

Meaning making in rural Appalachia: Age and gender patterns in seven measures of meaning

Sherry Hamby¹, Anna Segura², Elizabeth Taylor³, John Grych⁴, Victoria Banyard⁵

Abstract

People derive meaning in life from a wide variety of sources, but little is known about how patterns of meaning making vary across individuals. The current study examined age and gender patterns in seven measures of meaning: sense of purpose, optimism, religious or spiritual involvement, family care, morals and ethical standards, self-oriented, and relationship-oriented meaning making. As far as we are aware, this study is one of the largest studies ever conducted on this topic, allowing us to explore curvilinear age patterns and interactions between age and gender. The sample comprised 2565 participants (63.9% females), including adolescents and adults, who were recruited from rural communities of 3 Southern U.S. states. Participants completed self-report measures assessing meaning-making strengths. Overall, analyses indicated that most meaning-making strengths increase across the lifespan, from adolescence to middle adulthood, except for self-oriented activities, which were highest during adolescence and then declined. Females reported higher scores in several types of meaning-making strengths than males, but males reported more optimism. Some curvilinear patterns in age were noted, suggesting turning points or plateaus in meaning making, which have not been previously identified. Prevention and intervention programs may benefit from consideration of turning points and other age and gender patterns in meaning making. For example, recognizing whether a population is likely to be more involved in identity development or family roles could help guide programming. Future research could continue to expand the types of meaning studied.

Keywords: Age trends, development, meaning-making, rural, strengths, gender differences.

Introduction

A strong sense of meaning in one's life predicts well-being (Schnell, 2009), reduces the impact of stressful events (e.g., Davis, Wortman, Lehman, & Silver, 2000; Park, 2010), and is associated with greater life satisfaction (Ho, Cheung, & Cheung, 2010). The capacity for deriving meaning from life experiences, or what Grych et al. (2015) termed "meaning-making strengths," is a potentially important and understudied source of coping and positive adjustment. Many prior studies of meaning-making have examined only one or two forms of meaning-making, or connecting an individual to a larger goal, system, or set of values (Schnell, 2009). Even fewer have explored age or gender differences. The current study examines age and gender patterns of several meaning-making strengths in a large community sample from rural Appalachia. Understanding age and gender patterns can help researchers and

¹ University of the South and Life Paths Appalachian Research Center. E-mail: sherry.hamby@gmail.com

² Universitat de Barcelona

³ University of the South

⁴ Marquette University

⁵ University of New Hampshire

practitioners identify delays or potential targets for prevention and intervention related to coping with adversity and achieving well-being. The following sections define our terms, describe existing literature on each of the meaning-making strengths included in the present study, then the limited available literature that specifically addresses meaning making in rural areas is reviewed, followed by a description of the current study.

Meaning-making practices are activities that give people a sense of fulfillment in their lives and connect them to something larger than themselves (Grych, Hamby, & Banyard, 2015). People without a sense of meaning often experience crises in meaning, as evidenced by a lack of purpose, hopelessness, alienation, and other psychological symptoms (Schnell, 2009). Meaning can be drawn from many sources, including religion and spirituality, family, helping others, and adhering to moral and ethical standards (Hill & Turiano, 2014; Koenig et al., 2014; Mäkikangas & Kinnunen, 2003; Moor & Komter, 2012; Scheier & Carver, 1985; Schnell, 2009; 2011; Thoits, 2012). Recently, Grych et al. (2015) called for a more comprehensive and developmentally-informed approach to this important psychological domain.

Purpose in Life

One of the most widely studied aspects of meaning is a sense of purpose. Damon, Menon, and Cotton (2003) defined purpose as a stable and generalized intention to achieve something that is relevant for oneself and for the world beyond the self. Although the ultimate goal can vary and is not limited to educational or career success, the goal-directed aspect helps make purpose distinct from other types of meaning making. Having a strong sense of purpose in life has been associated with greater mental and physical well-being (Thoits, 2012) and longevity (Hill & Turiano, 2014). Regarding age patterns, most research on purpose has focused on U.S. adults in middle or late adulthood and has only explored linear patterns (Hill & Turiano, 2014). For example, Ryff (1995) found that purpose in life decreased with age, especially from midlife to old age, a pattern which was confirmed in Pinquart's (2002) meta-analysis. However, strong declines were only found for people over the age of 60. Little research has explored patterns earlier in the lifespan. Regarding gender, to date studies have generally found few differences in purpose (Pinquart, 2002; Ryff, 1995).

Optimism

Optimism was defined by Scheier and Carver (1985) as having generalized positive expectancies. It is also often commonly defined as a sense of hope for the future, which contributes to meaning as the ability to pursue goals and have a valued future. Optimism is widely studied and has been shown to be an important characteristic for coping with many life challenges and stressors (see Carver, Scheier, Segerstrom, 2010). Optimism is strongly associated with other measures of a sense of meaning in life (Ho et al., 2010; Ju, Shin, Kim, Hyun, & Park, 2013). Despite being a frequent source of study, there has been surprisingly little attention given to gender and age patterns. Few studies have examined age differences in optimism, and no previous studies appear to explore patterns across adolescence and adulthood. You, Fung, and Isaacowitz (2009) found that older adults (52 to 76 years) reported more optimism than younger adults. Several studies, including the seminal Scheier and Carver (1985) study, found few gender differences in optimism among adults (e.g., Chong, Huan, Yeo, & Ang, 2006; Singh, & Jha, 2013). Puskar and colleagues, in two studies of rural Pennsylvanian youth, found mixed results for gender. In one study, females scored lower than males in optimism (Puskar et al., 2010) and in the other there were no gender differences (Puskar et al., 1999).

Religious or Spiritual Meaning

Religion and spirituality are primary sources of meaning for many people, and refer to experiences with the sacred and connections to beliefs in a higher purpose or something larger than oneself (Pargament, 1997, 1999; Park, Peterson, & Seligman, 2004). Religious involvement and meaning can enhance coping (Koenig et al., 2014; Park, 2005). Koenig et al. (2014) found that greater religious involvement was associated with a greater sense of purpose. Similarly, in a meta-analysis, Shaw, Joseph, and Linley (2005) found an association between religiosity, spirituality, and posttraumatic growth. Regarding age differences, prior research indicates that faith and spiritual connection is less common among youth and increases with age, although most studies have focused on a relatively limited age range (e.g., Debats, 1999; Krause, 2003; 2008; WHOQOL SRPB Group, 2006). Several studies have found that females report more religious behavior, including participation in religious activities and the perception of an interaction with the divine, than males (e.g., Maselko & Kubzansky, 2004; WHOQOL SRPB Group, 2006), although this may vary culturally (Loewenthal et al., 2002). Few studies examined spirituality from a non-religious perspective, but Schnell (2009) found that women endorsed a broader spiritual concept of transcendence more than men and this increased somewhat with age, which largely corresponds to the findings on more explicitly religious meaning making.

Other Sources of Meaning

Scientific understanding of topics such as intelligence and self-esteem has advanced by going beyond global measures and recognizing that individuals can vary across different domains. For example, someone might have high self-esteem regarding their athletic ability and lower self-esteem for their academic ability (Marsh, Craven, & Martin, 2006; Rosenberg et al., 1995). Gardner's influential model of intelligence (1987; 2011) recognizes several categories, including previously under-recognized abilities such as interpersonal intelligence.

A similar examination of variation in potential sources of meaning has potential to advance our understanding of meaning as well. Other authors have called for expanding the concept of meaning beyond traditional global ratings of purpose or optimism, and examine more specific domains (e.g., Emmons, 1999; Schnell, 2009; 2011). Schnell emphasizes the need to consider both the *density* and *diversity* of sources of meaning to understand meaning making. We drew on previous work, especially Schnell's analysis of commonalities across various typologies of meaning and on Bronfenbrenner's influential social ecology model (1979), to identify four domains of meaning making that we explore further, two individual and two interpersonal domains. Most prior work has also focused on people's cognitions and emotions around meaning; this study emphasizes their actual practices and how they enact meaning making in their daily lives.

Moral and ethical standards. Moral and ethical standards provide guidelines for living and can also contribute to a sense of meaning (Schnell, 2009). For example, adults who value treating people according to notions of fairness and justice report greater well-being (Park, Peterson, & Seligman, 2004). People who have experienced some forms of adversity also report higher fairness than others (Peterson et al., 2006). Linley et al. (2007) and Schnell (2009) found a commitment to a sense of order increases with age, but another study of adults did not find this pattern (Martínez-Martí & Ruch, 2014). Regarding gender differences in adherence to moral standards, a few studies have shown no differences between males and females in adult samples (Linley et al., 2007; Park et al., 2004; Schnell, 2009).

Self-oriented meaning making. Activities focused on self-enhancement or self-improvement, such as reading, keeping a journal, and exercise, can be considered paths to meaning by providing structure and a sense of identity (Grych et al., 2015; Schnell, 2009). Such activities have a positive impact on individuals' well-being and life satisfaction (Park et al., 2004; Troiano et al., 2008) and help people cope with adverse events, such as serious illness (Mohammadi, Sulaiman, Koon, Amani, & Hosseini, 2013).

Regarding age differences, some self-development activities, such as physical activity, decrease with age (Bauman et al., 2009; Toriano et al., 2008) while others, such as love of learning, increase (Linley et al., 2007). More broadly, a focus on self-development was found to be lower among older adults than younger adults in an Israeli sample (Bar-Tur, Savaya, & Prager, 2001). Prior research suggests that men and women seek self-improvement and identity development in different ways. Schnell (2009) found that a focus on challenging oneself and achievement was more common among males than females. Males are also more physically active than females (Bauman et al., 2009; Toriano et al., 2008). However, females are more careful about other health choices than males (Lattimore & Halford, 2003; Lee & Loke, 2005).

Family care. An almost exclusive focus on the individual layer of the social ecology is one significant limitation of research on meaning, which has largely overlooked family relationships (Lambert et al., 2010). Family is an important source of meaning for many (Debats, 1999; Schnell, 2011). Lambert et al. (2010) found that family relationships play an important role in the sense of meaning in life. A few studies have shown that family relationships are a primary source of meaning for young adults (Debats, 1999; Lambert et al., 2010), but other developmental periods appear to be largely unexplored. Regarding gender, although there is a large body of research on differences between males' and females' family and work roles, past research does not appear to have addressed gender differences in meaning from family care.

Relationship-oriented meaning making. Relationship-oriented meaning making is the process of engaging in ways to connect with communities and loved ones, such as through rituals, traditions, or community involvement that extend beyond family relationships and family investment (Grych et al., 2015; Schnell, 2009). Rituals and other social activities are important meaning making processes and sources of comfort in difficult times (Hooghe & Neimeyer, 2013). Research on this approach to meaning is relatively scarce. Schnell (2009) demonstrated that holding traditional values was positively correlated with age. Family mealtime was more important for parents than for adolescents in one study (Fulkerson, Neumark-Sztainer, & Story, 2006). Schwartz and Rubel (2005) found no gender differences in traditional values.

Meaning-making Strengths in Rural Populations

Few studies have focused on meaning-making strengths among rural samples, but there is reason to believe that these processes may differ in some ways in rural and urban populations. For example, people living in U.S. rural areas tend to report higher levels of religiosity than more urban residents (Gill, Barrio Minton, & Myers, 2010). Related to self-development practices, Joens-Matres et al. (2008) showed that rural children were more physically active than their urban peers. One study of rural youth found that males reported higher optimism scores than females (Puskar et al., 2010). Although we could find no quantitative study of moral meaning making in rural communities, this seems potentially salient in our conservative rural community (Helton & Keller, 2010). Studying meaning-making among communities such as rural Appalachia can provide insight into how rural residents derive meaning, which could help inform programs for low-income communities with limited service access.

The Current Study

The present study examined seven meaning-making strengths among a rural sample including adolescents and adults. The current study is unique in that the age range of participants includes adolescents through middle adulthood. This allows us to explore the possibility of curvilinear age patterns in meaning making. For example, there may be more differences between adolescents and young

adults than between young and middle adults. Few, if any, prior studies have explored non-linear age patterns in meaning making. This is the largest psychological study ever conducted in the Appalachian region of the U.S. A large community dataset permits exploration of interactions between gender and age. Few prior studies have examined age by gender interactions (Bar-Tur, Savaya, & Prager, 2001 are an exception, but may not have had sufficient sample size to detect interactions). None, as far as we are aware, have examined curvilinear trends in age patterns. The following objectives and hypotheses were tested: 1) There will be a linear increase in all meaning-making strengths from adolescence through adulthood; 2) Overall, we expect females will score higher in meaning-making strengths than males except for optimism, which most past research has shown will be similar or higher for men; and 3) We will explore whether meaning-making strengths show curvilinear effects for age, and also if age interacts with gender.

Method

Participants

The current sample consisted of 2565 youth and adults from the rural Appalachian region of 3 southern states in the United States (as designated by the Appalachian Regional Commission). Participants (63.9% female) averaged 30 years of age ($SD = 13.2$). There was a reasonably good spread of participants across the age span, with cell sizes for age ranging from 7 to 135 for each year from age 12 through 65 and older, with a mean of 45.26 ($SD = 29.04$). The sample identified as 75.6% White/European-American (non-Latino), 12% Black/African-American (non-Latino), 6.4% Latino (any race), 1.2% American Indian/Alaska Native, 0.6% Asian, 0.3% Pacific Islander, and 3.9% multiracial. Educational achievement was reported as follows: 7.2% reported less than a high school education (and not currently in school), 18.1% still in middle or high school, 34.8% high school diploma or equivalent, 18.6% some college but no degree, 8% associate's degree, 7.9% bachelor's degree, and 5.4% more than a bachelor's degree. More than a third (39.2%) of the sample reported a household income less than \$20,000 per year, 36% earned \$20,000 to \$50,000, and 24.9% of them earned more than \$50,000 per year. In 35.6% of cases, participants received some form of public assistance.

Procedure

Participants were recruited through a range of advertising techniques. A wide range of recruitment strategies allowed us to reach segments of the population who are rarely included in psychology research. We were particularly interested in recruiting from a rural, low-income area, which has high rates of people who do not use the Internet and youth who have dropped out of school. Thus, we opted for a range of recruitment strategies, including many that relied on face-to-face recruitment. The majority of participants (76%) were recruited at local community events, such as festivals and county fairs. Word-of-mouth was the second most productive recruitment strategy, accounting for 12% of participants. The remaining 12% were recruited through other strategies, including flyers, newspaper and radio ads, and direct mail. Interviewers offered to meet participants in multiple locations throughout the community (including our research center, other campus locations, and their homes), during daytime or evening hours. This flexibility provided people with limited availability or transportation an opportunity to participate. This region of Appalachia still has limited and often unreliable cellular and internet service; therefore, the survey software was specifically chosen to operate without internet connectivity. The survey was self-administered using Snap10 survey software on laptops and iPads. An audio option was available. Technical problems (such as iPads overheating) and time limitations prevented some

individuals from completing the survey; overall, the completion rate was 85% and the median completion time was 53 minutes. This is an excellent result by current survey standards, especially considering the survey length, with current completion rates often under 70% (Abt. SRBI, 2012) and sometimes under 50% (Galesic & Bosnjak, 2009). All participants received a \$30 Walmart gift card and information on local resources. All procedures were conducted in accordance with APA ethical principles and approved by the IRB of the study's home institution.

Measures

Development and validation of meaning-making measures in pilot study and this sample.

Given that the current sample included young adolescents and people with varying levels of education, the survey was designed to be brief and to have an appropriate reading level for all participants. Many existing measures have reading levels that are too high for this community sample, which included youth as young as age 12 and many adults with limited educational attainment. We simplified and adapted items from existing questionnaires and developed new scales for constructs for the four domain-specific meaning making measures, because we were unable to find other measures for these areas. To establish reliability and validity for new and adapted items, we conducted a pilot study with 108 participants from the same community as the main sample, recruited through a local email classifieds list and word-of-mouth. Reliability and validity were further examined in this sample. We used factor analysis to eliminate items, opting to have scales of varying length over scales that had items that were not loading on a scale. Validity was established in the pilot and main samples with moderate correlations with well-being and other related constructs. Further details on each measure are below. Unless specified, response categories were on a 4-point Likert scale from 1 (“Not true about me”) to 4 (“Mostly true about me”). Using standardized response categories across items reduces the respondent burden, shortens survey time, and minimizes method variance and is common for large scale community surveys (e.g., Finkelhor, Shattuck, Turner, & Hamby, 2014; Finkelhor, Turner, Hamby, & Ormrod, 2011). In all cases, higher scores represent higher levels of strengths. See [<http://lifepathsresearch.org>] for the complete scales and further details on measure development.

Purpose included 3 items assessing the degree to which individuals have a sense of meaning in life and a reason for living (adapted from Steger, Frazier, Oishi, & Kaler, 2006, and Scheier, Carver, & Bridge, 1994). A sample item is “My life has a clear sense of purpose.” Internal consistencies (coefficient alphas) for the pilot and main samples were both .82. Construct validity was established with moderate correlations with subjective well-being and mental health.

Optimism included 2 items assessing the extent of dispositional optimism (adapted from the LOT-R; Scheier, Carver, & Bridges, 1994), such as “If something can go wrong for me, it will” (reverse-scored). Internal consistencies for the pilot and main samples were .85 and .80, respectively. Construct validity was established with moderate correlations with subjective well-being and mental health.

Religious meaning-making included 8 items assessing the extent to which individuals engage in religious and spiritual practices to improve their well-being, cope with adversity, and find meaning in their lives (from Amato, 1990; Levin, Markides, & Ray, 1996; Pargament, Smith, Koenig, & Perez, 1998; Putney & Middleton, 1961). A sample item is “My faith or spiritual beliefs are very important in my life.” Internal consistencies for the pilot and main samples were .88 and .87, respectively. Construct validity was established with moderate correlations with subjective well-being and spiritual well-being.

Moral meaning-making (Banyard, Hamby, & Grych, 2013) was assessed with 4 items tapping the extent to which individuals find meaning through adhering to moral or ethical standards of behavior. A sample item is “I make sure that each day I am doing the right thing.” Internal consistencies (coefficient

alphas) for the pilot and main samples were .83 and .81, respectively. Construct validity was established with moderate correlations with subjective well-being and purpose.

Self-oriented meaning-making (Banyard et al., 2013) was comprised of 8 items assessing activities intended to improve one's mental and physical well-being. A sample item is "I keep a journal, diary, or blog." Internal consistencies (coefficient alphas) for the pilot and main samples were .80 and .78, respectively. Construct validity was established with moderate correlations with subjective well-being and purpose.

Family care meaning making was comprised of 5 items assessing the extent to which individuals help their loved ones and work on strengthening their family ties. A sample item is "I plan regular family gatherings." Internal consistencies (coefficient alphas) for the pilot and main samples were .80 and .76, respectively. Construct validity was established with moderate correlations with subjective well-being and purpose.

Relationship-oriented meaning-making was assessed with 10 items measuring how often individuals engage in activities intended to help others. A sample item is "I follow rituals or traditions to mark certain moments in life." Internal consistencies (coefficient alphas) for the pilot and main samples were both .87. Construct validity was established with moderate correlations with subjective well-being and purpose.

Demographics. Sociodemographic information, including age, gender, household income, educational status, population density and race/ethnicity, was also collected.

Data analysis

Hierarchical regression analyses were conducted with each meaning making strength as the dependent variable. The main (linear) effects for age and gender were entered in the first block. The curvilinear (quadratic and cubic) effects of age were entered in second block, and the interactions of gender with each age effect were entered in the third block. Results are presented for the highest significant block (that is, the final block that explained a significant amount of additional variance). All variables were centered and standardized for testing interactions. A significant quadratic effect indicates one change, or turning point, in the pattern between adolescence and middle adulthood (versus a straight line indicating a similar pattern across the life course). A significant cubic effect would indicate two changes in the pattern. To explore the patterns of significant interactions, standardized scores for each scale were plotted according to age and gender using moving averages.

Results

Purpose

Regression analyses revealed significant linear, $\beta = .10, p = .001$, and quadratic, $\beta = .10, p = .023$, effects of age. The overall R^2 for this model was .02. Purpose scores were either relatively stable or increased slightly from late adolescence to the early-30s, when scores started increasing at a somewhat faster trajectory. See Figure 1. There was not a significant difference between males and females, and no interactions between gender and age reached significance.



Figure 1. Age and gender patterns in a sense of purpose.

Optimism

There was a significant linear effect of age, $\beta = .22, p < .001$, which as can be seen in Figure 2 is due to a general increase in optimism scores as a function of age. There was a significant main effect of gender, $\beta = -.06, p = .002$. The overall R^2 for this model was .05. Males reported higher optimism scores than females, as predicted. Curvilinear effects and interactions between age and gender did not reach significance.

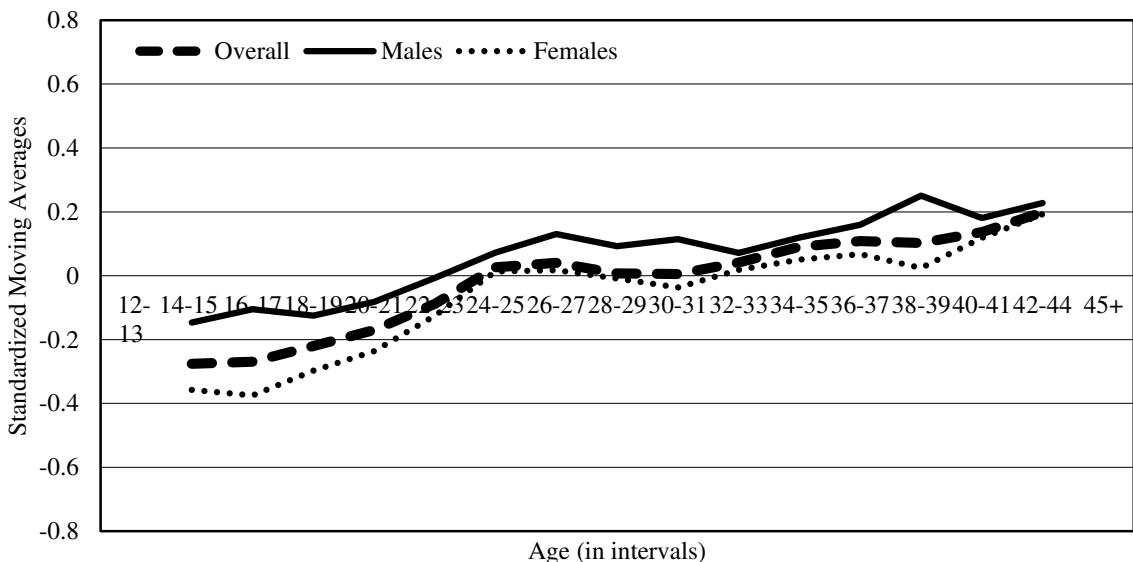


Figure 2. Age and gender patterns in optimism.

Religious or Spiritual Meaning-making

Regression analyses revealed significant quadratic, $\beta = .63, p < .001$ and cubic, $\beta = -.44, p = .016$, effects of age. The overall R^2 for this model was .05. Scores on religious meaning-making decreased from early adolescence through early-20s, but then reported rates start to increase in the early-20s through the 30s, finally returning to the level reported by early adolescents around ages 31 or 32. The slope changes again at about that age, with a function that continues to increase but more slowly than during the 20s. See Figure 3. There was a significant main effect of gender, $\beta = .10, p < .001$. Females reported considerably higher religious meaning-making scores than males.

There was also a significant interaction between gender and the quadratic effect for age, $\beta = -.50, p = .001$. Although, as indicated by the significant main effect, females reported more religious meaning making than males at every age, females' religious meaning increased faster than males in early and middle adulthood. For females, reports returned to the levels reported by early adolescents by age 25 and continued to increase as a function of age. In contrast, men's scores were not similar to those of early adolescents until age 41.

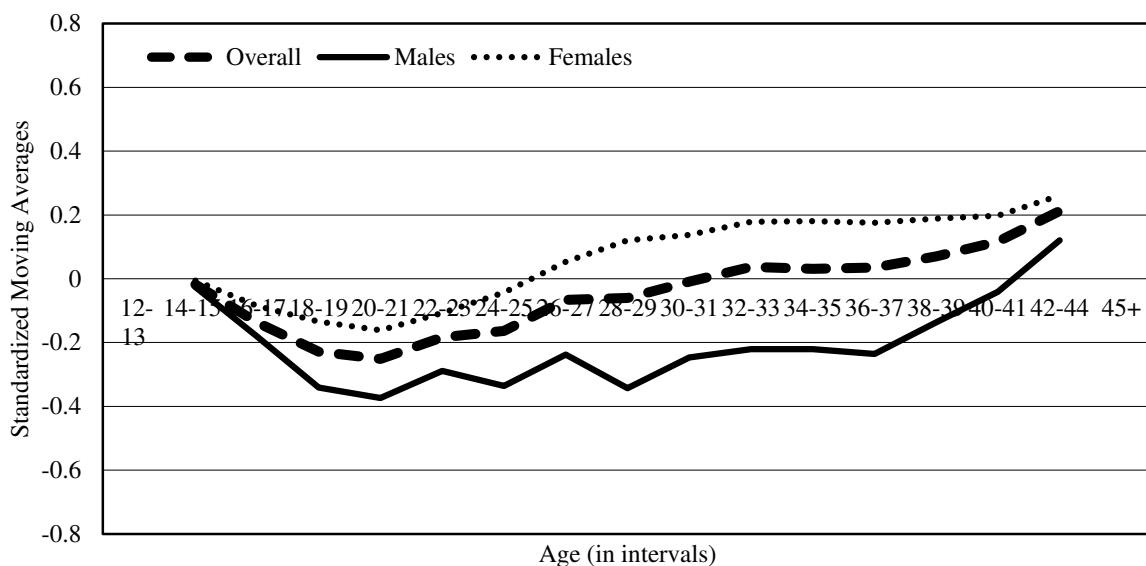


Figure 3. Age and gender patterns in religious meaning-making.

Moral and Ethical Meaning-making

There was a significant linear effect of age, $\beta = .42, p < .001$. Moral meaning-making increased as a function of age; see Figure 4. There was also a significant main effect of gender, $\beta = .15, p < .001$. The overall R^2 for this model was .06. Females reported a greater focus on following rules and doing the right thing than males. Curvilinear effects and interactions did not reach significance.

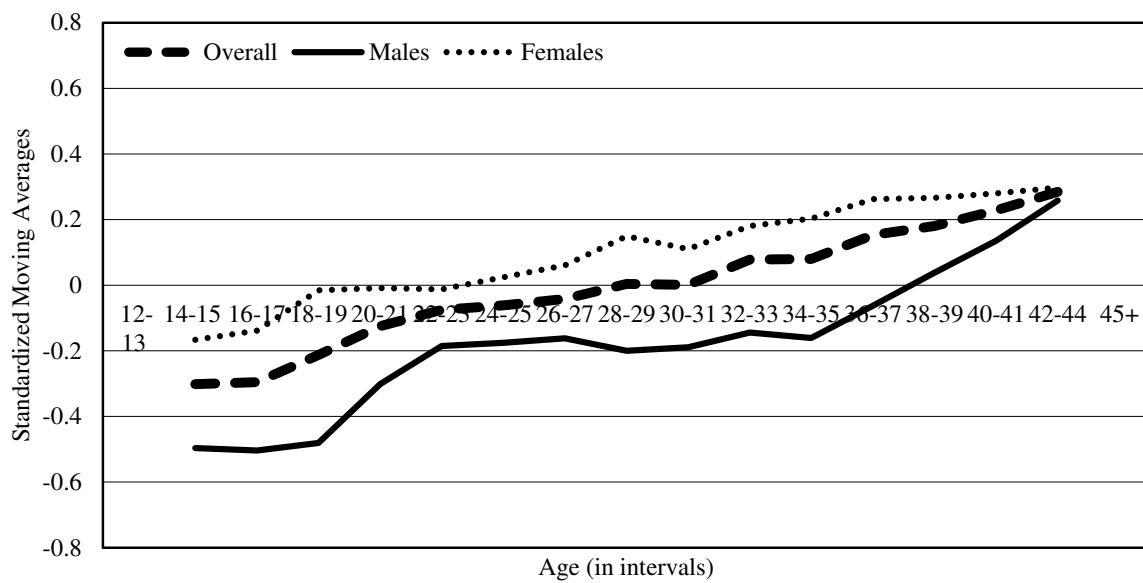


Figure 4. Age and gender patterns in morals-based meaning-making.

Self-oriented Meaning-making

Self-oriented meaning making showed a different pattern than other strengths. Regression analyses revealed significant linear, $\beta = -.22, p < .001$, and quadratic, $\beta = .23, p < .001$, effects of age, but in this case it was due to an overall pattern of decline as a function of age. The overall R^2 for this model was .05. Scores on self-oriented meaning-making showed a general decline from early adolescence through the early-30s, and more stability, but at much lower levels than adolescents, from early 30s onward. See Figure 5. There was a significant main effect of gender, $\beta = .07, p = .001$. Females reported higher self-oriented meaning-making than males. Other effects were not significant.

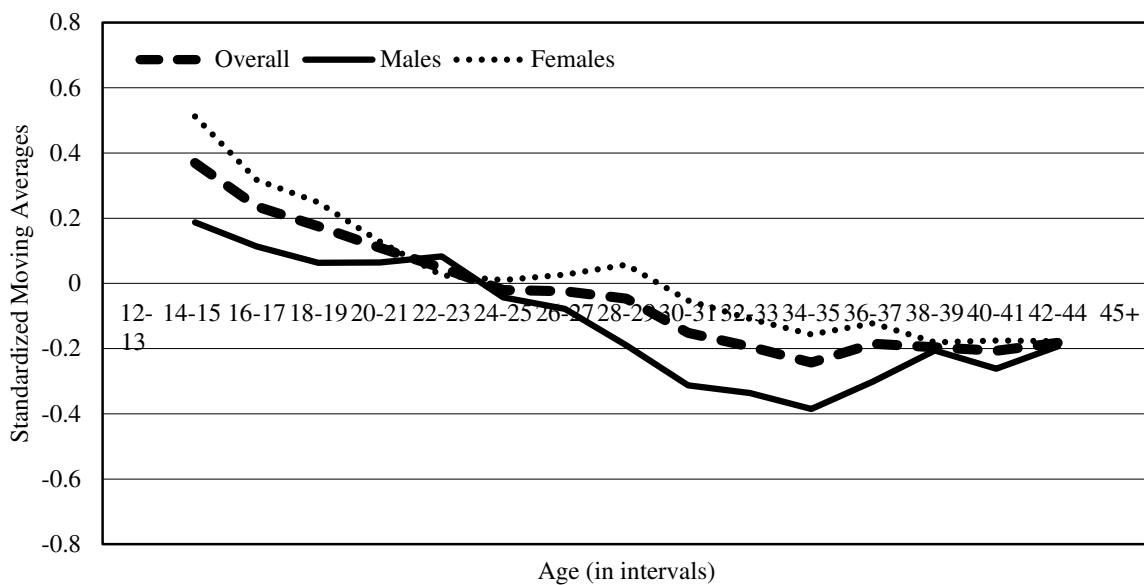


Figure 5. Age and gender patterns in self-oriented meaning-making.

Family Care Meaning Making

There were significant linear, $\beta = .32, p = .003$, and cubic, $\beta = -.41, p = .018$, effects of age. Meaning-making from family care scores increased slowly from early adolescence through the early 20s, increased more rapidly from the early to late-20s, and then reached a plateau during the 30s and 40s (Figure 6). There was a significant main effect of gender, $\beta = .33, p < .001$. The overall R^2 for this model was .15. Females reported considerably higher scores in family care meaning-making than males. There was a significant interaction between gender and the quadratic effect for age, $\beta = -.54, p < .001$ and the cubic effect for age, $\beta = .54, p = .002$. Males displayed a more curvilinear trajectory than females. Females' family care meaning-making scores increased faster than males, showing increases from early adolescence throughout the 20s, and started to plateau around age 29 or 30. Males' scores were relatively flat across adolescence, increases were seen during the early 20s, and they plateaued sooner than females, with increases stopping around age 27. The difference between men and women reached its peak during the mid 30s.

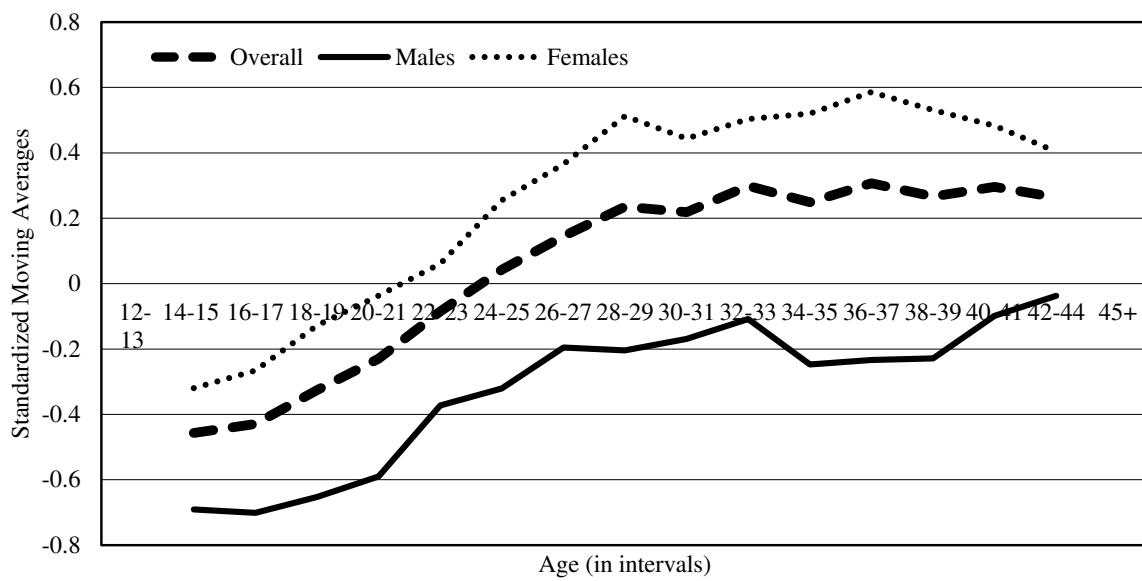


Figure 6. *Age and gender patterns in family care meaning-making.*

Relationship-oriented Meaning-making

There were no significant linear, quadratic, or cubic effects of age; relationship-oriented meaning making remained fairly stable across the lifespan (Figure 7). However, there was a significant effect for gender, $\beta = .10, p < .001$. The overall R^2 for this model was .01. Females reported higher levels of relationship-oriented meaning-making than did males. No other terms were significant.

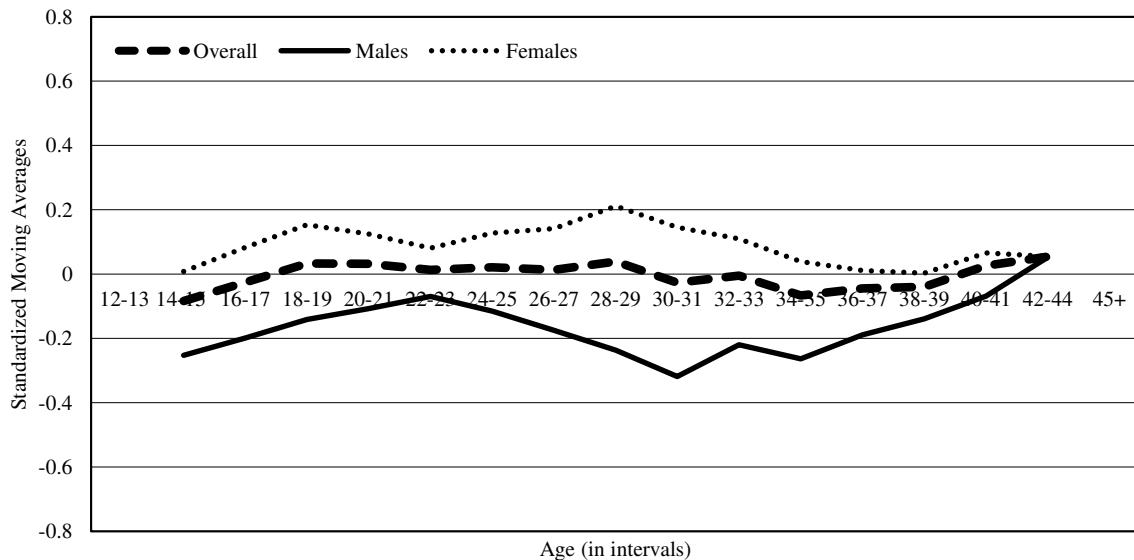


Figure 7. *Age and gender patterns in relationship-oriented meaning-making*

Discussion

The seven meaning-making strengths examined in this study showed a wide variety of age and gender patterns, suggesting that attention to multiple domains of meaning making can advance our understanding of this important aspect of people's experience. To our knowledge, the current study is the first to explore multiple meaning-making strengths in a sample that included both adolescents and adults. Our study is also one of the few to explore meaning making in a large rural sample from the Appalachian region in the U.S. Although it is well known that Appalachia is a religious area (Woodard, 2011), this study expands the understanding of meaning making strengths in this region to other core cultural values, such as the importance of family and abiding by society's rules (Woodard, 2011). It is important to understand the full range of strengths found in rural and low-income communities (Banyard, Hamby, & Grych, 2017).

Meaning Making Across the Decades

We expected that all types of meaning-making would increase as a function of age in this cohort study. This hypothesis was partially confirmed. There were significant age effects for six of seven of our meaning making strengths. Five of these included positive linear effects, with reports of meaning making generally higher for older than younger participants. However, the story proved to be more complex than that suggested by the limited prior research. Only two forms of meaning, optimism and moral meaning making, increased linearly with no evidence of a curvilinear effect. Although the amount of variance explained by age and gender ranged from 1% to 15%, we note that even for types of meaning making with lower R^2 for the models, some substantial, clinically meaningful differences in values were observed. For example, for purpose, the z-score ranges from a low of -.24 for 16 and 17-year-olds to a high of .35 for age 45 and older, a spread of almost an entire standard deviation, even with an R^2 of .02.

The curvilinear patterns also varied substantially. Reports of purpose were similar across adolescents and participants in their 20s and 30s, and started to increase in the late 30s and 40s. Religious meaning making declined from early to late adolescence but then reports were again generally higher as a function of age. Family care meaning also showed a complex pattern, with adolescents reporting the lowest levels, sharp increases among participants in their 20s and then a plateau in later years. Self-oriented meaning making had a strong relationship with age, but it was in the opposite direction, with reports generally lower as a function of age, although this too eventually plateaued in later years. Only relationship-oriented meaning making was unrelated to age and showed similar reports across all age cohorts.

Past research is limited, but current results are largely consistent with previous research findings for religion/spirituality (e.g., WHOQOL SRPB Group, 2006), optimism (e.g., You et al., 2009), and morals/standards (e.g., Linley et al., 2007; Schnell, 2009). Increases in most meaning-making from adolescence through adulthood might be due to several causes, such as the development of the prefrontal cortex and increases in assets and resources (Carstensen, Fung, & Charles, 2003; Casey et al., 2010; Grych et al., 2015). Many of the curvilinear trends mapped onto well-known developmental patterns. For example, regarding family care, many people start parenting in their 20s and that is associated with increases in meaning making in this domain (Nelson, Kushlev, English, Dunn, & Lyubomirsky, 2013). Caregiving could also be one reason self-oriented activities decrease (Arnett, 2000). Regarding religious meaning making, several religions have confirmation or coming-of-age rituals in early adolescence, which could keep early adolescents involved in their family religion. Later adolescents could be more focused on identity development and re-examination of beliefs (Arnett, 2000), but parenting, other adult

responsibilities, and growing recognition of the transience of life may lead some to return to religion and spirituality (Carstensen et al., 2003).

Meaning Making and Gender

We hypothesized that females would score higher in all meaning-making strengths except optimism, and this was largely confirmed. Females scored higher than males in five aspects of meaning making: religious, moral, self-oriented, family care, and relationship-oriented. There were no gender differences in purpose and males reported more optimism than females. Gender interacted with age for two strengths, religious meaning making and family care. In both cases, adolescent males and females and 40+ males and females were more similar to each other than males and females in their 20s and 30s.

Although some of these findings, such as for religion and spirituality, are generally consistent with past research (e.g., Maselko & Kubzansky, 2004), we found more gender differences in meaning making than some past authors (e.g., Linley et al., 2007; Park et al., 2004; Schnell, 2009). Our sample size was larger than many past studies, increasing our ability to detect gender differences. Some findings indicated that gender differences are greater in some developmental periods than others, so past null results could also be due to focusing on relatively narrow age ranges. One of the few studies finding lower optimism among females than males was also a rural sample (Puskar et al., 2010), so that might be another source of variability.

Limitations

The results of this study should be considered in light of its limitations. Although our rural sample increases one element of diversity in the knowledge base, our findings may not generalize to more urban populations. Our sample is relatively diverse for the Appalachian communities where data were collected, but it would be useful to expand the study of meaning to a wider range of ethnic and cultural groups. Our cross-sectional design allowed us to examine a wide age range, but we were not able to follow individuals longitudinally. Consequently, patterns attributed to age could reflect cohort effects instead. The results were based on self-report, and future research would benefit from multiple informants or other data sources.

Research Implications

Meaning making remains surprisingly understudied, given its central role in many people's lives and evidence that it can be an important element in coping with difficult situations. Future research could continue exploring these strengths across the lifespan, especially by extending into earlier childhood and older adulthood (Hamby, Smith, Mitchell, & Turner, 2016). Longitudinal studies of change in individuals, versus age cohorts, could further advance our understanding of developmental trajectories. Future studies can also continue to explore more specific meaning-making domains. Most domains included here were endorsed by women more than men, and future research could further explore what domains of meaning are more important to men. This study adds to the very small literature on strengths in disadvantaged communities. More research needs to be done to understand the capabilities of people with poor access to services or limited resources.

Clinical and Policy Implications

The current study has important implications for promoting well-being. Given that meaning-making strengths have been associated with life satisfaction and coping processes, providers, educators, and other professionals could increase the focus on meaning making in a variety of prevention and

intervention settings. A more developmentally attuned approach to meaning making may also be advantageous. For example, teachers could offer activities to promote identity development as a path to meaning among adolescent students. It is thought that some interventions, such as narrative or expressive writing, operate in part through facilitating meaning making. For early to middle adulthood, providing support to reduce stress related to caregiving and to support meaning making related to family may help promote well-being in communities. We also need to learn more about what promotes resilience in later years (Hamby et al., 2016). Given the linear patterns for relationship meaning making, this may be a source of meaning making that can and should be consistently bolstered across the lifespan by providing opportunities to engage in community activities. Further, while sense of purpose is strong in later life, it was less present for adolescents and early adults. There is a growing literature about the benefits of volunteerism, particularly for youth who show positive effects of being involved in activities that show them they have much to contribute to their communities (Levitin-Reid & Campbell, 2016). Prevention work could consider ways to engage youth in activities that provide a sense of purpose and keep them on track toward well-being.

References

Amato, P. R. (1990). Personality and social network involvement as predictors of helping behavior in everyday life. *Social Psychology Quarterly*, 53(1), 31-43.

Arnett, J. J. (2000). Emerging adulthood. A theory of development from the late teens through the twenties. *The American Psychologist*, 55(5), 469-480.

Banyard, V., Hamby, S., & Grych, J. (2017). Health effects of adverse childhood events: Identifying promising protective factors at the intersection of mental and physical well-being. *Child Abuse & Neglect*, 65, 88-98.

Banyard, V., Hamby, S., & Grych, J. (2013). *Meaning Making Practices Scale*. Sewanee, TN: Life Paths Research Program.

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.

Bauman, A., Bull, F., Chey, T., Craig, C. L., Ainsworth, B. E., Sallis, J. F., ... The IPS Group. (2009). The international prevalence study on physical activity: Results from 20 countries. *International Journal of Behavioral Nutrition and Physical Activity*, 6(1), 1-11.

Bronfenbrenner, U. (1979). *The ecology of human development: Experiments by nature and design*. Cambridge, England: Harvard University Press.

Carstensen, L., Fung, H. H., & Charles, S. T. (2003). Socioemotional selectivity theory and the regulation of emotion in the second half of life. *Motivation and Emotion*, 27(2), 103-123.

Carver, C. S., Scheier, M. F., & Segerstrom, S. C. (2010). Optimism. *Clinical Psychology Review* 30(7), 879-889.

Casey, B. J., Jones, R. M., Levita, L., Libby, V., Pattwell, S. S., Ruberry, E. J., ... Somerville, L. H. (2010). The storm and stress of adolescence: Insights from human imaging and mouse genetics. *Developmental Psychobiology*, 52(3), 225-235.

Chong, W., Huan, V., Yeo, L., & Ang, R. (2006). Asian adolescents' perceptions of parent, peer, and school support and psychological adjustment: The mediating role of dispositional optimism. *Current Psychology*, 25(3), 212-228.

Damon, W., Menon, J., & Bronk, K. C. (2003). The development of purpose during adolescence. *Applied Developmental Science*, 7(3), 119-128.

Davis, C. G., Wortman, C. B., Lehman, D. R., & Silver, R. C. (2000). Searching for meaning in loss: Are clinical assumptions incorrect? *Death Studies*, 24(6), 497-540.

Debats, D. L. (1999). Sources of meaning: An investigation of significant commitments in life. *Journal of Humanistic Psychology*, 39(4), 30-57.

Finkelhor, D., Shattuck, A., Turner, H. A., & Hamby, S. (2014). The lifetime prevalence of child sexual abuse and sexual assault assessed in late adolescence. *The Journal of Adolescent Health*, 55(3), 329-333.

Finkelhor, D., Turner, H., Hamby, S., & Ormrod, R. (2011). *Polyvictimization: Children's exposure to multiple types of violence, crime, and abuse*. U.S. Department of Justice.

Fry, P. S. (2000). Religious involvement, spirituality and personal meaning for life: Existential predictors of psychological wellbeing in community-residing and institutional care elders. *Aging & Mental Health*, 4(4), 375-387.

Fulkerson, J. A., Neumark-Sztainer, D., & Story, M. (2006). Adolescent and parent views of family meals. *Journal of the American Dietetic Association*, 106(4), 526-532.

Galesic, M., & Bosnjak, M. (2009). Effects of questionnaire length on participation and indicators of response quality in a web survey. *Public Opinion Quarterly*, 73(2), 349-360.

Gardner, H. (1987). Beyond the IQ: Education and human development. *Harvard Educational Review*, 57(2), 187-196.

Gardner, H. (2011). *Frames of mind: The theory of multiple intelligences*. New York: Basic books.

Gill, C. S., Barrio Minton, C., & Myers, J. (2010). Poor, rural women: Spirituality, religion, and wellness across the lifespan. *Adultspan Journal*, 14(2), 66-76.

Grych, J., Hamby, S., & Banyard, V. (2015). The Resilience Portfolio Model: Understanding healthy adaptation in victims of violence. *Psychology of Violence*, 5(4), 343-354.

Hamby, S., Smith, A., Mitchell, K., & Turner, H. (2016). Poly-victimization and resilience portfolios: Trends in violence research that can enhance the understanding and prevention of elder abuse. *Journal of Elder Abuse & Neglect*, 28(4-5), 217-234.

Hamby, S., Thomas, L., Banyard, V., de St. Aubin, E., & Grych, J. (2015). Generative roles: Assessing sustained involvement in generativity. *American Journal of Psychology and Behavioral Sciences*, 2(2), 24-32.

Helton, L. R., & Keller, S. M. (2010). Appalachian women: A study of resiliency assets and cultural values. *Journal of Social Service Research*, 36(2), 151-161.

Hill, P. L., & Turiano, N. A. (2014). Purpose in life as a predictor of mortality across adulthood. *Psychological Science*, 25(7), 1482-1486.

Ho, M. Y., Cheung, F. M., & Cheung, S. F. (2010). The role of meaning in life and optimism in promoting well-being. *Personality and Individual Differences*, 48(5), 658-663.

Hooghe, A., & Neimeyer, R. A. (2013). Family resilience in the wake of loss: A meaning-oriented contribution. In S. D. Becvar (Ed.), *Handbook of Family Resilience* (pp. 269-284). New York, NY: Springer New York.

Joens-Matres, R. R., Welk, G. J., Calabro, M. A., Russell, D. W., Nicklay, E., & Hensley, L. D. (2008). Rural-urban differences in physical activity, physical fitness, and overweight prevalence of children. *The Journal of Rural Health*, 24(1), 49-54.

Ju, H., Shin, J. W., Kim, C., Hyun, M., & Park, J. (2013). Mediational effect of meaning in life on the relationship between optimism and well-being in community elderly. *Archives of Gerontology and Geriatrics*, 56, 309-313.

Koenig, H. G., Berk, L. S., Daher, N. S., Pearce, M. J., Bellinger, D. L., Robins, C. J., & ... King, M. B. (2014). Religious involvement is associated with greater purpose, optimism, generosity and gratitude in persons with major depression and chronic medical illness. *Journal of Psychosomatic Research*, 77(2), 135-143.

Krause, N. (2003). Religious meaning and subjective well-being in late life. *Journal of Gerontology: Social Sciences*, 58(3), S160–S170.

Krause, N. (2008). The social foundation of religious meaning in life. *Research on Aging*, 30(4), 395-427.

Lambert, N. M., Stillman, T. F., Baumeister, R. F., Fincham, F. D., Hicks, J. A., & Graham, S. M. (2010). Family as a salient source of meaning in young adulthood. *The Journal of Positive Psychology*, 5(5), 367-376.

Lattimore, P. J., & Halford, C. G. (2003). Adolescence and the diet-dieting disparity: Healthy food choice or risky health behavior? *British Journal of Health Psychology*, 8, 451-463.

Lee, R. L., & Loke, A. J. (2005). Health-promoting behaviors and psychosocial well-being of university students in Hong Kong. *Public Health Nursing*, 22(3), 209-220.

Levin, J. S., Markides, K. S., & Ray, L. A. (1996). Religious attendance and psychological well-being in Mexican Americans: A panel analysis of three-generations data. *The Gerontologist*, 36(4), 454-463.

Levitin-Reid, C., & Campbell, R. (2016). Volunteer roles and the benefits of volunteering: An examination of nonprofit housing cooperatives. *Community Development*, 1-17.

Linley, P. A., Maltby, J., Wood, A. M., Joseph, S., Harrington, S., Peterson, C., ... Seligman, M. E. P. (2007). Character strengths in the United Kingdom: The VIA Inventory of Strengths. *Personality and Individual Differences*, 43(2), 341-351.

Loewenthal, K. M., McLeod, A. K., & Cinnirella, M. (2002). Are women more religious than men? Gender differences in religious activity among different religious groups in the UK. *Personality and Individual Differences*, 32(1), 133-139.

Mäkikangas, A., & Kinnunen, U. (2003). Psychosocial work stressors and well-being: Self-esteem and optimism as moderators in a one-year longitudinal sample. *Personality and Individual Differences*, 35, 537-557.

Marsh, H. W., Craven, R. G., & Martin, A. (2006). What is the nature of self-esteem? Unidimensional and multidimensional perspectives. In M. Kernis (Ed.), *Self-esteem: Issues and answers* (pp. 16-25). New York: Psychology Press.

Martínez-Martí, M. L., & Ruch, W. (2014). Character strengths and well-being across the life span: data from a representative sample of German-speaking adults living in Switzerland. *Frontiers in Psychology*, 5, 1-10.

Maselko, J., & Kubzansky, L. D. (2004). Gender differences in religious practices, spiritual experiences and health: Results from the US General Social Survey. *Social Science & Medicine*, 62(11), 2848-2860.

Mohammadi, S., Sulaiman, S., Koon, P. B., Amani, R., & Hosseini, M. (2013). Impact of healthy eating practices and physical activity on quality of life among breast cancer survivors. *Asian Pacific Journal of Cancer Prevention*, 14(1), 481-487.

Moor, N., & Komter, A. (2012). Family ties and depressive mood in Eastern and Western Europe. *Demographic Research*, 27(8), 201-232.

Myers, D. G. (2000). The funds, friends, and faith of happy people. *American Psychologist*, 55(1), 56-67.

Nelson, S. K., Kushlev, K., English, T., Dunn, E. W., & Lyubomirsky, S. (2013). In defense of parenthood: Children are associated with more joy than misery. *Psychological Science*, 24(1), 3-10.

Pargament, K. I. (1997). *The psychology of religion and coping: Theory, research, practice*. New York: Guilford Press.

Pargament, K. I. (1999). The psychology of religion and spirituality? Yes and no. *The International Journal for the Psychology of Religion*, 9(1), 3-16.

Pargament, K. I., Smith, B. W., Koenig, H. G., & Perez, L. (1998). Patterns of positive and negative religious coping with major life stressors. *Journal for the Scientific Study of Religion*, 37(4), 711-725.

Park, C. L. (2005). Religion as a meaning-making framework in coping with life stress. *Journal of Social Issues*, 61(4), 707-729.

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.

Park, N., Peterson, C., & Seligman, M. E. P. (2004). Strengths of character and well-being. *Journal of Social and Clinical Psychology*, 23(5), 603-619.

Peterson, C., Park, N., & Seligman, M. E. P. (2006). Greater strengths of character and recovery from illness. *The Journal of Positive Psychology*, 1(1), 17-26.

Pinquart, M. (2002). Creating and maintaining purpose in life in old age: A meta-analysis. *Ageing International*, 27(2), 90-114.

Puskar, K. R., Sereika, S. M., Lamb, J., Tusaie-Mumford, K., & McGuinness, T. (1999). Optimism and its relationship to depression, coping, anger, and life events in rural adolescents. *Issues in Mental Health Nursing*, 20(2), 115-130.

Puskar, K., Bernardo, L., Ren, D., Haley, T., Tark, K., ... Siemon, L. (2010). Self-esteem and optimism in rural youth: Gender differences. *Contemporary Nurse*, 34(2), 190-198.

Putney, S., & Middleton, R. (1961). Dimensions and correlates of religious ideologies. *Social Forces*, 39(4), 285-290.

Rosenberg, M., Schooler, C., Schoenbach, C., & Rosenberg, F. (1995). Global self-esteem and specific self-esteem: Different concepts, different outcomes. *American Sociological Review*, 60(1), 141-156.

Ryff, C. D. (1995). Psychological well-being in adult life. *Current Directions in Psychological Science*, 4(4), 99-104.

Scheier, M. F., & Carver, C. S. (1985). Optimism, coping, and health: Assessment and implications of generalized outcome expectancies. *Health Psychology*, 4(3), 219-247.

Scheier, M. F., Craver, C. S., & Bridges, M. W. (1994). Distinguishing optimism from neuroticism (and trait anxiety, self-mastery, and self-esteem): A reevaluation of the Life Orientation Test. *Journal of Personality and Social Psychology*, 67(6), 1063-1078.

Schnell, T. (2009). The Sources of Meaning and Meaning in Life Questionnaire (SoMe): Relations to demographics and well-being. *Journal of Positive Psychology*, 4, 483-499.

Schnell, T. (2011). Individual differences in meaning-making: Considering the variety of sources of meaning, their density & diversity. *Personality & Individual Differences*, 51, 667-673.

Schwartz, S. H., & Rubel, T. (2005). Gender differences in value priorities: Cross-cultural and multimethod studies. *Journal of Personality, and Social Psychology*, 89(6), 1010-1028.

Shaw, A., Joseph, S., & Linley, P. A. (2005). Religion, spirituality, and posttraumatic growth: A systematic review. *Mental Health, Religion & Culture*, 8(1), 1-11.

Singh, I., & Jha, A. (2013). Anxiety, optimism and academic achievement among students of private medical and engineering colleges: A comparative study. *Journal of Educational and Developmental Psychology*, 3(1), 222-233.

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), 80-93.

Thoits, P. A. (2012). Role-identity salience, purpose and meaning in life, and well-being among volunteers. *Social Psychology Quarterly*, 75(4), 360-384.

Toriano, R. P., Berrigan, D., Dodd, K. W., Masse, L. C., Tilert, T., & McDowell, M. (2008). Physical activity in the United States measured by accelerometer. *Medicine & Science in Sports & Exercise*, 40(10), 181-188.

Weber, S., Puskar, K. R., & Ren, D. (2010). Relationships between depressive symptoms and perceived social support, self-esteem, & optimism in a sample of rural adolescents. *Issues in Mental Health Nursing*, 31(9), 584-588

WHOQOL SRPB Group (2006). A cross-cultural study of spirituality, religion, and personal beliefs as components of quality of life. *Social Science & Medicine*, 62(6), 1486-1497.

Woodard, C. (2011). *American nations: A history of the eleven rival regional cultures of North America*. New York: Penguin.

Yoon, D. P., & Lee, E. O. (2007). The impact of religiousness, spirituality, and social support on psychological well-being among older adults in rural areas. *Journal of Gerontological Social Work*, 48(3-4), 281-298.

You, J., Fung, H. H. L., & Isaacowitz, D. M. (2009). Age differences in dispositional optimism: A cross-cultural study. *European Journal of Ageing*, 6(4), 247–252.