EXPLORING MEANING IN LIFE AND WELL-BEING ACROSS THE LIFESPAN: A META-ANALYSIS INVESTIGATING THE IMPACT OF COVID-19

by

RACHEL MARIE TAYLOR

(Under the Direction of Margaret Caughy)

ABSTRACT

This dissertation presents a meta-analysis of the longitudinal association between meaning in life and well-being, with particular attention to how this relationship varies across time, developmental period, and cultural context. While previous research has established that meaning in life is positively related to well-being, less is known about how this association changes depending on when it is measured, how much time passes between measurement points, and the developmental period of participants. This study addresses those gaps by synthesizing findings from 22 studies (49 interdependent effect sizes), encompassing data from 37,484 participants across seven countries.

The overall association between meaning in life at Time 1 and well-being at Time 2 was positive and statistically significant. Moderator analyses revealed that lag length, the amount of time between the measurement of meaning and well-being, was a significant predictor of effect size, particularly when modeled as a nonlinear function. In contrast, year of data collection did not significantly moderate effect size, although descriptive analyses revealed notable dips in the strength of the association in 2008, 2016, and 2020. These years correspond to major global

events including the 2008 recession, 2016 presidential election, and the COVID-19 pandemic. These dips were followed by apparent recoveries, suggesting a potential pattern of resilience. Age and developmental period were also examined as moderators. While average age was not significant as a continuous variable, categorical developmental period showed preliminary evidence of moderation, with emerging adulthood representing the most robust and consistently significant group. Exploratory analyses indicated that country also moderated the strength of the meaning in life and well-being relationship, with positive statistically significant associations observed in the United States, China, and South Korea.

This study contributes to the field by incorporating developmental, temporal, and cultural factors into a meta-analytic framework. It also identifies several directions for future research, including the need for more longitudinal studies with adolescents and older adults, a closer examination of reciprocal effects, and more consistent reporting of lag length and data collection timing. Findings underscore the importance of considering both individual development and historical context when evaluating how meaning in life supports well-being over time.

INDEX WORDS: Meaning in Life, Meaning-Making, Well-Being, Meta-Analysis, Pandemic, COVID-19

EXPLORING MEANING IN LIFE AND WELL-BEING ACROSS THE LIFESPAN: A META-ANALYSIS INVESTIGATING THE IMPACT OF COVID-19

by

RACHEL MARIE TAYLOR

Bachelor of Science, Eastern Michigan University, 2018

Masters, University of Connecticut, 2020

A Dissertation Submitted to the Graduate Faculty of The University of Georgia in Partial Fulfillment of the Requirements for the Degree

DOCTOR OF PHILOSOPHY

ATHENS, GEORGIA

2025

EXPLORING MEANING IN LIFE AND WELL-BEING ACROSS THE LIFESPAN: A META-ANALYSIS INVESTIGATING THE IMPACT OF COVID-19

by

RACHEL MARIE TAYLOR

Major Professor:	Margaret Caughy
Committee:	Kalsea Koss
	Kristen Bub

Electronic Version Approved:

Ron Walcott
Vice Provost for Graduate Education and Dean of the Graduate School
The University of Georgia
August 2025

DEDICATION

To my family: Gordon, Mom, Dad, Becca, Molly, Nat, Winston, and Mable. Thank you so much for all your support and encouragement. None of this would be possible without you.

ACKNOWLEDGEMENTS

This dissertation may have a single author, but earning a PhD is never a solo endeavor. I've been incredibly fortunate to have the support, encouragement, and generosity of a community, academically and personally, that made this journey possible. I could not have done this without you.

First, I want to thank my wonderful advisor, Dr. Margaret Caughy, for your unwavering support, guidance, kindness, and patience. You are the kind of mentor I hope to be not only as a scholar but as a person. I am also deeply grateful to my committee members, Dr. Kalsea Koss and Dr. Kristen Bub, for your insights, thoughtful questions, and belief in this project. Your time and expertise made this work better in every way.

To my labmates, KeLa, Katie, Nikia, Roshaye, LaRen, Kim, and Zikeal, thank you for your curiosity, encouragement, and dedication to helping others. You've made research more engaging and the hard days much lighter.

I also want to thank the many professors who have taught and supported me along the way whether at the University of Georgia, during my Master's at the University of Connecticut, or during my undergraduate years at Eastern Michigan University. I am especially grateful to Dr. Angela Staples, Dr. Thomas Waltz, Dr. Carol Freedman-Doan, Dr. Edna Brown, Dr. Christine McCauley Ohannessian, Dr. Noel Card, and Dr. K.A.S. Wickrama. Your mentorship helped me grow into a better thinker and researcher. Thank you for making time for my questions and for believing in my potential.

I'm especially thankful to our department's incredible administrative team: Dr. Few-Demo, Dr. Futris, Livia Wade, Christina Lynes, and Catie Floyd. I would have been truly lost without your help, support, and guidance.

To my family and friends: Thank you for your endless support. Mom and Dad, you taught me to be compassionate, to keep trying, and to push beyond what I thought I could do. There's not enough room in this dissertation, let alone this page, to thank you for everything. To my sisters, Becca and Molly: it's not every day that three sisters go through three different PhD programs at the same time. I couldn't have asked for better people to share that path with. To Nat, my wonderful cousin, for always making me laugh and for sharing my taste in ridiculous movies. Thank you for helping me keep things light hearted on this journey.

To Elizabeth, my wonderful friend of 21 (and counting) years: thank you for being there through every part of this, for sharing the late nights and long talks, the hikes and dinners, the cats and laughter. I'm so grateful we became friends in seventh grade.

And finally, to my husband Gordon: thank you. I may be earning a PhD, but you deserve sainthood. Thank you for cooking dinner every night while I worked, for listening without fail, for your humor, and for your boundless patience and kindness. I could not have done this without you.

TABLE OF CONTENTS

Page

LIST OF TABLES

Page

LIST OF FIGURES

Page

CHAPTER 1

INTRODUCTION

Over the past few decades, there has been a push within the field of psychology to shift focus toward the study of human thriving (Peterson & Seligman, 2004). Meaning in life, in particular, is not just a philosophical concept but a crucial factor in developing and maintaining well-being across the lifespan (Steger et al., 2009). Meaning in Life (MIL) is defined as "the belief that your life and contributions matter to others and yourself, the feeling that life makes sense, and the feeling that you are actively pursuing your goals" (Costin & Vignoles, 2020, p. 4-5) and has been shown to be influenced by significant life events including illness, natural disasters, and war (Park et al., 2016; Steger et al., 2014). Since research indicates that MIL plays a critical role in developing and maintaining well-being across the lifespan, understanding how life events impact MIL and its association with well-being is essential to promoting positive development across the lifespan (Li et al., 2021; Steger et al., 2009).

Meaning in Life and the COVID-19 Pandemic

The COVID-19 pandemic altered the life of every individual worldwide. Billions were forced into lockdown (Alfano et al., 2020; Meo et al., 2020), and social isolation was rampant (Ganesan et al., 2021). Multiple resources, including basic necessities like food and toilet paper, became scarce or expensive (Laborde et al., 2020). In the United States, 9.4 million people lost their jobs or were laid off in 2020 alone (Bureau of Labor Statistics Report, 2020). Job loss increased financial hardship and ended health insurance people had previously secured through their jobs (Bundorf et al., 2021). Meanwhile, there was a campaign of misinformation about the

COVID-19 virus that was only exacerbated by the United States presidential election. Routine measures designed to protect against -pathogens became politized (Evanega et al., 2020). The overarching theme of the COVID-19 crisis was one of sudden and devastating hardship and chaos.

Almost immediately, studies showed a relationship between meaning in life and the pandemic (De Jong et al., 2020). While the pandemic was associated with an increase in psychological distress (Sidel et al., 2022), multiple studies indicated that higher levels of meaning in life acted as a psychological buffer against the negative effects of COVID-19 (Arslan & Murat, 2021; Attie & Chimakonam, 2020; Humphrey & Vari, 2021; Sidel et al., 2022). However, studies also showed that meaning in life decreased as the pandemic progressed for many people (Banos et al., 2022; de Jong et al., 2020). Early in the pandemic, people found meaning through resilience and social support, but prolonged stress, isolation, and uncertainty weakened this sense of meaning. Further, as stressors (e.g., financial strain, isolation, prolonged uncertainty) increased, people's sense of meaning declined. Although the COVID-19 virus is now largely under control, the pandemic had an enduring impact on meaning in life for individuals of all ages and nationalities (Trzebiński et al., 2024). The present proposal aims to meta-analytically aggregate these data in an effort to support continued recovery and thriving following the COVID-19 pandemic.

Meaning in Life Changes with Life Events

Stressful life events can challenge an individual's worldview and perception of their ability to achieve important goals (Steger et al., 2013). Research has highlighted the significant impact of events such as war (Steger et al., 2013), natural disasters (Park & Blake, 2020), and major health crises (Czekierda et al., 2017) on a person's experience of meaning in life. In Park's

meaning-making model, individuals with higher levels of meaning in life before experiencing a natural disaster tend to show greater resilience in the aftermath (Park, 2016). Conversely, the experience of a natural disaster may lead individuals to re-evaluate how they derive meaning, potentially increasing or decreasing their sense of meaning in life. The COVID-19 pandemic constituted a stressful life event for everyone worldwide, prompting individuals to reframe or even reconstruct their sense of meaning (Trzebinski et al., 2020). These findings align with the theory that adverse life events like the COVID-19 pandemic disrupt one's sense of meaning leading to "meaning violation" (the loss of a coherent narrative) (Humphrey & Vari, 2021; Park, 2016). However, Park's meaning-making model further suggests that people who regain a sense of meaning through active efforts are more likely to experience a buffering effect against stress, thereby reducing adverse psychological outcomes (Figure 1).

Park's theory encompasses both of the associations between COVID-19 and meaning in life we commonly see in the literature. That is, that meaning life was protective against the negative impacts of COVID-19 *and* that COVID-19 related stressors predicted decreased meaning in life over time (Banos et al., 2022; Humphrey & Vari, 2021; Park, 2016). However, some variability in these findings exists. In particular, studies indicate that age is an important factor in the association between COVID-19 and meaning in life (Toussaint et al., 2021). Adolescents and college students were found to be more vulnerable to stress related to COVID-19 than older adults (Jaffe et al., 2022; Toussaint et al., 2021). There may be multiple reasons for this: Adolescents and young adults faced heightened stress from disruptions in education, their social lives, and their future plans. They were also still developing and have less live experience, including experience overcoming adversity, than older people.

The Development of Meaning in Life

How a person experiences meaning in life evolves throughout the lifespan. During adolescence and emerging adulthood, meaning in life is closely related to identity development. Often, a person's sense of meaning develops concurrently with their sense of themselves and their own identity (Negru-Subtirica et al., 2016). Therefore, searching for meaning is normal and adaptive during adolescence and emerging adulthood (Steger et al., 2008). However, because meaning in life and identity development are so interconnected during these periods, meaning violations are likely to be particularly disruptive – even devastating – when they occur (Park, 2016; Steger et al., 2009). This suggests that adolescents and young adults who develop a meaning in life more quickly may be more likely to be resilient to meaning violations.

While an adult's sense of meaning in life is generally more stable, they are more likely to experience searching for meaning as negative or unsettling (Allan et al., 2014; Steger et al., 2008). This is because, in adulthood, the search for meaning is usually prompted by negative life events (Czekierda et al., 2017; Park & Blake, 2020; Steger et al., 2014). Despite this, evidence suggests that adults experience meaning violations less negatively than adolescents or emerging adults (Toussaint et al., 2021; Yu et al., 2020). This is because, over time, adults are more likely to have navigated major life transitions such as career changes, raising a family, or overcoming adversity, which contribute to a greater sense of coherence and fulfillment. Unlike adolescents or emerging adults who are still exploring their identity and purpose, older adults may have already answered existential questions about their lives and the direction they would like their lives to take (Steger et al., 2009).

A Temporal Meta-Analysis of Meaning

Meaning in life plays a critical role in resilience, coping with adversity, and maintaining well-being during negative life events. Understanding how meaning in life develops across time can promote mental health and prevent long-term negative outcomes. This is particularly crucial in the case of the COVID-19 pandemic, which caused a major disruption in the lives of people regardless of their life stage.

Temporal meta-analysis is a technique developed to assesses how phenomena change across chronological time (Twenge et al., 2008). To conduct a temporal meta-analysis, data collection year is coded and used as a moderator of either the mean levels of a single variable or the association between two related variables. This enables a researcher to analyze change across chronological time. Meaning in life is a particularly good candidate for temporal meta-analysis since relatively similar measures designed to assess it have been around since the 1960s (Crumbaugh & Maholick, 1964).

The Present Study

Meaning in life is not static. That is, it evolves over time based on experiences, transitions, and challenges (Steger et al., 2006). The COVID-19 pandemic impacted everyone. Using temporal meta-analytic techniques to aggregate longitudinal studies can clarify when and how individuals begin to experience meaning in life and identify factors that can support and promote well-being. Using temporal meta-analysis to study the impact of COVID-19 of meaning in life on well-being across the lifespan offers a unique opportunity to assess who maintained or regained meaning over time, factors that influenced their recovery, and whether the pandemic had long-term effects on well-being. The present study will use temporal meta-analytic methods to answer three central questions:

1. How do meaning in life and dimensions of well-being relate longitudinally?
2. Are there differences in the magnitude and/or direction of these effects depending on when data were collected relative to the start of the COVID-19 pandemic?
3. Do associations between meaning in life and dimensions of well-being differ depending on age or developmental period? Further, were certain groups more impacted by COVID-19 than others?

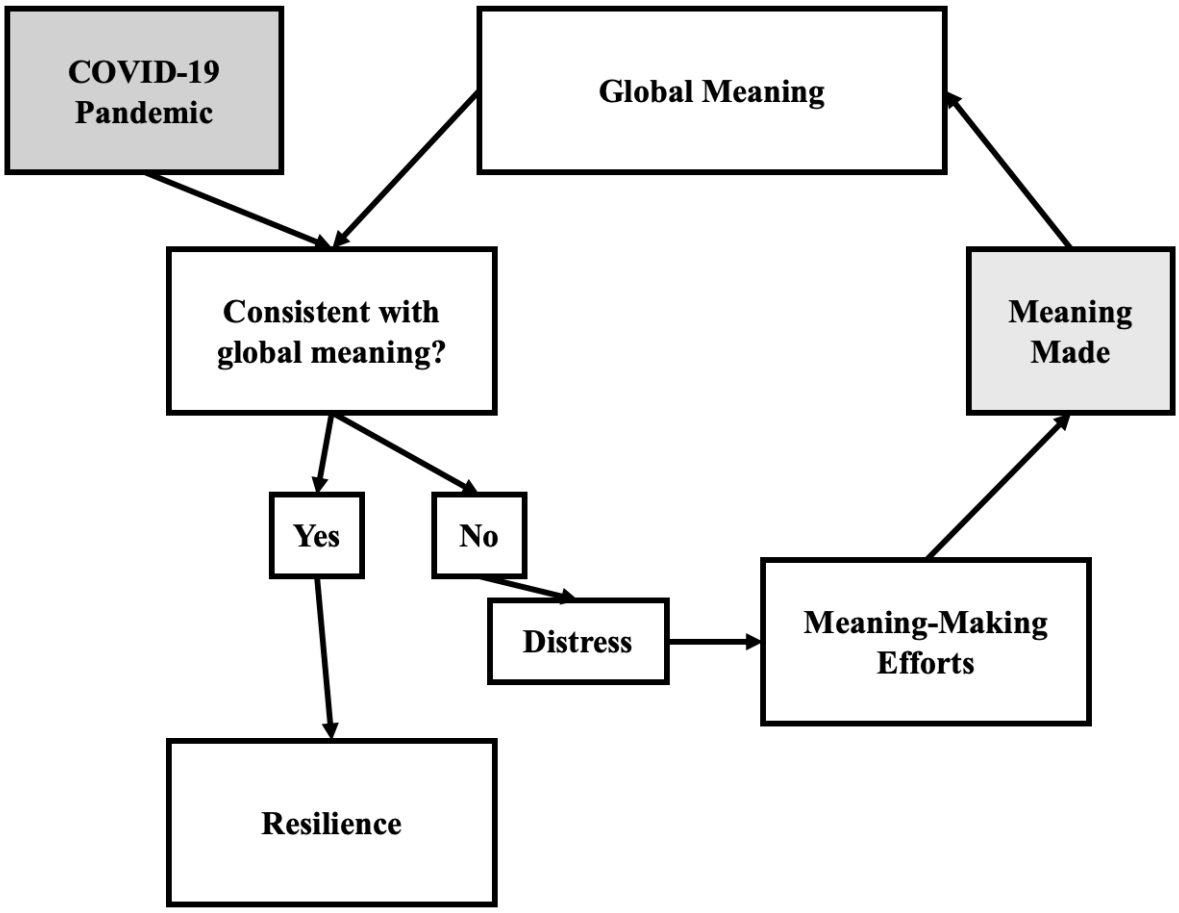


Figure 1. *Conceptual Diagram of the Impact of the COVID-19 Pandemic on Individual Meaning Making.*

CHAPTER 2

THEORY AND LITERATURE REVIEW

Conceptualization of Meaning in Life

Today, most researchers are moving toward a definition of meaning consisting of three dimensions: comprehension or coherence, purpose, and mattering or significance (George & Park, 2017; Heintzelman & King, 2014; Martela & Steger, 2016; Martela & Steger, 2023). Accordingly, meaning in life (MIL) is defined as the belief that one's existence and contributions hold significance for both oneself and others, a sense that life is coherent, and the experience of actively striving toward personal goals (Costin & Vignoles, 2020). This conceptualization attempts to unify the multiple, sometimes overlapping and sometimes disparate, definitions of meaning in life proposed by researchers in the past (Martela & Steger, 2016).

History of the Study of Meaning in Life

Viktor Frankl, a survivor of the Holocaust, was the first to empirically study the experience of meaning in life. Frankl argued that it is each individual's responsibility to find meaning and fulfill their unique potential (Frankl, 1955; Frankl, 1962). His conceptualization highlighted three primary sources of meaning: work or creativity, experiencing the world, and one's attitude toward suffering (Frankl, 1985). It also drew heavily on the philosophical schools of existentialism and humanism.

Frankl's work laid the foundation for the scientific study of meaning in life, influencing subsequent theories and research. Since his early work, multiple conceptualizations of meaning in life have been proposed, including spiritual well-being (Ellison, 1983), Ryff's Psychological

Well-being Model (Ryff & Keyes, 1995), sources of meaning (Bar-Tur et al., 2001; Ebersole & DeVogler, 1981), and orientations toward meaning (Proulx & Inzlicht, 2012). These frameworks differ from meaning in life in key ways such as a lack of conceptual clarity between meaning, purpose, and coherence, as well as the differentiation between the experience of meaning in life and the processes by which an individual creates meaning.

Positive Psychology and Differentiation from Religion and Spirituality

Theoretical models used to study meaning in life have evolved along with its definition (Martela & Steger, 2023; Steger, 2021). However, meaning in life has consistently been studied within a broader positive psychology framework since the early 2000s (Seligman & Csikszentmihalyi, 2000). Initially, purpose and meaning in life were integrated into positive psychology as a character strength or virtue (Peterson & Seligman, 2004). Early research often conflated meaning in life with religion or spirituality, viewing them as necessary components of well-being (Ellison, 1983). However, later studies demonstrated that meaning in life is distinct from religious engagement, although the two can be related (Ivtzan, 2013; Krok, 2015). Today, researchers largely agree that meaning in life is a separate construct that does not require religious or spiritual belief (Steger, 2009).

Positive psychology defines itself as "a science of positive subjective experience, positive individual traits, and positive institutions" (Seligman & Csikszentmihalyi, 2000, p. 1), aiming to understand and promote human thriving (Seligman, 2019; Seligman & Csikszentmihalyi, 2014). This movement arose in response to what some researchers saw as an overemphasis on psychopathology in psychological research (Seligman & Csikszentmihalyi, 2000). Today, meaning in life is central to positive psychology research, as it has been empirically linked to nearly every facet of well-being (Steger, 2021). However, positive psychology and the study of

meaning in life are relatively young disciplines which has contributed to the evolving definitions and theoretical frameworks surrounding meaning in life (Martela & Steger, 2016).

Current Conceptualizations of Meaning in Life Within Positive Psychology

Recently, two tripartite models of meaning in life have been introduced that divide "Presence of Meaning" into three dimensions. George and Park (2016) propose comprehension, purpose, and mattering, where comprehension refers to life making sense, purpose to goal-driven motivation, and mattering to feeling significant and valued *to the world*. Their Multidimensional Existential Meaning Scale (MEMS) reflects this model. In contrast, Martela and Steger (2016) have proposed a model consisting of coherence, purpose, and significance, with their Three-Dimensional Meaning in Life Scale (3DM). This model emphasizes significance as the subjective value life holds *for the individual*. While both models align on purpose and coherence/comprehension, they differ in framing mattering versus significance.

Beyond structure, research also examines sources and orientations of meaning: sources reflect the specific aspects of life that provide meaning, while orientations help distinguish the types of meaning individuals pursue ranging from prosocial (transcendent) to self-serving or even harmful (mundane). Recognizing these distinctions allows researchers to better understand not just whether people find meaning, but how and from what they derive it.

Distinguishing Meaning in Life from Purpose in Life

Historically, there has been a lack of conceptual clarity between meaning in life and purpose (Steger et al., 2006). Currently, purpose is conceptualized as a dimension of meaning in life. The key distinction between meaning and purpose is that purpose embodies action—striving toward something significant across one's life—while meaning refers to a general state experienced by an individual (Martela & Steger, 2016). A person's sense of purpose contributes

to their overall sense of meaning and, accordingly, their well-being (Ryff & Keyes, 1995). Purposeful activities and goals can infuse everyday life with meaning (Bronk et al., 2009). Like meaning in life, greater purpose is associated with higher levels of well-being (Ryff & Keyes, 1995; Steger et al., 2009) and lower levels of psychopathology (Boreham & Schutte, 2023).

Researchers began to differentiate theoretically between purpose and meaning in life approximately 20 years ago (Halama, 2002). Before this, conceptualizations largely relied on Frankl's original works, treating the two terms as synonymous. There was also debate as to whether meaning in life was inherently religious (Ellison, 1983). However, the current consensus among experts is that religion and the experience of meaning are separable concepts.

Steger et al. (2006) proposed one of the first widely used conceptualizations of meaning in life, dividing it into two key elements: presence of meaning and search for meaning. An individual with a strong sense of meaning experiences life as profoundly valuable and consequential, while someone searching for meaning is actively trying to understand how life and their experiences can be meaningful. This conceptualization underscores that searching for meaning is an ongoing, dynamic process requiring individuals to continually explore and clarify their values, beliefs, and aspirations. Engaging in purposeful activities is positively associated with meaning in life and either not associated or negatively associated with searching for meaning (Steger, 2021).

Meaning in Life and Lifespan Development

The degree to which individuals experience meaning in life and the sources from which they derive it are likely to change across the lifespan. During adolescence, identity development and meaning in life are closely linked, with the presence of meaning emerging alongside an adolescent's evolving sense of self (Negru-Subtirica et al., 2016). Consistent with this, meaning

in life is highly variable during adolescence and, to a lesser but still significant extent, emerging adulthood (Steger et al., 2009). These developmental stages are also unique in that searching for meaning is positively associated with well-being, suggesting that exploration and questioning meaning may serve an adaptive function during this period (Shin & Steger, 2016; Steger et al., 2008a). However, this relationship shifts later in life. In adulthood, searching for meaning is strongly associated with depression and other internalizing problems and is negatively correlated with well-being (Steger et al., 2006; Steger et al., 2008a; Steger et al., 2008b). These findings have significant implications for our understanding of human development and well-being. Notably, however, no studies have yet examined how the tripartite dimensions of meaning—coherence, purpose, and mattering—vary developmentally, leaving an important gap in our understanding.

Most adults have a well-established sense of meaning in life, and searching for meaning becomes less common in this stage (Allan et al., 2015; Steger et al., 2008). However, when adults do search for meaning, they are more likely to experience it negatively (Allan et al., 2015; Steger et al., 2006). This is because in adulthood the search for meaning is often triggered by difficult or distressing life events such as war (Steger et al., 2014), natural disasters (Park & Blake, 2020), major health crises (Czekierda et al., 2017), or other stressors (Park, 2010). Such experiences can prompt individuals to reassess their sources of meaning and reevaluate their life's coherence (Park, 2016; Steger & Park, 2012). While there are also normative periods of meaning reassessment in adulthood such as midlife reflection (Battersby & Phillips, 2016; O'Connor, 1996), these are typically transitory. By older adulthood, most individuals have a stable sense of what gives their life meaning (Wong, 2000).

Factors Influencing the Development of Meaning in Life

Numerous factors influence meaning in life across the lifespan. On an individual level, meaning is strongly tied to identity development and the establishment of life goals (Bronk et al., 2009; Negru-Subtirica et al., 2016). However, these factors do not develop in isolation. Relationships with others—particularly friends, family, and romantic partners—play a crucial role in shaping both identity and meaning in life. This association begins in adolescence and continues into adulthood (Negru-Subtirica et al., 2016; O'Donnell et al., 2014). Ryff and Keyes (1995) theorized that meaning in life is a fundamental component of well-being and that relationships are essential for cultivating meaning and higher-order well-being. Across cultures and age groups, strong social connections have consistently been identified as key sources of meaning (Debats, 1999; Delle Fave, 2009; Prager, 1996). Despite this, few studies have directly compared different types of relationships in their contributions to meaning. For example, while O'Donnell et al. (2014) found that both romantic relationships and friendships enhance meaning, potential differences between them remain unexplored. Similarly, research suggests that strong family relationships in adulthood are positively associated with meaning (Garrosa-Hernandez et al., 2013), but distinctions between family of origin and family created through marriage or partnership remain understudied. Investigating these nuances would improve our understanding of how relationships shape meaning across the lifespan.

Meaning in Life and Work

The type of work an individual engages in and their perception of it significantly impact whether they view their life as meaningful (Steger & Dik, 2009). Individuals who find their jobs meaningful tend to report higher career satisfaction and overall well-being (Steger & Dik, 2009; Ward & King, 2017). Conversely, those with low job satisfaction and diminished meaning in life

are more likely to seek career changes (Ward & King, 2017). In this context, job dissatisfaction may serve as a non-traumatic yet powerful catalyst for searching for meaning (Park, 2010).

Cultural Associations

Cultural differences also influence meaning in life, particularly in relation to searching for meaning. Many studies conducted in adulthood find that searching for meaning is associated with increased internalizing problems such as depression (Steger et al., 2009). This suggests that, generally, individuals who are actively seeking meaning may experience greater psychological distress and lower well-being. However, cultural variations exist in this pattern. A meta-analysis by Li et al. (2021) found that people from individualistic cultures tend to report lower levels of meaning in life compared to those from collectivistic cultures. However, this is not always the case. Steger et al. (2013) conducted a cross-cultural comparison between the United States and Japan, finding that while Americans were more likely to experience high levels of meaning, Japanese participants reported greater levels of searching for meaning but without the associated increase in psychological distress typically seen in Western populations. The growing body of research on meaning in life in non-Western contexts, particularly in countries such as China, India, and Turkey, may provide further insights into how culture shapes the experience of meaning (Steger, 2021).

Meaning in Life and Well-Being

Well-being is a multifaceted concept, and some researchers posit that meaning in life is a core component of higher-order well-being or happiness (Reker et al., 1987; Seligman, 2002). Well-being can be divided into hedonic well-being, which involves positive emotions and the satisfaction of desires, and eudaimonic well-being, which encompasses meaning and the development of one's potential (Disabato et al., 2016; Ryff & Keyes, 1995). One influential

model of well-being, Seligman's PERMA model, identifies meaning as one of five key pathways to a fulfilling life alongside positive emotion, engagement, relationships, and accomplishment (Seligman, 2002).

Empirical research consistently demonstrates a strong positive association between meaning in life and well-being (Park et al., 2022). However, some variation exists in conceptualizations of well-being, with different studies emphasizing components such as positive affect, life satisfaction, and domain satisfaction (Diener, 2000; Diener et al., 1999). While meaning in life appears to be a central component of well-being, future research should examine how different facets of well-being are uniquely related to meaning (Li et al., 2021). A meta-analysis synthesizing studies on the relationship between meaning in life and various dimensions of well-being would be particularly valuable given that most existing studies address only some components of well-being (Park et al., 2022).

Meaning in Life and the COVID-19 Pandemic

The COVID-19 pandemic profoundly impacted individuals' sense of meaning in life. For many, the pandemic disrupted important sources of meaning, including career goals, social relationships, and daily routines, leading to distress and a diminished sense of coherence (Trzebiński et al., 2020). Adolescents and emerging adults who are developing their sense of identity were particularly vulnerable, as the loss of typical developmental experiences hindered their ability to establish meaning (Negru-Subtirica et al., 2016; Steger et al., 2009). Similarly, adults faced meaning violations due to job loss, financial strain, and grief, often prompting an unsettling search for meaning, which is more likely to be experienced as negative during adulthood (Allan et al., 2015; Park & Blake, 2020).

However, meaning in life served as a crucial psychological buffer against pandemic-related stress, with those maintaining a strong sense of meaning exhibiting greater resilience, lower distress, and better overall well-being (Jaffe et al., 2022; Yu et al., 2020). Some individuals responded to the crisis by actively searching for new sources of meaning, reframing adversity as an opportunity for growth, connection, or more profound commitment to their values (Frankl, 1955; Park, 2010). The reciprocal relationship between meaning and well-being emphasizes meaning in life as a factor that promotes resilience and supports recovery from adverse life events (Li et al., 2021; Steger, 2021).

Developmental Perspectives on Meaning in Life

Developmental perspectives on positive psychology research, particularly meaning in life, have recently gained traction (Coffey, 2021). This is evident in the most recent version of the Oxford Handbook of Positive Psychology, which devotes six chapters to incorporating developmental theory and research into positive psychology-related domains (Snyder et al., 2021). The most important of these include ecological systems theory and risk and resilience. That said, incorporating these theories into the broader meaning in life research is still in its infancy, and more articles have been published discussing the theory and how it might be applied rather than testing it empirically (Allan et al., 2015). There are also drawbacks to how this developmental research on meaning in life has been approached which should be remedied going forward. When an empirical paper on meaning in life focuses on the development of meaning, the authors rarely take ecological systems, risk and resilience, positive youth development, or any other developmental theory into account. This is because the majority of studies that ask the question (broadly), “How does meaning in life develop?” have been conducted outside of developmental science (Negru-Subtirica et al., 2016). Using ecological systems theory (or lack

thereof) as an example, this may mean that a paper investigating the development of meaning in life does not take into account (a) that different relationships could play different roles in the development of meaning during different developmental periods, and/or (b) that the importance of different relationships to the development of meaning may differ depending on the age of the child. Likewise, lack of awareness of an ecological framework would result in failure to note the importance of the child's school environment or broader community. How each of the theories detailed relate to meaning in life will likely evolve as more research on meaning in life from a developmental perspective becomes available. That said, it is clear that the inclusion of developmental theories has the potential to make meaning in life research both richer and more complete.

Connections with the Present Study

The present study aims to answer three research questions:

1. ***How do meaning in life and dimensions of well-being relate longitudinally?***

As demonstrated above, meaning life is closely tied to well-being. Multiple models including Ryff's Psychological Well-being Model and the PERMA model conceptualize meaning in life as a key component of well-being (Ryff & Keyes, 1995; Seligman, 2002). However, an individual's sense of meaning is also likely to evolve throughout their life. Because meaning in life changes through developmental stages and life experiences, a longitudinal analysis is essential to understand the dynamic relationship between meaning and various aspects of well-being.

2. ***Are there differences in the magnitude and/or direction of these effects depending on when data were collected relative to the start of the COVID-19 pandemic?***

The COVID-19 pandemic represented a significant disruption to individuals' lives. It is likely that it altered developmental trajectories, particularly for adolescents and emerging adults. The

magnitude and direction of this impact could vary depending on how individuals re-evaluated their sense of meaning and goals in response to the pandemic.

3. ***Do associations between meaning in life and dimensions of well-being differ depending on age or developmental period? Further, were certain groups more impacted by COVID-19 than others?***

Different age groups experience meaning in life differently, particularly regarding the presence of and search for meaning. For adolescents and young adults, searching for meaning is a positive experience that supports them in the development of their own identities and goals. Adults, however, are more likely to experience the search for meaning as negative because the search for meaning in adulthood is usually prompted by negative life events. All people were impacted of COVID-19 regardless of their life stage. However, it is likely that some age groups experienced the negative impacts of COVID-19 more than others. Adolescents and emerging adults may have experienced disruptions in their development of meaning in life. Understanding these changes is essential to help recovery post-pandemic.

CHAPTER 3

METHOD

To effectively address the research questions guiding this study, it was important to systematically identify quantitative studies that longitudinally examined how meaning in life related to dimensions of well-being. Studies that included a time point overlapping with the COVID-19 pandemic were particularly important. These studies allowed me to explore potential differences in the association between meaning in life and well-being depending on whether data were collected before or after the onset of COVID-19. The following section of my dissertation outlines a comprehensive methodological approach detailing search strategies, inclusion and exclusion criteria, data coding, and statistical methods. Together, these steps answer the research questions outlined in Chapters 1 and 2 of this dissertation.

Literature Search

I employed two separate search strategies to locate relevant studies. First, I searched PsycINFO, PubMed, and ProQuest in July 2024 and May 2025 using the Boolean phrase "meaning in life" OR "meaning making" AND "longitudinal" OR "longitudinal study" OR "longitudinal design" OR "prospective study" OR "prospective design" OR "multiple time points" OR "repeated measures" or "repeated assessments." This search yielded 494 potential studies for inclusion. These databases were selected because they contain extensive psychological and social science research, ensuring a comprehensive search.

Second, I conducted two forward searches between July 2024 and January 2025 using the keywords "longitudinal" OR "longitudinal study" OR "longitudinal design" OR "prospective

study" OR "prospective design" OR "multiple time points" OR "repeated measures" or "repeated assessments" from the meaning measures most commonly used in the first search. These forward searches were conducted through Google Scholar, which allowed for a broader search that captured gray literature, dissertations, and preprints. This search yielded and additional 3,178 potential studies for inclusion. Given the large number of results from the forward search, this review was conducted with *ASReview* which uses machine learning to prioritize the studies most relevant to your research question based on the reviewers' decisions during the first round of screening (ASReview LAB developers, 2023; Van de Schoot et al., 2021). The forward search served two purposes: validating the initial search and ensuring that relevant papers missed in the initial search were identified. If discrepancies arose between the two searches, I examined the reasons for any inconsistencies and adjusted my search strategy accordingly.

To minimize bias, I placed no restrictions on publication year, allowing for an examination of trends over time. However, I restricted the search to English-language publications due to practical limitations in translation and interpretation. While this language restriction may have introduced bias by excluding potentially relevant non-English studies, prior research suggested that the vast majority of psychological studies on meaning in life were published in English (Li et al., 2021).

Inclusion and Exclusion Criteria

Studies were included if they met the following criteria: (1) they utilized a validated measure of meaning in life (not purpose), (2) they included a general measure of well-being, and (3) they focused on a general, non-clinical population. Although purpose is closely related to meaning in life, the two constructs are theoretically distinct and should not be treated interchangeably. Because the goal of this meta-analysis is to assess the longitudinal association

between meaning in life and well-being, studies must include a validated measure of meaning in life rather than a measure focused solely on purpose. Although these constructs were often conflated historically, particularly in work based on Frank's existential theory (Halama, 2002), contemporary research differentiates them conceptually and empirically (Steger et al., 2006). Therefore, this decision ensured conceptual clarity, aligned with current theoretical models, and avoided conflating related but distinct constructs (Boreham & Schutte, 2023; Ryff & Keyes, 1995).

Consistent with prior integrative frameworks (Li et al., 2021; Park et al., 2023), general well-being was defined broadly to include constructs such as subjective well-being, life satisfaction, and psychological flourishing. In line with recent efforts to establish conceptual clarity around emotional well-being (EWB), this meta-analysis focuses on global, trait-like aspects of well-being that reflect an individual's overall experience of life rather than transient reactions to a specific stressor or domain. Park and colleagues (2023) argue that a coherent scientific understanding of well-being requires distinguishing broad, multidimensional well-being—such as emotional balance, sense of meaning and purpose, and life satisfaction—from narrower constructs linked to specific life events or conditions.

To maintain this conceptual consistency, studies that assessed well-being within a single context (e.g., cancer recovery, job-specific satisfaction) were excluded. Such domain-specific measures, while valuable in applied settings, may not generalize across life domains and risk introducing construct heterogeneity into the analysis. Additionally, studies focusing on clinical or trauma-exposed populations (e.g., individuals diagnosed with PTSD, survivors of major disasters) were excluded. Research on post-traumatic growth indicates that meaning in life is often experienced in qualitatively distinct ways in these populations, shaped by processes of

rebuilding meaning after disruption or loss (Park, 2010). These processes may involve different mechanisms, time courses, and meaning sources than those typically found in the general population. Including such studies could bias the meta-analytic estimates by overrepresenting responses to adversity, potentially obscuring developmental patterns that are more reflective of normative, day-to-day life.

Coding of Studies

Several characteristics were coded from each study. First, I recorded basic identifying information, including the study title, authors, publication type (e.g., peer-reviewed article, dissertation), journal (if applicable), publication year, and whether the study took place during the COVID-19 pandemic. I also coded the year of data collection, as this was a critical moderator in the temporal meta-analysis. Second, I documented which validated measures of meaning in life and well-being were used. When available, I recorded internal consistency reliability coefficients (Cronbach's α) to correct effect sizes for attenuation due to measurement error following the procedures outlined by Hunter and Schmidt (1991). Finally, I extracted or calculated Pearson's *r* coefficients between meaning in life at Time 1 and well-being at Time 2, thereby showing longitudinal associations across time.

To ensure the accuracy and relevance of the included studies, four rounds of study coding were completed. In Round One, all records identified were screened by title and abstract to exclude clearly ineligible studies (e.g., clinical populations, unrelated topics, cross-sectional designs). In Round Two, I conducted a more detailed review of the full texts, focusing on keywords and the method sections to confirm the presence of key constructs, particularly meaning in life and well-being. I also confirmed appropriate study design (longitudinal, quantitative). Studies that met these criteria were retained for Round Three, during which I

closely examined the results sections to determine whether they reported correlations (Pearson's *r*) between Time 1 Meaning in Life and Time 2 Well-Being. At this stage, I also contacted authors to request information that was not present in the original studies. Finally, in Round Four, I conducted the full meta-analytic coding for all retained studies, extracting effect sizes and moderator variables and entering the information into the meta-analytic database. This multi-pass approach allowed for increasingly refined inclusion decisions while minimizing errors in data extraction and coding.

To improve rigor and monitor potential bias, I assessed both interrater and intra-rater reliability. Interrater reliability was evaluated by having a second coder independently code approximately 20% of the studies. Agreement was quantified using Cohen's kappa (κ), which adjusts for the level of agreement that might occur by chance. Specifically, Cohen's kappa is calculated using the formula:

$$\kappa = \frac{P_o - P_e}{1 - P_e}$$

where P_O is the observed proportion of agreement and P_e is the expected agreement based on base rates (see Card, 2011, p. 76). Cohen's kappa was calculated at .923 for the present study, which indicates a high rate of agreement. Discrepancies were be resolved through discussion and consensus.

In addition, I assessed intra-rater reliability to detect potential coding drift over time. To do this, I re-coded a random subset of previously coded studies after a delay. The match rate was 97%, suggesting minimal drift in decision-making across the coding period. While intra-rater reliability does not replace the need for interrater checks, it provides additional evidence of consistency, particularly important in cases like this dissertation where study blinding was not feasible (Wilson, 2009).

I also systematically documented instances of missing or incomplete information. If a study did not report the statistics necessary to compute an effect size or moderator variable, I contacted the corresponding author by email. Each author was contacted up to two times over a four-week period. If no response was received, I determined whether the missing data could be estimated based on available information or whether the study needed to be excluded.

The most commonly missing piece of information was the year of data collection, which was a key moderator in this meta-analysis. To address this, I used mean imputation, calculating the average difference between publication year and data collection year among studies that did report both. This differs from the common default in temporal meta-analyses (subtracting two years from publication date) but was considered more accurate for the present review, given publication timelines specific to the fields of developmental and well-being research. Authors provided additional information in 11 cases, enabling more accurate effect size computation and moderator coding.

Since the included studies came from multiple different countries, defining the onset of the COVID-19 pandemic was challenging. After debating multiple options, I decided the best practice would be to go with the determination of the original authors of the included studies regarding whether the study took place during the pandemic. This was generally mentioned in the title or in the method section of the study.

After all coding was completed, I created a PRISMA diagram (Figure 2; Moher et al., 2009) to transparently document the study selection process. The diagram begins with the total number of studies identified through database and forward searches (Table 1; Appendix A). It then shows how many records were screened and excluded along with the primary reasons for exclusion (e.g., clinical samples, lack of longitudinal design, insufficient statistical reporting).

Finally, it displays the total number of studies included in the meta-analysis. This visual summary enhances reproducibility and aligns with best practices for reporting in meta-analytic research.

Statistical Analyses

Preliminary Analyses

Effect Size Calculations. Effect sizes were calculated as correlation coefficients (Pearson's *r*) between Time 1 Meaning in life and Time 2 Well-being. Where Pearson's *r* was not reported, effect sizes were calculated from other statistical information presented in the study using equations from Lipsey and Wilson (2001), or authors were contacted. All effect sizes were transformed to Fisher's Z_r scores prior to analysis to reduce bias (Lipsey & Wilson, 2001). Fisher's Z_r scores are approximately normally distributed, even when the original Pearsons's *r* values are not, allowing for more accurate estimation and comparison of effect sizes. The equation used to transform Pearson's *r* into Fisher's Z_r is:

$$Z_r = \frac{1}{2}\ln\left(\frac{1+r}{1-r}\right)$$

where *r* is the Pearson's *r* correlation coefficient, *ln* is the natural logarithm, and Z_r is the Fisher-transformed value. These coefficients were back-transformed into Pearson's *r* scores for interpretability after analyses were completed. Fisher's *Zr* transformations and back transformations into Pearson's *r* were performed using the `metafor` package in R (Viechtbauer, 2010).

Interdependent Effect Sizes. Many studies included in the meta-analysis reported multiple relevant effect sizes which were interdependent given that they came from the same sample of participants. For example, a study may have reported meaning in life correlations across multiple time points or with multiple well-being measures. I handled these interdependent

cases using the `robumeta` package in R (Fisher & Tipton, 2015), which employed a multilevel meta-analysis framework. A multilevel framework (effect sizes nested within studies) increased the precision of meta-analytic estimates while preserving statistical power (Cheung, 2014; Hox et al., 2010). Utilizing such strategies was particularly useful for longitudinal studies, which often included correlations across multiple waves of data.

However, there are drawbacks to using `robumeta` for moderator analyses with low degrees of freedom. The `robumeta` package uses robust variance estimation to handle dependent effect sizes that rely on variance between clusters (e.g., multiple effect sizes from the same study). If a limited number of degrees of freedom exists between clusters, then the variance estimates become unstable, making the standard errors of the regression coefficients (including moderators) unreliable. Therefore, the makers of `robumeta` recommend not trusting analyses where the degrees of freedom are less than four. In such cases, it is better to use meta-regression methods in conjunction with averaging effect sizes found within the same study, which is the more traditional approach (see Card, 2011, Ch. 4). In cases where this happened in the present study, results from both versions are presented but only results from the meta-regression are interpreted.

Data Analysis

Data were analyzed in R using the `metafor` and `robumeta` packages (Fisher & Tipton, 2015; Viechtbauer, 2010). Specifically, `metafor` was used if the effect sizes coded were not interdependent, while robumeta was used if effect sizes were interdependent. The second case was more likely given that I selected for longitudinal studies, which frequently included more than two time points. Course corrections to this approach were then made as

necessary following the criteria outlined in the section above. Analysis methods were organized according to the research questions outlined in Chapters 1 and 2.

1. ***How do meaning in life and dimensions of well-being relate longitudinally?***

Random effects models were employed to estimate weighted average effect sizes, assessing the longitudinal association between meaning in life (Time 1) and dimensions of well-being (Time 2). Random effects models include both within-study sampling error and between study variability, producing more conservative estimates but allowing for increased generalization beyond the included studies. Random effects models are preferable where there is heterogeneity among effect sizes and you want to generalize findings to the broader research literature.

2. ***Are there differences in the magnitude and/or direction of these effects depending on when data were collected relative to the start of the COVID-19 pandemic?***

Moderator analyses using mixed-effects models assessed whether the timing of data collection (before vs. during the COVID-19 pandemic) influenced the magnitude and direction of relationships between meaning in life and well-being. Mixed effects models combine random effects models with fixed effects models to allow a researcher to test the impact of a moderating variable on unexplained residual heterogeneity.

In addition to temporal meta-analysis, this meta-analysis examined lag length, the time between the measurement of Time 1 Meaning in Life and Time 2 Well-being, as a potential moderator. This was deemed particularly important since changes following the onset of the COVID-19 pandemic were rapid. Lag was coded continuously in weeks wherever possible and log-transformed in secondary models to account for potential nonlinearity. Although prior meta-analyses have commonly assumed that the timing of measurement is inconsequential, recent findings suggest that the magnitude and even the direction of longitudinal associations can shift meaningfully depending on lag duration. Studies with short lags (e.g., under two months) may

capture immediate or reactive associations, while longer lags may reflect more enduring changes in well-being. To examine these possibilities, both linear and quadratic effects of lag were modeled.

3. ***Do associations between meaning in life and dimensions of well-being differ depending on age or developmental period?***

Further, were certain groups more impacted by COVID-19 than others? Mixed-effects moderation analyses were conducted to determine if the association between meaning in life and well-being depended on mean age, developmental period, and demographic characteristics. Additionally, subgroup analyses investigated whether specific age or developmental groups (e.g., adolescents, emerging adults) experienced differential impacts from the COVID-19 pandemic, as indicated by shifts in meaning in life and well-being outcomes during this period.

Addressing Challenges and Limitations

This meta-analysis was subject to several challenges. First, publication bias was a concern, as studies finding significant effects between meaning and well-being were more likely to be published. To address this, I used Egger's regression test and trim-and-fill methods to assess and correct for potential bias (Duval & Tweedie, 2000). Second, heterogeneity in measures of meaning in life and well-being was likely to introduce variability in effect sizes. I conducted moderation analyses to determine whether results were robust across different measures. Finally, limitations related to missing data may have affected the comprehensiveness of the findings. In such cases, imputation could be used in meta-analyses provided the dataset included a sufficient amount of data. This was done if the meta-analysis met the criteria outlined in Higgins (2008). If imputation was used, sensitivity analyses were conducted to assess differences between models using the imputed and unimputed data.

Table 1

Summary of Studies Included in the Present Meta-Analysis

Sample Characteristic	Average	Standard Deviation	Median	Range
N	1,703.82	4,244.80	279	52.00 - 19,395
Average Age	31.32	11.88	20.02	14.08 - 57.00
Percent Female	61%	16%	72%	29% - 90%
Publication Year	2018	5	2021	2007 - 2024
Data Collection Year	2015	6	2018	2003 - 2022
Lag Length (Months)	7.18	11.41	3	0.75 - 48

Note. Median was included to show skew in some sample characteristics. The age range for average age differs from the age range given in the description because that number was derived from the ranges of participant ages given in the original studies while the number above was calculated from average participant ages.

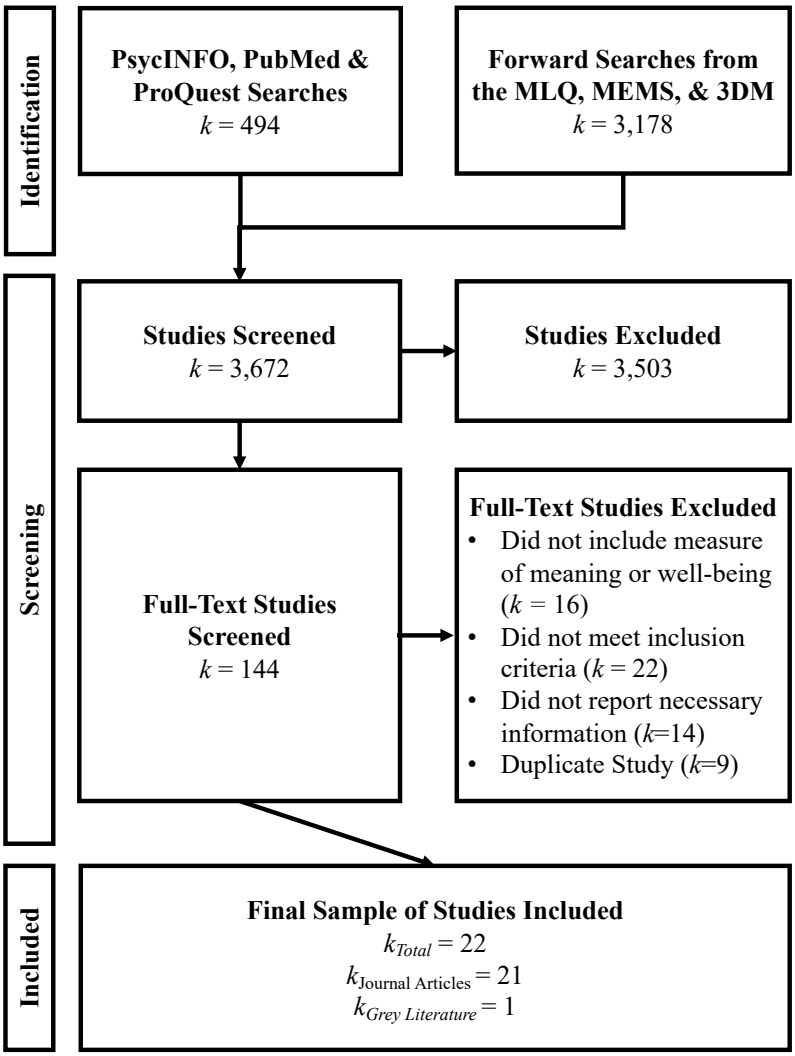


Figure 2. *PRISMA Diagram of the Literature Search Process. k* denotes the number of studies. Grey literature describes the unpublished studies included in the present meta-analysis.

CHAPTER IV

RESULTS

Descriptive Information

A total of 3,672 studies were reviewed for inclusion in the present meta-analysis (see Figure 2 for PRISMA diagram). During the initial screening phase, 3,503 studies were excluded for one or more of the following reasons: the study did not utilize a general, non-clinical population, did not assess meaning in life or well-being, did not report quantitative results, or was not available in English. These issues occurred most frequently among studies identified during the forward search process, where articles that cited meaning or well-being measures (e.g., the MLQ) often did not use them in actual data collection.

I then conducted full-text screening of the remaining 144 studies. Of these, 16 were excluded for lacking relevant constructs, and 22 were removed upon closer review for failing to meet study design criteria (e.g., cross-sectional design, non-quantitative methodology). An additional 14 studies were excluded due to missing statistical information required to calculate effect sizes, and efforts to obtain these data via author contact were unsuccessful. Lastly, 9 duplicate studies were identified and removed. The final analytic sample comprised 22 studies, including 21 peer-reviewed journal articles and one unpublished dissertation. Including grey literature helped reduce publication bias and broadened the representativeness of the findings. In total, these studies drew on data from 37,484 participants and yielded 49 interdependent effect sizes (see Table 1; Appendix A).

Year of publication ranged from 2007 to 2024. Participants had a mean age of 31.32 years (range = 14.08–63.30). Age group representation was uneven: 2 studies included adolescents (13–18), 15 studies sampled emerging adults (18–25), and 5 studies analyzed general adult populations (26–65). The relative overrepresentation of emerging adults mirrors broader trends in meaning-in-life research and supports this group's central role in identity and meaning development. Across studies, 61% of participants identified as female. The studies were geographically diverse, with data collected in the United States (k = 8; n = 1,713), China (k = 7; n = 9,041), Canada (k = 2; n = 502), South Korea (k = 1; n = 19,395), Turkey (k = 1; n = 172), Chile (k = 1; n = 148), and Austria (k = 1; n = 52). A majority of the studies (57%) collected data during the COVID-19 pandemic, supporting this meta-analysis's aim of exploring meaning–well-being associations in a time-sensitive context. Finally, the Meaning in Life Questionnaire (MLQ; Steger et al., 2006) was used in 57% of the included studies, providing a degree of measurement consistency. All other meaning measures were used in only one study each. Most studies utilized short lags between waves of data collection; 86% of studies had intervals between 1 and 12 weeks. Four studies used lag intervals longer than one year, two of which collected data prior to the COVID-19 pandemic and the other two during it.

Research Question #1

Longitudinal Association Between Meaning in Life and Well-Being

Reported effect sizes ranged from r = 0.06 to r = 0.41, with most studies finding positive longitudinal associations between meaning in life at Time 1 and well-being at Time 2. The random-effects weighted average effect size of the correlation between meaning in life and well-being was significant, M_r = . 40 *df*, $p < .001$, 95% CI [.35, .45], with substantial heterogeneity I^2 = 96.66, Tau^2 = .02. Heterogeneity describes the degree of variability in effect sizes across

studies that cannot be explained by chance. That is, while some differences in results are expected due to random sampling error, heterogeneity captures whether there are real differences across studies (e.g., population, study design, or data collection year). The moderator analyses conducted in the next section will assess potential sources of heterogeneity in the effect sizes included in this meta-analysis.

Sensitivity analyses indicated that these results were robust regardless of intraclass correlation (Fisher & Tipton, 2015). In robust variance estimation, rho (ρ) represents the assumed correlation between effect sizes within the same study. Robust variance estimation accounts for the dependence between effect sizes reported from a single study. However, the correlation between effects within a study is unknown. Sensitivity analyses addresses this by substituting different plausible values of rho to see whether critical output such as average effect sizes and confidence intervals remain stable, as they did for this analysis. Therefore, it may be concluded that meaning in life is a significant predictor of well-being across time.

Publication Bias

Egger's Test was used to check for funnel plot asymmetry, which suggests publication bias. Small studies or studies with non-significant results are less likely to be published, resulting in a biased sample of studies included in a meta-analysis. Results from Egger's Test were significant, $z = 2.10$, $p < .05$, indicating possible publication bias. The trim and fill method was then employed to estimate the number of studies that might be missing due to publication bias (Figure 3). In this case, it was estimated that one study might be missing due to publication bias. In meta-analyses, funnel plots show the distribution of effect sizes around the overall mean estimate. Studies with larger effect sizes appear near the top of the plot. In funnel plots, a relatively even scatter across the top indicates low risk of publication bias, as studies with large

and small effect sizes appear equally represented. No asymmetry or clustering indicates minimal evidence of small-study effects. Since only one study was estimated to be missing due to publication bias, it is likely that the estimate of the effect between meaning in life and well-being is robust.

Research Question #2

Temporal Meta-Analysis of Meaning in Life and Well-Being

Mixed effects multilevel meta-analysis models were used to assess the remaining models (Table 2). Results for the temporal meta-analysis, a moderator analysis using data collection year as a moderator, were not significant, r = -.01, p = .55, df = 7.77. Although this analysis had sufficient degrees of freedom, the following analyses related to Research Question #2 did not, so I present both for comparison purposes. The results of this analysis using meta-regression were also not significant, r = -.01, p = .42. These analyses tested whether there was a linear decrease in effect size exists depending on the year data was collected. However, it is likely that temporal change in effect size across years is not linear and depends on other events in addition to the COVID-19 pandemic. To explore how the association between meaning in life and well-being has shifted over time, I plotted effect sizes against publication year using nonparametric smoothing (Figure 4). This descriptive analysis allowed me to visualize shifts in the magnitude of the association between meaning in life and well-being that may correspond with global events without assuming a linear relationship or inferring causality. The graph shows three dips in the meaning in life and well-being association across two decades. The first of these occurred between 2007 and 2008, the second in approximately 2016, and the last begins in 2020. These times roughly correspond with the 2008 recession, the turbulent 2016 presidential election, and the last coincides with the COVID-19 pandemic.

Lag Moderation

Given the wide variation in the time elapsed between measurement points across studies, lag length was examined as a potential moderator of the longitudinal association between meaning in life and well-being. As shown in Table 1, most studies employed short lag intervals (1–7 weeks), while a smaller number utilized longer-term follow-ups exceeding one year (also see Appendix A). Consistent with past work (Taylor & Card, 2024), lag was tested as a linear, quadratic, and exponential moderator to explore possible nonlinear relationships. The goal of these analyses was to determine whether the strength of the association between meaning in life and well-being varies depending on how much time elapses between measurements. The results from each of these analyses were not significant (Table 2). However, this may be due to participant age, as discussed later in this chapter (Figure 6).

Research Question #3

Age and Developmental Period

To explore whether developmental stage might influence the strength or nature of the longitudinal association between meaning in life and well-being, I examined both average age (as a continuous moderator) and developmental period (as a categorical moderator). While average age was not a significant moderator, developmental period showed preliminary evidence of moderation, particularly in comparisons between adolescence and emerging adulthood (Table 3). However, only one study was available for each of the adolescent subgroups, precluding formal testing within those age ranges. Notably, a significant difference emerged between studies sampling adolescents and those sampling emerging adults.

The difference between emerging adults and adults is illustrated clearly in Figure 5, where the effect sizes from emerging adult samples span a wider range and reach higher

maximum values than those from adult samples. In contrast, the adolescent group, which includes only two studies ($k = 2$), does not permit even descriptive conclusions. Visually, these adolescent studies fall near the middle of the effect size distribution observed in the emerging adult sample. However, until more research is conducted with adolescent populations, meaningful comparisons, either statistical or visual, remain premature.

Given the centrality of developmental period to this study, developmental categories were also examined in relation to the moderators from Research Question 2. Figure 6 presents the distribution of effect sizes by lag length and developmental period. Two key patterns emerge. First, relatively few studies in the dataset used lag intervals longer than one year ($k = 2$), and the sample sizes within these studies were small. This suggests that the significant findings from the lag moderation analyses may have been influenced by a limited number of short-lag studies. Second, the longest lag length in the dataset was found in a study that is also the only representation of early adolescence. This combination raises methodological concerns: because adolescence is a period of rapid developmental change, using a long lag may obscure rather than clarify the relationship between meaning and well-being. Extended time intervals may miss critical intra-individual shifts that unfold more quickly during this life stage, making it harder to detect the short-term dynamics that may be most informative. Taken together with the age moderation results, this pattern underscores the importance of conducting focused analyses within developmental subgroups, particularly emerging adulthood, which was the largest group in the dataset and the only one for which moderation by lag was statistically significant. Future research with more even age distribution and greater lag variability is needed to assess whether the observed patterns generalize across developmental periods.

Finally, the relationship between effect size, data collection year, and developmental period was examined in Figure 7. Unlike the lag-based visual, this graph revealed a more even dispersal of age groups across time points, suggesting that the results from the temporal meta-analysis are less likely to be disproportionately influenced by one developmental group. However, as with the lag analysis, this figure also highlights the continued underrepresentation of adolescent samples, reinforcing the need for more longitudinal studies within this group to allow for reliable interpretation of developmental patterns over time.

Analyses with Emerging Adulthood Only

Given this result and the fact that emerging adulthood was the most represented age group in the dataset, I re-ran all prior meta-analytic models using only studies from the emerging adult subgroup. These re-analyses revealed a consistent pattern: previously significant findings held only for emerging adults. Specifically, all models testing lag length as a moderator remained significant (including both linear and nonlinear forms), whereas the temporal meta-analysis using year of data collection was no longer significant. Since these models were significant, I also ran two additional models to examine data collection year in conjunction with lag. The first included data collection year and lag in the same model, and the second used both those terms along with an interaction term. These models allowed me to test whether the time since COVID-19 began impacted the effect sizes. In the first model, without the interaction term, data collection year and lag were both negative and significant moderators (Table 3). However, in the model with the interaction, data collection year and the interaction term were not significant although lag remained a significant moderator.

This shift suggests that developmental period may play a meaningful role in shaping how meaning and well-being relate over time, and that associations observed across the full sample

may be largely driven by emerging adulthood. At the same time, the lack of findings in other age groups likely reflects data limitations rather than true absence of effects. More research is needed to understand whether different temporal dynamics or developmental mechanisms operate across the lifespan. In particular, the non-significance of the temporal meta-analysis, even within emerging adulthood, may indicate that linear models of chronological time are insufficient to describe changes in this association, warranting further conceptual and empirical exploration.

Country

To examine potential cultural or regional differences in the association between meaning in life and well-being, I conducted a categorical moderator analysis using country as the grouping variable. Descriptively, the sample displayed an unusual distribution compared to most meta-analyses in psychology, which typically overrepresent U.S.-based studies due to language and publication biases. In the present meta-analysis, China contributed seven studies, accounting for 24.12% of the total sample, while the United States contributed eight studies, comprising just 4.57% of participants. South Korea contributed one study, but it represented over half of the total sample (51.74%), due to its large sample size. Other countries represented included Turkey (1 study; 0.46%), Canada (2 studies; 1.34%), Austria (1 study; 0.14%), and the Netherlands (1 study; 17.24%).

Despite these sample disparities, the United States was retained as the reference group for categorical comparisons in keeping with publishing conventions. Moderator analyses indicated that country was a significant moderator with China, South Korea, and the United States each showing statistically significant associations between meaning in life and well-being. Canada's results could not be interpreted reliably due to degrees of freedom below 1, which renders the test unstable under robust variance estimation. These findings suggest possible cultural or

contextual differences in the strength of this longitudinal relationship, though conclusions are tentative given the uneven representation and clustering of participants within countries.

Table 2

Research Question #2 Results for Moderator Analyses

				Confidence Interval			
	k	Estimate (*r*)	*df*	Lower Limit	Upper Limit	I^2	Tau^2
Random-effects mean ES	22	.40***	21	.35	.47	95.06	.13
Moderator							
Linear Lag Analysis	18	-.01	17	-.00	.01	94.09	.11
Quadratic Lag Analysis	18		16			93.86	.13
Centered Lag		-.01		-.02	.01		
Quadratic Lag		.01		.00	.00		
Data Collection Year	18	-.01	17	.00	.01	94.09	.11

Note. The analyses above were conducted using meta-regression due to low degrees of freedom. *k* denotes number of studies. Estimate refers to the back-transformed Pearson's *r* coefficient. *df* indicates degrees of freedom. Lag estimates indicate the estimated amount of change in effect sizes per month due to change in lag.

Table 3

Research Question #3 Results for Moderator Analyses

				Confidence Interval			
	k	Estimate (*r*)	*df*	Lower Limit	Upper Limit	I^2	Tau^2
Random-effects mean ES	22	.40***	20.50	.35	.45	96.66	.02
Moderator							
Percent Female	20	-.04	7.02	-.39	.32	96.02	.04
Mean Age	21	-.01	5.16	-.01	.01	95.61	.02
Developmental Period	22					96.33	.03
Early Adolescence		.42		.20	.47		
Late Adolescent		.42		-.07	.24		
Emerging Adult		.45*		-.07	.24		
Adult		.34		-.03	.27		
Country	22					96.49	.05
United States		.40***	6.96	.28	.51	.	
Australia		.48	6.96	-.04	.23		
Canada		.47	1.58	-.36	.49		
China		.52**	6.96	.01	.27		
Netherlands		.40	12.81	-.15	.15	.	
South Korea		.22***	6.96	-.33	-.07		
Turkey		.33	6.96	-.22	.05		

Note. k denotes number of studies. Estimate refers to the back-transformed Pearson's *r* coefficient. *df* indicates degrees of freedom.

Moderator tests with $df < 4$ are inconclusive and do not indicate meaningful differences.

Table 4

Research Question #2 Results for Moderator Analyses: Emerging Adult Sample

				Confidence Interval			
	k	Estimate (*r*)	*df*	Lower Limit	Upper Limit	I^2	Tau^2
Random-effects mean ES	14	.40***	13	.36	.43	87.87	.11
Moderator							
Linear Lag Analysis	14	-.01*	13	-.02	.01	82.93	.11
Quadratic Lag Analysis	14		12			82.14	.10
Centered Lag		-.01**		-.02	-.01		
Quadratic Lag		-.01		-.01	.01		
Data Collection Year	14	-.01*	13	-.02	.01	86.80	.11
Multiple Moderators[1]	14		12			80.86	.10
Linear Lag		-.02**		-.03	-.01		
Data Collection Year		-.01*		-.02	.00		
Multiple Moderators[2]	14		12				
Linear Lag		-.02*		-.03	-.01		
Data Collection Year		-.01		-.02	.01		
Linear Lag*Data Collection Year		0		-.01	.01		

Note. The analyses above were conducted using meta-regression due to low degrees of freedom. *k* denotes number of studies. Estimate refers to the back-transformed Pearson's *r* coefficient. *df* indicates degrees of freedom. Lag estimates indicate the estimated amount of change in effect sizes per month due to change in lag. Multiple moderators indicated that the moderators were tested together in the same model.

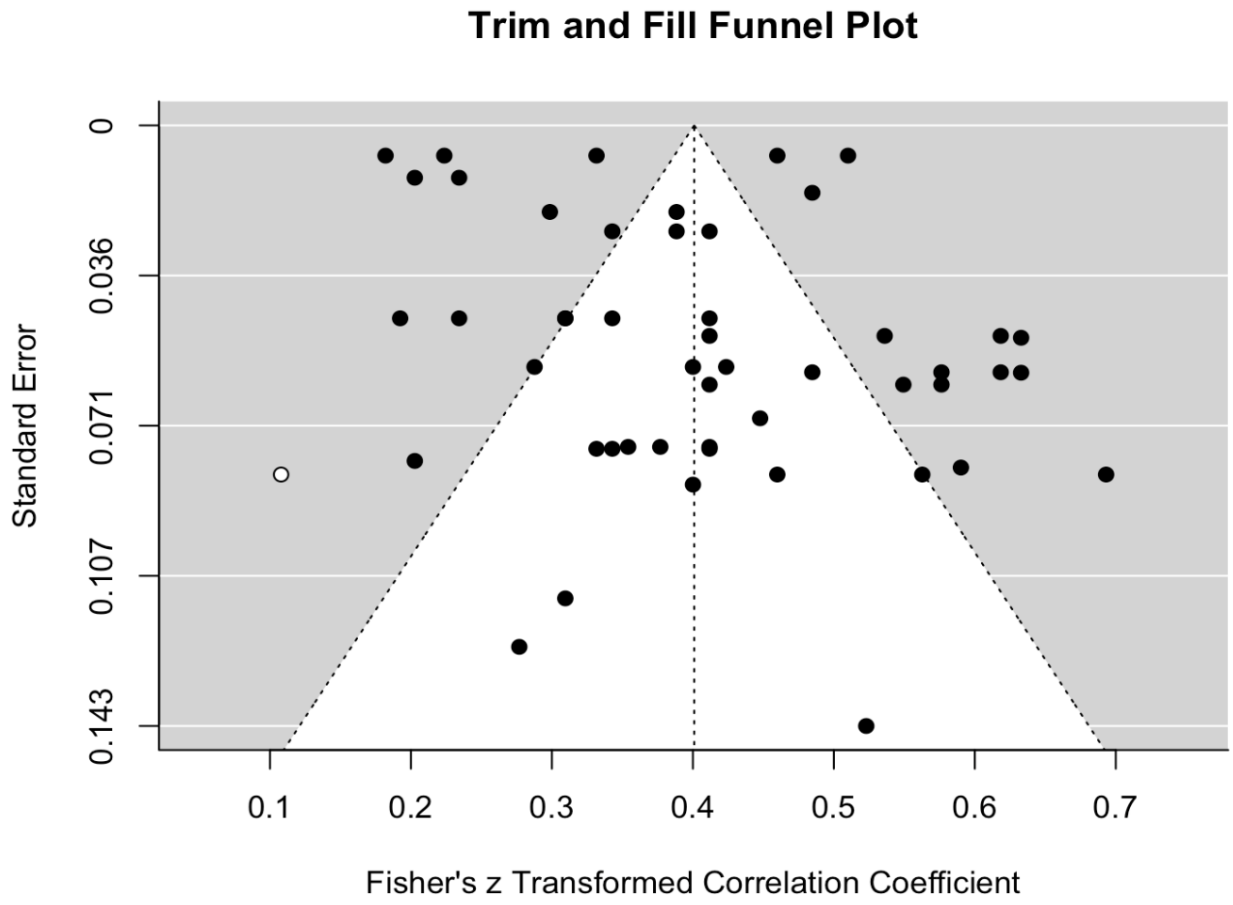


Figure 3. *Trim and Fill Funnel Plot.* The white data point in the plot above estimates the missing effect size.

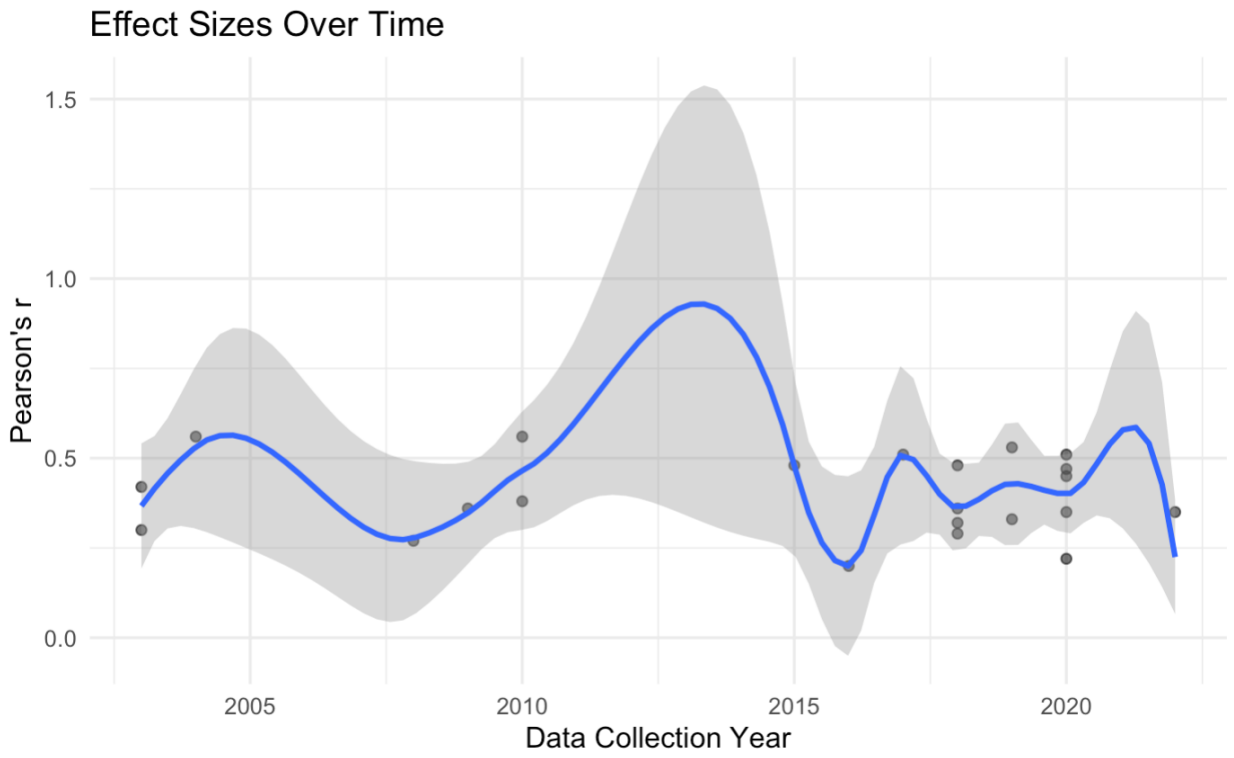


Figure 4. *Changes in Effect Size Across Data Collection Year.* This plot uses Local Regression (LOESS) smoothing to create a curve through a scatterplot when the association between two variables is not linear or not known in advance.

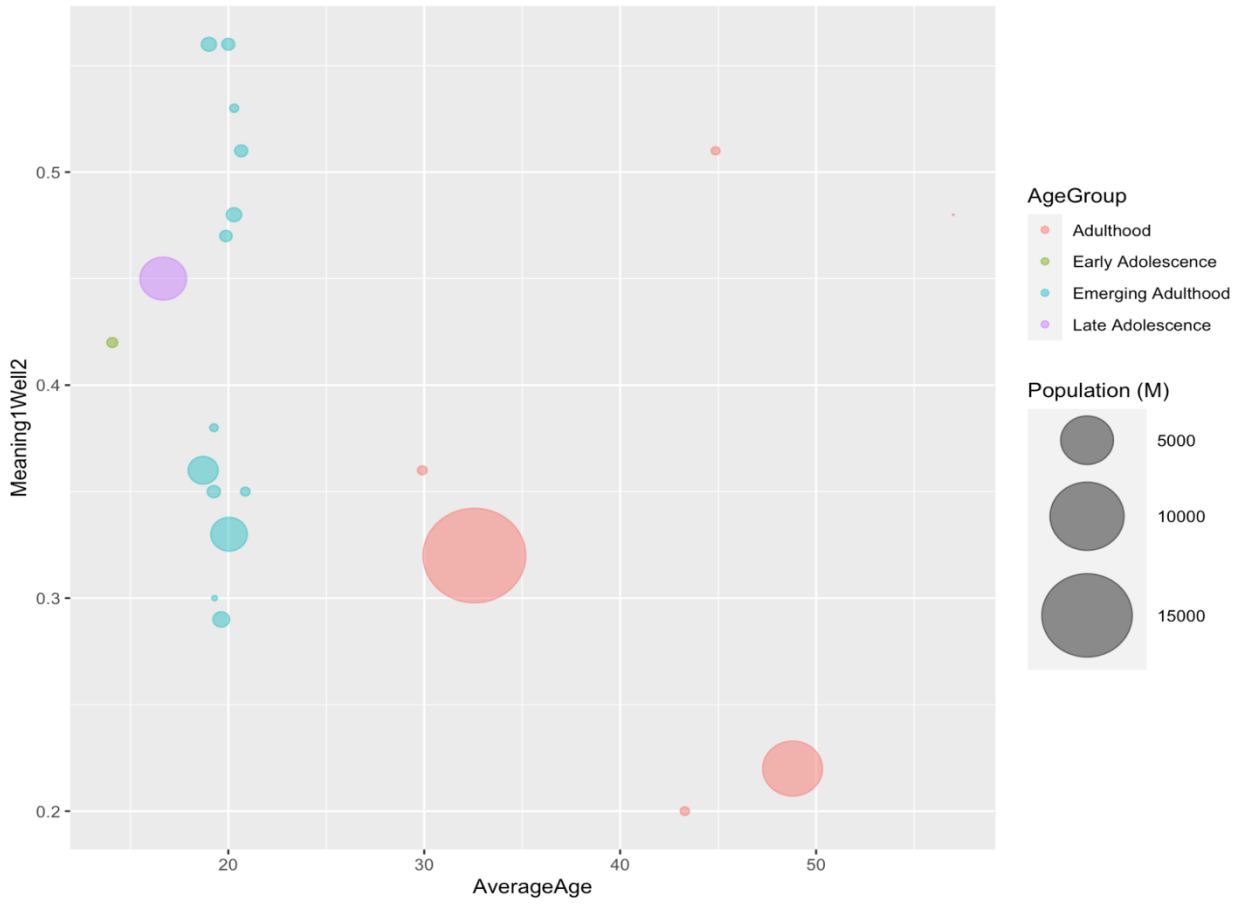


Figure 5. *Bubble Plot of Effect Sizes Changes with Average Participant Age.* Effect Size = T1 Meaning in Life predicting T2 Well-being. Green = Early Adolescence, Purple = Late Adolescence, Blue = Emerging Adulthood, Red = Adulthood. The size of each "bubble" corresponds to sample size. This figure illustrates the difference in effect size between Adult and Emerging Adult populations while highlighting the lack of data on adolescents and older adults in the present sample of studies.

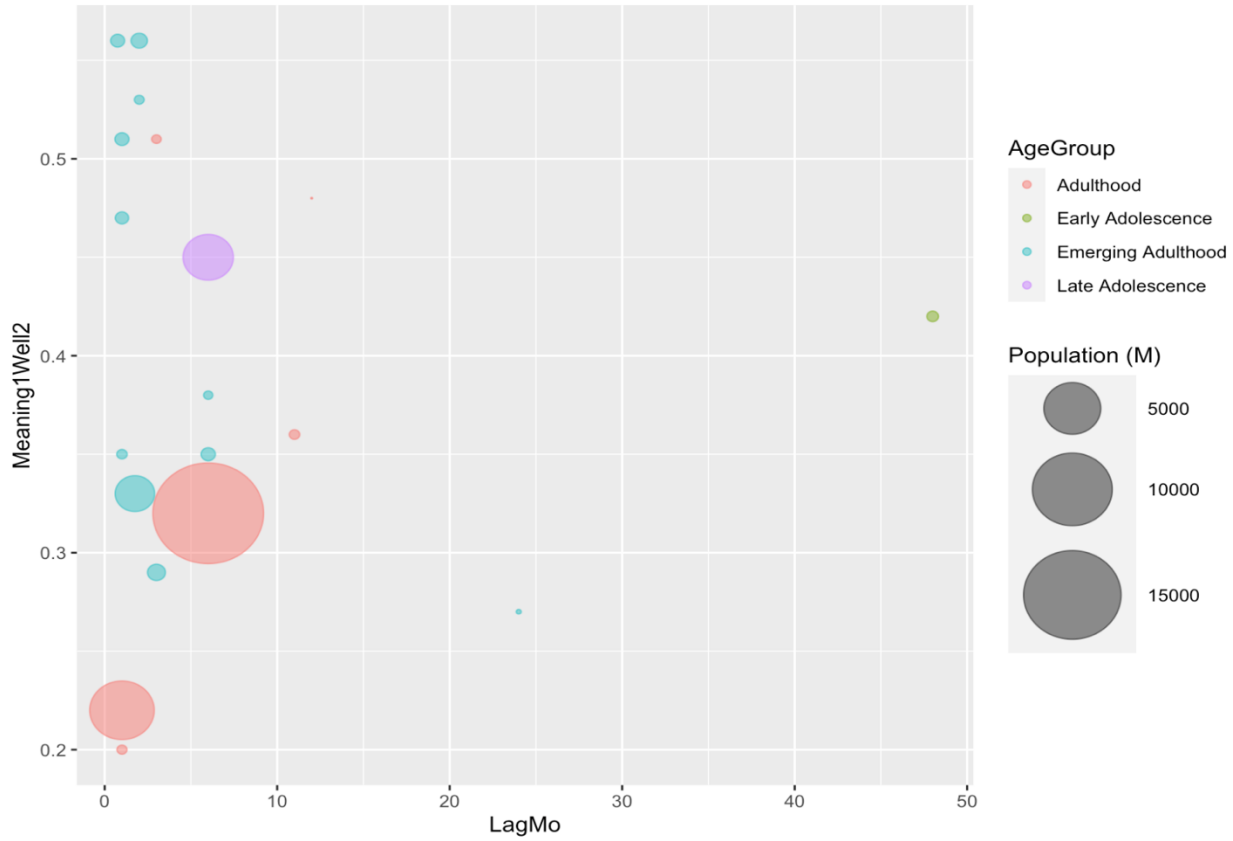


Figure 6. *Bubble Plot of Lag (Months) with Effect Size.* Effect Size = T1 Meaning in Life predicting T2 Well-being. LagMo = Lag (Months). Green = Early Adolescence, Purple = Late Adolescence, Blue = Emerging Adulthood, Red = Adulthood. The size of each "bubble" corresponds to sample size. This plot highlights potential problems with the lag moderation analyses conducted on the total sample of studies. Any results are likely to be driven by the two studies with unusually long lag lengths, one using an Emerging Adult population (blue) and the other using an Early Adolescence population (green). It is likely that change during Early Adolescence differs from change during other developmental periods. Therefore, it is likely that the results conducted on the Emerging-Adult-Only sample are more robust than those conducted on the total sample of studies.

Figure B.2

Bubble Plot of Data Collection Year with Effect Size

Figure 7. *Bubble Plot of Data Collection Year with Effect Size*. Effect Size = T1 Meaning in Life predicting T2 Well-being. YearDat = Data Collection Year. Green = Early Adolescence, Purple = Late Adolescence, Blue = Emerging Adulthood, Red = Adulthood. The size of each "bubble" corresponds to sample size. Although the number of participants within any given study varies greatly, the plot above shows that effect sizes from different age groups are collected relatively evenly across different years.

CHAPTER V

DISCUSSION

This meta-analysis investigated the longitudinal association between meaning in life and well-being, with a particular focus on how this relationship varied across time, world events, developmental periods, and cultural contexts. Using data from 22 different studies and 49 interdependent effect sizes drawn from over 37,000 participants, this study offers a developmentally informed, time-sensitive perspective on meaning in life as a predictor of well-being. The findings build on existing research by emphasizing not just whether meaning matters, but when, for whom, and under what conditions.

The Impact of Time and the COVID-19 Pandemic

Although the temporal meta-analysis did not yield statistically significant results, this outcome aligns with theoretical concerns about whether a linear model of calendar time can adequately capture changes in the meaning–well-being relationship. Linear moderation may obscure more complex trends that reflect fluctuations tied to historical events rather than continuous decline or growth. Descriptive patterns in the data revealed three notable dips in the association between meaning in life and well-being: in 2008, 2016, and 2020. While these decreases cannot be causally attributed to external events, the temporal alignment is suggestive. The 2008 decline coincides with the global financial crisis, the 2016 dip follows a polarizing U.S. presidential election, and the 2020 drop aligns with the onset of the COVID-19 pandemic.

These patterns provide narrative evidence that the strength of meaning's protective function may fluctuate in response to global instability, even if such variation cannot be formally

modeled in linear terms. Importantly, the descriptive data also suggest that these effects may be transient: following each dip, the meaning–well-being association appeared to recover, pointing toward a story not just of vulnerability, but also of resilience. This dynamic reflects a broader truth—one echoed in meaning-making theory—that people reconstruct meaning even in the aftermath of hardship, reaffirming values, goals, and purpose in changing circumstances.

The pandemic in particular had profound developmental implications for emerging adults, the group most represented in this dataset. Many participants in this group were entering adulthood just as COVID-19 upended traditional milestones. For example, some lost the chance to attend high school graduation or start college in person, instead beginning their higher education while confined to their bedrooms, often alongside family members navigating remote work and school. This disruption occurred during a key period for identity formation, social exploration, and future planning, which may have made this group especially vulnerable to meaning-related disruptions. Indeed, moderation analyses showed a small but notable decline in the strength of the meaning in life–well-being relationship across increasing lag length for emerging adults. While modest in size, this pattern may reflect short-term erosion of meaning's protective power during periods of acute developmental stress.

However, interpretation is limited by the short lag lengths of most included studies—typically between one and seven weeks. Few studies included a longer follow-up period, which restricted my ability to trace whether meaning-related resilience emerged months or years after the height of the pandemic. As such, the present analysis may be capturing immediate or reactive effects, rather than longer-term recovery processes. Future longitudinal work should include wider lag intervals to evaluate whether the gradual rebuilding of meaning contributes to sustained well-being improvements over time.

These findings directly build on the theoretical and empirical foundations outlined in Chapters 1 and 2. Park's (2010) meaning-making model emphasizes that the role of meaning in well-being is shaped by personal goals, global beliefs, and contextually specific challenges—an insight particularly relevant for interpreting longitudinal associations in the midst of global events like COVID-19. Likewise, the developmental framework proposed in Chapter 2 anticipated stronger associations between meaning and well-being in emerging adulthood, a period characterized by identity exploration and future orientation. Finally, this study contributes to growing calls for time-sensitive models in psychology by testing the role of lag length and data collection timing, both of which are often neglected in traditional meta-analytic designs.

Cross-Cultural Implications for the Study of Meaning in Life

Findings also revealed cross-national variation. While most meta-analyses in psychology overrepresent U.S. samples, this review included a more diverse distribution, with studies from China, South Korea, Turkey, Canada, Austria, and the Netherlands. Country emerged as a significant moderator. Meaning–well-being associations were statistically significant in China, South Korea, and the U.S., though interpretation should be cautious given unequal representation. Notably, South Korea contributed the largest proportion of total participants (over 50%) through a single, large-scale study. These results suggest that the protective function of meaning in life may be present across cultural contexts, but the strength of the association may be shaped by societal values, stress exposure, or cultural conceptions of meaning and selfhood.

Limitations

At the same time, several limitations should be acknowledged. The data were heavily weighted toward emerging adulthood, with insufficient coverage of adolescence and mid-to-late adulthood to allow for formal moderation or subgroup analyses in those age groups. This likely

reflects broader gaps in the literature, particularly the lack of longitudinal research on meaning during adolescence—a period when meaning development is highly active and vulnerable to disruption. In addition, most included studies relied on the MLQ, limiting variability in how meaning in life was conceptualized. While this may have improved measurement consistency, it also narrows the scope of the construct being analyzed. Finally, while the COVID-19 pandemic offered a natural opportunity to study meaning under stress, limitations in how and when data were collected across studies constrained the ability to isolate pandemic-specific effects.

These limitations point to clear directions for future research. Longitudinal studies are urgently needed that track meaning in life across developmental transitions, particularly in adolescents and older adults. Researchers should report and design studies around lag length more deliberately, rather than relying on standard time points that may not reflect developmental change. Cross-cultural studies should explore not just whether meaning matters across cultures, but how the sources, functions, and expressions of meaning differ. Finally, future meta-analyses should consider testing more flexible or nonlinear models of time—especially when studying inherently developmental constructs.

In Summary

This study affirms that meaning in life plays a protective role in promoting well-being across time and context. However, it also reveals that the timing of measurement, the developmental period of participants, and the cultural context in which meaning is experienced all matter. Meaning in life is not static; it evolves in interaction with life stage, environment, and historical moment. Understanding these patterns requires asking not just whether meaning matters, but when, for whom, and how. This dissertation takes a step in that direction.

Future Directions

This meta-analysis highlights not only what is currently known about the longitudinal relationship between meaning in life and well-being but also where the field is moving and where continued research may offer additional insight. Like all meta-analyses, this work reflects the strengths and limitations of the existing literature, and it is grounded in a deep respect for the researchers whose studies made this synthesis possible. The field of meaning in life has advanced substantially in recent years, and these findings contribute to a growing effort to understand meaning as a dynamic, context-sensitive, and developmentally relevant construct.

One area where further research may be especially valuable is in expanding longitudinal coverage across the lifespan. While this meta-analysis included sufficient studies for analysis, representation was uneven across developmental stages. Most notably, studies involving adolescents and older adults were underrepresented. Both of these groups face important meaning-related questions—adolescents as they begin to construct meaning and older adults as they reflect on legacy and coherence—but longitudinal data remain scarce. Increasing the developmental breadth of studies would enhance our understanding of how meaning supports well-being across different life phases.

Another area with room for future exploration is the study of reciprocal relationships between meaning in life and well-being. Although this project focused on meaning predicting later well-being, the reverse association—well-being predicting later meaning—was rarely reported and could not be analyzed in the current review. This does not reflect an oversight but rather the early stage of empirical attention to bidirectional and transactional processes. Future work that includes cross-lagged designs and meta-analytic structural equation modeling (MASEM) would provide a fuller understanding of how these constructs influence one another over time.

In addition, relatively few studies reported data on search for meaning, a concept that is foundational to several theoretical models of meaning-making. Only one study in this review included relevant data, highlighting an opportunity for future research to examine how presence and search for meaning interact across time and under different life conditions. As meaning-making often begins with disruption or questioning, search may be especially relevant in developmental periods or sociocultural contexts where meaning is challenged.

Recent theoretical developments also point toward increasingly multidimensional conceptualizations of meaning in life. Two well-supported models—the tripartite frameworks of George and Park (2016) and Martela and Steger (2016)—propose that meaning is composed of three distinct dimensions (e.g., comprehension/coherence, purpose, and mattering/significance). These frameworks offer a more nuanced view of how individuals experience meaning, and the measures designed to assess them (e.g., MEMS, 3DM) are already being used in primary research. As these models continue to gain traction, longitudinal studies that assess these separate components of meaning may shed light on which dimensions are most protective—or most susceptible to disruption—across life events and time.

Finally, emerging research on sources of meaning and orientations toward meaning provides additional avenues for future inquiry. Meaning is not experienced in the abstract; it arises from specific activities, goals, and relationships. While most individuals report having meaning, the origins and qualities of that meaning may differ widely. Work by Steger (2021) and others suggests that people derive meaning from a variety of sources, and that those sources may vary in their developmental timing, cultural relevance, or alignment with prosocial values. Future studies might examine not only whether people feel their lives are meaningful, but where that

meaning comes from, and how different orientations toward meaning shape well-being over time.

Taken together, these directions point to a field that is already rich and growing more complex. Researchers have laid an impressive foundation, and this meta-analysis simply highlights some of the most promising next steps. By expanding the range of developmental periods studied, exploring reciprocal and multidimensional processes, and deepening our understanding of meaning's origins, future research can continue to clarify how meaning in life supports well-being across the lifespan and in a changing world.

REFERENCES

* denotes a study included in the present meta-analysis.

Alfano, V., & Ercolano, S. (2020). The efficacy of lockdown against COVID-19: a cross-country panel analysis. Applied health economics and health policy, 18, 509-517. https://doi.org/10.1007/s40258-020-00596-3

Allan, B. A., Duffy, R. D., & Douglass, R. (2014). Meaning in life and work: A developmental perspective. *The Journal of Positive Psychology*, *10*(4), 323–331. https://doi.org/10.1080/17439760.2014.950180

*Arslan, G., & Yıldırım, M. (2021). A longitudinal examination of the association between meaning in life, resilience, and mental well-being in times of coronavirus pandemic. *Frontiers in psychology*, *12*, 645597. https://doi.org/10.3389/fpsyg.2021.645597

ASReview LAB developers. (2023). *ASReview LAB (Version 1.3.2)* [Computer software]. Zenodo. https://doi.org/10.5281/zenodo.10084260

Baños, R. M., Garcés, J. J., Miragall, M., Herrero, R., Vara, M. D., & Soria-Olivas, E. (2022). Exploring the heterogeneity and trajectories of positive functioning variables, emotional distress, and post-traumatic growth during strict confinement due to COVID-19. *Journal of Happiness Studies*, *23*(4), 1683-1708. https://doi.org/10.1007/s10902-021-00469-z

Bar-Tur, L., Savaya, R., & Prager, E. (2001). Sources of meaning in life for young and old Israeli Jews and Arabs. *Journal of Aging studies*, *15*(3), 253-269. https://doi.org/10.1016/S0890-4065(01)00022-6

Battersby, A., & Phillips, L. (2016). In the end it all makes sense: Meaning in life at either end of the adult lifespan. *The International Journal of Aging and Human Development*, *83*(2), 184-204. https://doi.org/10.1177/0091415016647731

*Bott, E. M., & Duffy, R. D. (2015). A two-wave longitudinal study of career calling among undergraduates: Testing for predictors. *Journal of Career Assessment*, *23*(2), 250-264. https://doi.org/10.1177/1069072714535030

Bronk, K. C., Hill, P. L., Lapsley, D. K., Talib, T. L. , & Finch, H. (2009). Purpose, hope, and life satisfaction in three age groups. *The Journal of Positive Psychology.*, *4*(6). https://doi.org/10.1080/17439760903271439

*Cai, Y., Zeng, T., Gao, R., Guo, Y., Wang, Y., & Ding, D. (2024). A cross-lagged longitudinal study of bidirectional associations between meaning in Life and Academic Engagement: The mediation of Hope. *Applied Research in Quality of Life*, *19*(5), 2665-2684. https://doi.org/10.1007/s11482-024-10348-3

Costin, V., & Vignoles, V. L. (2020). Meaning is about mattering: Evaluating coherence, purpose, and existential mattering as precursors of meaning in life judgments. *Journal of personality and social psychology*, *118*(4), 864. https://doi.org/10.1037/pspp0000225

Cheung, M. W. L. (2014). Modeling dependent effect sizes with three-level meta-analyses: a structural equation modeling approach. *Psychological methods*, *19*(2), 211. https://doi.org/10.1037/a0032968

Cheung, M. W. L. (2015). metaSEM: An R package for meta-analysis using structural equation modeling. *Frontiers in psychology*, *5*, 1521.

Crumbaugh, J. C. (1977). The seeking of noetic goals test (SONG): A complementary scale to the purpose in life test (PIL). *Journal of clinical psychology*, *33*(3), 900-907.

Czekierda, K., Banik, A., Park, C. L., & Luszczynska, A. (2017). Meaning in life and physical health: systematic review and meta-analysis. *Health Psychology Review*, *11*(4), 387–418. https://doi.org/10.1080/17437199.2017.1327325

Delle Fave, A. (2009). Optimal experience and meaning: Which relationship? Psychological Topics, 18(2), 285–302.

*de Vries, L. P., van de Weijer, M. P., Pelt, D. H., Ligthart, L., Willemsen, G., Boomsma, D. I., ... & Bartels, M. (2022). Gene-by-crisis interaction for optimism and meaning in life: the effects of the COVID-19 pandemic. *Behavior Genetics*, 1-13. https://doi.org/10.1007/s10519-021-10081-9

Diener, E., Suh, E. M., Lucas, R. E., & Smith, H. L. (1999). Subjective well-being: Three decades of progress. *Psychological bulletin*, *125*(2), 276. https://doi.org/10.1037/0033-2909.125.2.276

Diener, E. (2000). Subjective well-being: The science of happiness and a proposal for a national index. *American psychologist*, *55*(1), 34. https://doi.org/10.1037/0003-066X.55.1.34

Disabato, D. J., Goodman, F. R., Kashdan, T. B., Short, J. L., & Jarden, A. (2016). Different types of well-being? A cross-cultural examination of hedonic and eudaimonic well-being. *Psychological assessment*, *28*(5), 471. http://dx.doi.org/10.1037/pas0000209

*Duffy, R. D., Douglass, R. P., Autin, K. L., & Allan, B. A. (2014). Examining predictors and outcomes of a career calling among undergraduate students. *Journal of Vocational Behavior*, *85*(3), 309-318. https://doi.org/10.1016/j.jvb.2014.08.009

*Duffy, R. D., Manuel, R. S., Borges, N. J., & Bott, E. M. (2011). Calling, vocational development, and well being: A longitudinal study of medical students. *Journal of Vocational Behavior*, *79*(2), 361-366. https://doi.org/10.1016/j.jvb.2011.03.023

*Eakman, A. M. (2014). A prospective longitudinal study testing relationships between meaningful activities, basic psychological needs fulfillment, and meaning in life. *OTJR: occupation, participation and health*, *34*(2), 93-105. https://doi.org/10.3928/15394492-2014021

Ellison, C. W. (1983). Spiritual well-being: Conceptualization and measurement. *Journal of psychology and theology*, *11*(4), 330-338. https://doi.org/10.1177/009164718301100406

Evanega, S., Lynas, M., Adams, J., Smolenyak, K., & Insights, C. G. (2020). Coronavirus misinformation: quantifying sources and themes in the COVID-19 'infodemic'. *JMIR Preprints*, *19*(10), 2020.

Frankl, V. E. (1955). *The doctor and the soul. An introduction to logotherapy.* A. A. Knopf.

Frankl, V. E. (1962). Psychiatry and man's quest for meaning. *Journal of Religion and Health*, 93-103.

Frankl, V. E. (1985). *Man's search for meaning*. Simon and Schuster.

Garrosa-Hernández, E., Carmona-Cobo, I., Ladstätter, F., Blanco, L. M., & Cooper-Thomas, H. D. (2013). The relationships between family-work interaction, job-related exhaustion, detachment, and meaning in life: A day-level study of emotional well-being. *Revista de Psicología del Trabajo y de las Organizaciones*, *29*(3), 169-177. https://doi.org/10.5093/tr2013a23

George, L. S., & Park, C. L. (2017). The multidimensional existential meaning scale: A tripartite approach to measuring meaning in life. *The Journal of Positive Psychology*, *12*(6), 613-627. https://doi.org/10.1080/17439760.2016.1209546

Halama, P. (2002). From establishing beliefs through pursuing goals to experiencing fulfillment: Examining the three-component model of personal meaning in life. *Studia Psychologica, 44*(2), 143–154.

*Hooker, S. A., Masters, K. S., Vagnini, K. M., & Rush, C. L. (2020). Engaging in personally meaningful activities is associated with meaning salience and psychological well-being. *The Journal of Positive Psychology*, *15*(6), 821-831. https://doi.org/10.1080/17439760.2019.1651895

Ivtzan, I., Chan, C. P., Gardner, H. E., & Prashar, K. (2013). Linking religion and spirituality with psychological well-being: Examining self-actualisation, meaning in life, and personal growth initiative. *Journal of religion and health*, *52*, 915-929. https://doi.org/10.1007/s10943-011-9540-2

Jaffe, A. E., Kumar, S. A., Hultgren, B. A., Smith-LeCavalier, K. N., Garcia, T. A., Canning, J. R., & Larimer, M. E. (2022). Meaning in life and stress-related drinking: A multicohort study of college students during the COVID-19 pandemic. *Addictive behaviors*, *129*, 107281. https://doi.org/10.1016/j.addbeh.2022.107281

*Ku, X., Lee, S. H., & Choi, I. (2023). Did covid-19 really change our well-being? It's up to meaning in life: Evidence from two longitudinal studies. *Social and Personality Psychology Compass*, *17*(9), e12799. https://doi.org/10.1111/spc3.12799

Li, J. B., Dou, K. & Liang, Y. (2021). The Relationship Between Presence of Meaning, Search for Meaning, and Subjective Well-Being: A Three-Level Meta-Analysis Based on the Meaning in Life Questionnaire. *Journal of Happiness Studies* 22, 467–489. https://doi.org/10.1007/s10902-020-00230-y

*Lin, L. (2021). Longitudinal associations of meaning in life and psychosocial adjustment to the COVID-19 outbreak in China. *British Journal of Health Psychology*, *26*(2), 525-534. https://doi.org/10.1111/bjhp.12492

Martela, F., & Steger, M. F. (2023). The role of significance relative to the other dimensions of meaning in life–an examination utilizing the three dimensional meaning in life scale (3DM). *The journal of positive psychology*, *18*(4), 606-626. https://doi.org/10.1080/17439760.2022.2070528

*Martela, F., Gómez, M., Unanue, W., Araya, S., Bravo, D., & Espejo, A. (2021). What makes work meaningful? Longitudinal evidence for the importance of autonomy and beneficence for meaningful work. *Journal of vocational behavior*, *131*, 103631. https://doi.org/10.1016/j.jvb.2021.103631

Martela, F., & Steger, M. F. (2016). The three meanings of meaning in life: Distinguishing coherence, purpose, and significance. *The Journal of Positive Psychology*, *11*(5), 531-545. https://doi.org/10.1080/17439760.2015.1137623

*Mascaro, N., & Rosen, D. H. (2008). Assessment of existential meaning and its longitudinal relations with depressive symptoms. *Journal of Social and Clinical Psychology*, *27*(6), 576-599. https://doi.org/10.1521/jscp.2008.27.6.576

Miao, M., Zheng, L., & Gan, Y. (2021). Future-oriented function of meaning in life: Promoting hope via future temporal focus. *Personality and Individual Differences*, *179*, 110897. https://doi.org/10.1016/j.paid.2021.110897

Negru-Subtirica, O., Pop, E. I., Luyckx, K., Dezutter, J., & Steger, M. F. (2016). The meaningful identity: A longitudinal look at the interplay between identity and meaning in life in

adolescence. *Developmental Psychology*, *52*(11), 1926. https://doi.org/10.1037/dev0000176

O'Connor, K., & Chamberlain, K. (1996). Dimensions of life meaning: A qualitative investigation at mid-life. *British Journal of Psychology*, *87*(3), 461-477. https://doi.org/10.1111/j.2044-8295.1996.tb02602.x

O'Donnell, M. B., Bentele, C. N., Grossman, H. B., Le, Y., Jang, H., & Steger, M. F. (2014). You, me, and meaning: an integrative review of connections between relationships and meaning in life. *Journal of Psychology in Africa*, *24*(1), 44–50. https://doi.org/10.1080/14330237.2014.904097

Park, C. L. (2010). Making sense of the meaning literature: An integrative review of meaning making and its effects on adjustment to stressful life events. *Psychological Bulletin, 136*(2), 257–301. https://doi.org/10.1037/a0018301

Park, C. L. (2016). Meaning making in the context of disasters. *Journal of clinical psychology*, *72*(12), 1234-1246. https://doi.org/10.1002/jclp.22270

Park, C. L. (2022). Meaning making following trauma. *Frontiers in Psychology*, *13*, 844891. https://doi.org/10.3389/fpsyg.2022.844891

Park, C. L., Blake, E. C. (2020). Resilience and Recovery Following Disasters: The Meaning Making Model. In: Schulenberg, S. (eds) Positive Psychological Approaches to Disaster. Springer, Cham. https://doi.org/10.1007/978-3-030-32007-2_2

Peterson, C., & Seligman, M. E. (2004). Character strengths and virtues: A handbook and classification. *American psychological association*, *25*.

Prager, E. (1996). Exploring personal meaning in an age-differentiated Australian sample: Another look at the Sources of Meaning Profile (SOMP). Journal of Aging Studies, 10(2), 117–136.

Reker, G. T., Peacock, E. J., & Wong, P. T. (1987). Meaning and purpose in life and well-being: A life-span perspective. *Journal of gerontology*, *42*(1), 44-49. https://doi.org/10.1093/geronj/42.1.44

Reker, G. T. (2000). Theoretical perspective, dimensions, and measurement of existential meaning. In G. T. Reker & K. Chamberlain (Eds.). *Exploring existential meaning: Optimizing human development across the life span* (pp. 39–55). Thousand Oaks, CA: Sage.

*Rudaz, M., Fincham, F. D., & Ledermann, T. (2024). Presence of meaning in life mediates the effects of gratitude and caring for bliss on flourishing in college students: A three-wave longitudinal study. *The Journal of Positive Psychology*, *19*(6), 1011-1022. https://doi.org/10.1080/17439760.2023.2282776

Ryff, C. D., & Keyes, C. L. M. (1995). The structure of psychological well-being revisited. *Journal of personality and social psychology*, *69*(4), 719. https://doi.org/10.1037/0022-3514.69.4.719

Seligman, M.E.P. (2002). Authentic happiness. New York: Free Press.

Schulenberg, S. E., Schnetzer, L. W., & Buchanan, E. M. (2011). The purpose in life test-short form: Development and psychometric support. *Journal of Happiness Studies*, *12*, 861-876. https://doi.org/10.1007/s10902-010-9231-9

Seidel, L. J., Daniels, J. K., & Ostafin, B. D. (2023). The role of meaning in life in psychological distress during the COVID-19 pandemic. *Anxiety, Stress, & Coping*, *36*(1), 67-82. https://doi.org/10.1080/10615806.2022.2113993

Snyder, C. R., & Lopez, S. J. (Eds.). (2001). *Handbook of positive psychology*. Oxford university press.

Snyder. (1991). The will and the ways: development and validation of an individual-differences measure of hope. *Journal of Personality and Social Psychology.*, *60*(4). https://doi.org/10.1037/0022-3514.60.4.570

Starck, P.L. (1983). Patient's perception of the meaning of suffering. The International Forum for Logotherapy, 6(2), 110-116.

Steger, M. F. (2021). Meaning in life: A unified model. In C. R. Snyder, S. J. Lopez, L. M. Edwards, & S. C. Marques (Eds.), *The Oxford handbook of positive psychology* (3rd ed., pp. 959–967). Oxford University Press.

Steger, M. F., & Dik, B. J. (2009). If one is looking for meaning in life, does it help to find meaning in work?. *Applied Psychology: Health and Well-Being*, *1*(3), 303-320. https://doi.org/10.1111/j.1758-0854.2009.01018.x

*Steger, M. F., & Kashdan, T. B. (2007). Stability and specificity of meaning in life and life satisfaction over one year. *Journal of happiness studies*, *8*, 161-179. https://doi.org/10.1007/s10902-006-9011-8

Steger, M. F., Frazier, P., Oishi, S., & Kaler, M. (2006). The meaning in life questionnaire: assessing the presence of and search for meaning in life. *Journal of counseling psychology*, *53*(1), 80. https://doi.org/10.1037/0022-0167.53.1.80

Steger, M. F., Kashdan, T. B., Sullivan, B. A., & Lorentz, D. (2008a). Understanding the search for meaning in life: Personality, cognitive style, and the dynamic between seeking and experiencing meaning. *Journal of Personality*, *76*, 199–228. https://doi.org/10.1111/j.1467-6494.2007.00484.x

Steger, M. F., Kawabata, Y., Shimai, S., & Otake, K. (2008b). The meaningful life in Japan and the United States: Levels and correlates of meaning in life. *Journal of Research in Personality*, *42*(3), 660-678. https://doi.org/10.1016/j.jrp.2007.09.003

Steger, M. F., Oishi, S., & Kashdan, T. B. (2009). Meaning in life across the life span: Levels and correlates of meaning in life from emerging adulthood to older adulthood. *The Journal of Positive Psychology*, *4*(1), 43-52. https://doi.org/10.1080/17439760802303127

Steger, M. F., Shim, Y., Rush, B. R., Brueske, L. A., Shin, J. Y., & Merriman, L. A. (2013). The mind's eye: A photographic method for understanding meaning in people's lives. *The Journal of Positive Psychology*, *8*(6), 530-542. https://doi.org/10.1080/17439760.2013.830760

*Tavernier, R., & Willoughby, T. (2012). Adolescent turning points: The association between meaning-making and psychological well-being. *Developmental psychology*, *48*(4), 1058. https://doi.org/10.1037/a0026326

Trzebiński, J., Cabański, M., & Czarnecka, J. Z. (2024). Reaction to the COVID-19 pandemic: The influence of meaning in life, life satisfaction, and assumptions on world orderliness and positivity. In *Loss and Trauma in the COVID-19 Era* (pp. 44-57). Routledge.

Van Dierendonck, D. (2004). The construct validity of Ryff's scales of psychological well-being and its extension with spiritual well-being. *Personality and Individual Differences*, 36(3), 629–643. https://doi.org/10 .1016/S0191-8869(03)00122-3

Van de Schoot, R., de Bruin, J., Schram, R., Zahedi, P., de Boer, J., Weijdema, F., Kramer, B., Huijts, M., Hoogerwerf, M., Ferdinands, G., Harkema, A., Willemsen, J., Ma, Y., Fang, Q., Hindriks, S., Tummers, L., & Oberski, D. (2021). An open source machine learning framework for efficient and transparent systematic reviews. *Nature Machine Intelligence, 3*(2), 125–133. https://doi.org/10.1038/s42256-020-00287-7

Viechtbauer, W. (2010). "Conducting meta-analyses in R with the metafor package." *Journal of statistical software* 36: 1-48.

*Vötter, B., & Schnell, T. (2019). Bringing giftedness to bear: generativity, meaningfulness, and self-control as resources for a happy life among gifted adults. *Frontiers in Psychology*, *10*, 1972. https://doi.org/10.3389/fpsyg.2019.01972

Wong, P. T. (2000). Meaning of life and meaning of death in successful aging. *Death attitudes and the older adult: Theories, concepts, and applications*, 23-35.

*Xue, L., Fan, H., Yan, Y., Zhang, L., Jiang, Y., & Chen, L. (2024). Connected to the future, life is more meaningful: the effect of future self-continuity on the presence of meaning. *Current Psychology*, *43*(33), 26713-26725. https://doi.org/10.1007/s12144-024-06521-4

*Yang, Z., Ji, L. J., Yang, Y., Wang, Y., Zhu, L., & Cai, H. (2021). Meaning making helps cope with COVID-19: A longitudinal study. *Personality and Individual Differences*, *174*, 110670. https://doi.org/10.1016/j.paid.2021.110670

*Yap, S., Lee, A., Ji, L. J., Li, Y., & Dong, Y. (2021). Cultural differences in people's psychological response to COVID-19. *Frontiers in Psychology*, *12*, 636062. https://doi.org/10.3389/fpsyg.2021.636062

*Zhang, S., Feng, R., Fu, Y. N., Liu, Q., He, Y., Turel, O., & He, Q. (2022). The bidirectional relationship between basic psychological needs and meaning in life: A longitudinal study. *Personality and Individual Differences*, *197*, 111784. https://doi.org/10.1016/j.paid.2022.111784

APPENDICES

Appendix A

Table of Studies Included in the Present Meta-Analysis Including Interdependent Effect Sizes

1st Author	Publication Year	Data Collection Year	Country	*N*	Percent Female	Average Age	Lag (Months)	Pearsons *r* (Average)
Arslan	2021	2020	Turkey	172	72%	20.87	1.00	0.32
							1.00	0.33
							1.00	0.39
Bott	2014	2010*	USA	140	74%	19.27	6.00	0.38
Cai	2024	2020	China	3,895	45%	16.68	6.00	0.45
de Vries	2021	2020	Netherlands	6,461		48.80	1.00	0.20
							1.00	0.23
Duffy,	2014	2010*	USA	292	83%	20.00	0.75	0.56
								0.27
Eakman	2014	2009	USA	174	60%	29.90	11.00	0.36
							11.00	0.39
							11.00	0.34
Hooker	2020	2016*	USA	160	77%	43.30	1.00	0.20
Ku	2023	2018	South Korea	19,395	81%	32.56	6.00	0.47
							6.00	0.43
							6.00	0.18
							6.00	0.22
							6.00	0.32
Li	2022	2018*	China	1,578	80%	18.72		0.37
								0.33
								0.39
Lin	2021	2019	China	154	69%	20.30	2.00	0.53
Martela	2021	2017*	Chile	148	43%	44.87	3.00	0.60
							6.00	0.51

Appendix A (cont.)

Table of Studies Included in the Present Meta-Analysis Including Interdependent Effect Sizes

1st Author	Publication Year	Data Collection Year	Country	*N*	Percent Female	Average Age	Lag (Months)	Pearsons *r* (Average)
Martela (cont)	2021	2017*	Chile	148	43%	44.87	3.00	0.43
Mascaro	2008	2024*	USA	395	69%	19.01	2.00	0.56
Rudaz	2024	2018*	USA	402	90%	20.29		0.49
								0.55
								0.39
Steger	2007	2003*	USA	82	76%	19.3		0.30
Tavernier	2012	2003	Canada	209		14.08	48.00	0.42
Vötter	2019	2015*	Austria	52	29%	57	12.00	0.48
Xue	2024	2022	China	306	53%	19.26	6.00	0.28
							12.00	0.40
							6.00	0.38
Yang	2021	2019	China	2364	54%	20.04	1.75	0.29
							0.75	0.37
Yap	2021	2020	Canada	293	83%	20.66	1.00	0.52
							1.00	0.55
							1.00	0.45
			China	266	83%	19.88	1.00	0.52
							1.00	0.50
							1.00	0.39
Zhang	2022	2018*	China	478	78%	19.64	3.00	0.30
							5.00	0.23
							10.00	0.19
							2.00	0.33
							7.00	0.30
							5.00	0.39

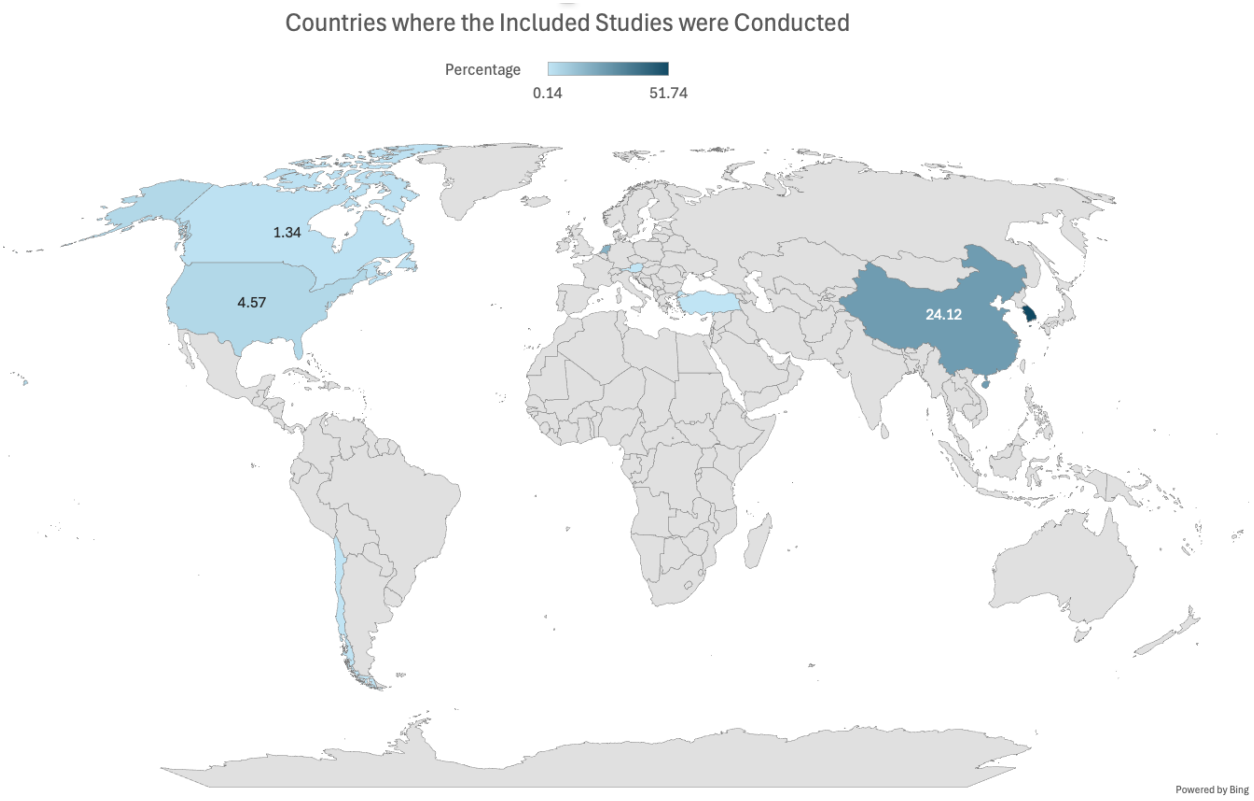
Note. N indicates the number of participants in a study. Lag is the time span between longitudinal measurement occasions. Pearson's *r* is the correlation between Time 1 Meaning in Life and Time 2 Well-being. An asterisk (*) is used to note when a mean imputation was used to substitute data collection year.

Appendix B

Appendix B illustrates where data collected as well as other geographic features of the present sample.

Figure B.1

Density of Participants by Country



Note. Darker blue indicates higher participant sampling from that country

Table B.1

Detailed Information About Country, Number of Participants, and Number of Studies

Country	Number	Percentage	# of Included Studies
China	9041	24.12%	7
Turkey	172	0.46%	1
USA	1713	4.57%	8
Canada	502	1.34%	2
Austria	52	0.14%	1
South Korea	19395	51.74%	1
Netherlands	6461	17.24%	1
Chile	148	0.39%	1