Specifically, single item measures for happiness and meaning, as well as the average of the four single item measures of sadness, pain, stress, and fatigue may not be tapping into the true complexity of a person’s cognitive, emotional or physical experience. Likewise, there was no control for the length of the activity or a measurement of variability in well-being throughout the course of a given activity. Activities could last for 5 minutes, one hour, or 24 hours. Asking a participant to rate their feelings of happiness, fatigue, or tiredness once during a multi-hour period is a relatively crude measure of their true well-being experience.

What these types of well-being questions are more likely assessing is the momentary experience of well-being, on a given day, at a given moment, in a given situation, with these given factors. Thus, the validity of our measures may have been somewhat problematic since something as dynamic as happiness, meaning, or sadness may not be adequately captured in an individual's response to a seven-point Likert scale item, especially if there was substantial variability in these well-being experiences throughout a lengthy activity. Future studies should utilize more sensitive measures to address a more detailed experience of well-being and the fluctuations within these experiences. It would also prove useful to assess well-being on more than three occasions throughout the day, and add controls for the time duration of activities.

Third, we assessed the presence of socially close others, not the level of engagement, participation, or feelings of connectedness the participant experienced with other individuals present during the activity. The presence of socially close others only provides information on who else was present during the activity. Importantly, people do not always feel intimacy or social connection when they are with others, even if those others are family members or friends. Individuals may at times feel lonely, disconnected from, or even in conflict with the other person present. Thus, for the purpose of this study, an activity such as watching TV with one's spouse would have been categorized as including socially close others, but may not have involved significant interpersonal connection. The distinction between experiences of social connection, in which individuals feel supported by and attuned with one another, and experiences where individuals are merely participating in an activity with a family/household member or friend present, is an area for future research. Future studies should investigate the extent of interaction or feelings of connectedness necessary for individuals to experience more significant improvements in well-being.

This study identified many significant predictors, although the proportion of variance accounted for by our independent variables was small. Thus, although statistically significant, none of the variables in our study accounted for a large proportion of magnitude, or explanatory variation. The significant predictors we found may be partially explained by the large sample size. Increasing the sample size generally decreases the standard error and results in an increased likelihood of finding significant results. Despite the greater possibility of making a Type I error, a large sample size provides a more accurate representation of the population.

There are several explanations why we only observed small effect sizes. One explanation is that our variables are complex, and we did not use any controls in this within-person design. Well-being outcomes including happiness, meaning, pain, sadness, stress, and fatigue are understandably multidimensional and determined by numerous factors. Likewise, our independent variables are complicated, as the meaningfulness of an activity or being with a certain other individual reveals little about the true experience. We were interested in the broadest questions that the data could answer, and whether these associations were different for PWD from those without. We did not look at possible mediating or moderating factors such as age, gender, socioeconomic status, geographic location, population density, etc. Similarly, we did not control for type of activity, duration of activity, location of activity, time of day, day of the week, etc. These qualifiers likely would provide more detailed information, and possibly larger effect sizes, and would be worth examining in future studies.

A second explanation for the small effect sizes is that our sample may not have been representative, or it may have been biased. Although the ATUS aims to be a nationally representative sample of U.S. adults aged 16 and over, it naturally selects for participants who are willing to consistently complete surveys month after month. The ATUS data were collected after the Current Population Survey (CPS), a lengthy and time-consuming process that requires eight iterations and takes sixteen months to complete. Thus, due to the characteristics of the types of respondents who are able to complete the entire CPS and participate in the ATUS, the ATUS sample could constitute a non-representative group. In particular, the ATUS sample's responses to well-being questions could represent a floor effect. Individuals who are invested and actively engaged in voluntary surveys for such an extended time are less likely to experience significant negative well-being. Thus, individuals who are more depressed, stressed, or experience chronic pain or fatigue, may not be accurately represented in this sample due to attrition. If the sample lacks these types of individuals, the well-being responses may be skewed in a positive direction. In support of this explanation, we found in a post-hoc analysis that most of the variability in negative well-being components is in tiredness, indicating that individuals are less likely to report that they are extremely sad, stressed or in significant pain. The combination of these indications require us to interpret our results with a critical lens, as should be the standard in scientific rigor.

An alternative to using a frequentist approach, and incorporating Cohen's (1992) effect size categories, is to take more of a Bayesian approach to statistical inference. This method of interpretation strategy entails considering what types of associations between our variables we would expect. By examining associations in our variables that seem intuitive, such as the effect of work activities on happiness, the effect of recreation on happiness, or the effect of spiritual/religious participation on meaning, we may be able to contextualize our results in reference to suspected outcomes. Rather than demonstrating that little of the variance is explained by our predictors, this approach may highlight the relative magnitude of some of the variables within the context of these associations. This method may provide a clearer picture of the relative value of our findings that may be dismissed if only interpreted in terms of effect sizes.

This project was based on the hypotheses that meaningful activity and social closeness would help predict experiences of well-being. However, these associations may be bidirectional in nature. Improved well-being may help create feelings of meaning during various activities, or may motivate individuals to spend time with socially close others. Future research should investigate if these types of associations are indeed bidirectional in nature, as influencing well-being has the potential to alter experiences of social closeness and meaning.

Finally, our study was correlational in nature. Future research should focus on experimental manipulation to determine if the associations we uncovered are related in a causal manner. Can participation in meaningful activity and time spent with socially close others directly improve experiences of well-being? How meaningful do these activities need to be, or what extent of social interaction is needed to significantly improve happiness and decrease pain, stress, sadness and fatigue? Do these potentially causal relationships hold for PWD and those without? These questions remain unanswered. Future research in this area could help answer these questions and provide a more complete picture of the effect of meaningful activity and time with socially close others on well-being for PWD and those without.

Our study provides a foundation for understanding well-being correlates for PWD and individuals without disabilities. To our knowledge, it is the first of its kind to examine on a large scale the well-being experienced during meaningful activities and time spent with socially close others, and speaks to the relative importance of these types of activities in well-being for both PWD and persons without disabilities. We hope that research in this area continues to progress, with the eventual goal of finding widespread interventions that systematically improve hedonic well-being for all, but especially for PWD.

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