

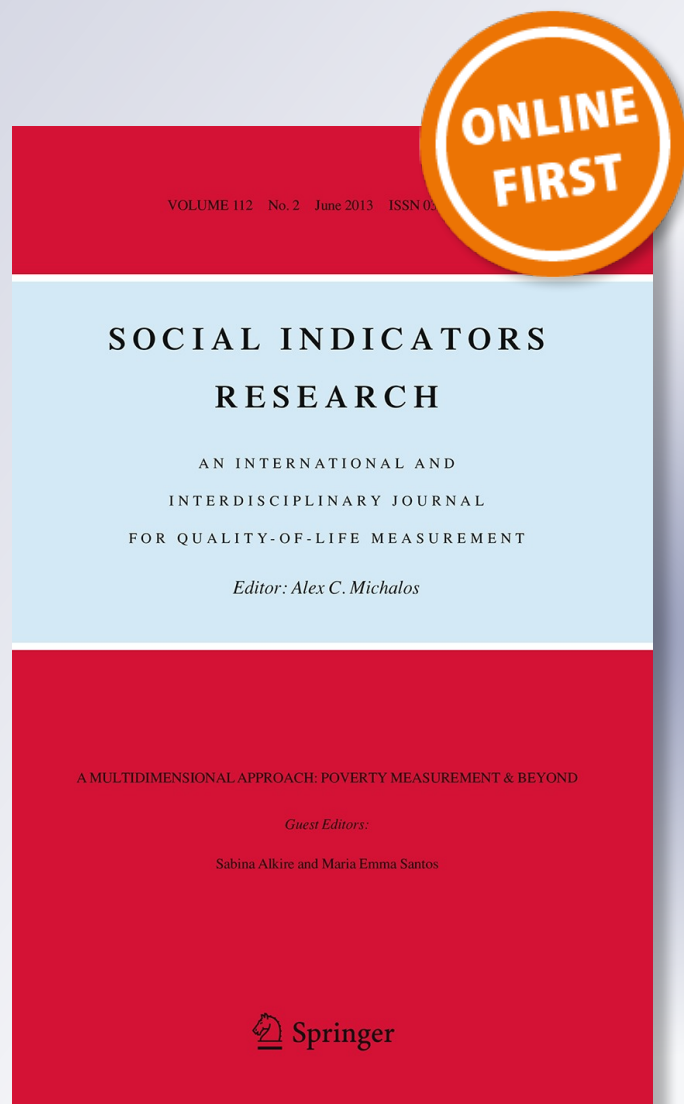
# *The Relationship Between Social Support and Subjective Well-Being Across Age*

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# The Relationship Between Social Support and Subjective Well-Being Across Age

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**Abstract** The relationships among types of social support and different facets of subjective well-being (i.e., life satisfaction, positive affect, and negative affect) were examined in a sample of 1,111 individuals between the ages of 18 and 95. Using structural equation modeling we found that life satisfaction was predicted by enacted and perceived support, positive affect was predicted by family embeddedness and provided support, and negative affect was predicted by perceived support. When personality variables were included in a subsequent model, the influence of the social support variables were generally reduced. Invariance analyses conducted across age groups indicated that there were no substantial differences in predictors of the different types of subjective well-being across age.

**Keywords** Aging · Life satisfaction · Social support · Subjective well-being

## 1 Introduction

### 1.1 Subjective Well-being

Subjective well-being (SWB), thought to comprise a cognitive-judgmental dimension reflecting life satisfaction and an emotional evaluation characterized by positive and negative affect, has been linked to important outcomes. For example, research has demonstrated that happy individuals tend to have larger social rewards, better work outcomes, greater coping abilities, better immune systems, to be more cooperative, pro-social, and

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charitable and to live longer than individuals who are not happy (see Lyubomirsky et al. 2005 for a review). Because of the positive outcomes associated with SWB it is important to understand the factors that contribute to well-being.

One of the most consistent predictors of SWB is the quality of social relationships (e.g., Diener and Seligman 2002). People who have satisfying relationships report feeling happy more frequently and sadness less frequently, and report being more satisfied with their lives than those who do not have satisfying relationships. It is however unclear why having satisfying relationships is so beneficial. One possibility is that individuals who have satisfying relationships can obtain support when they need it, whereas those who do not have satisfying relationships cannot easily obtain support when they need it. Another possibility is that the *thought* (expectation) of being able to rely on someone when they need it is comforting, and contributes to a sense of well-being. Either way, social support is likely to be a key in understanding the link between the quality of social relationships and SWB. Because social support is a complex concept, as discussed below, the nature of the association between social support and SWB is not yet clear. The two main goals of the present investigation are (1) to clarify the link between social support and facets of SWB and (2) to examine whether there are age differences in the strength of the association between social support and SWB, as the type of support needed by older adults might be different from younger adults.

## 1.2 Social Support

Barrera et al. (1981) provided an early definition of social support, specifying that it refers to the “various forms of aid and assistance supplied by family members, friends, neighbors, and others” (p. 435), which broadly encompasses a multitude of social interactions. Although research has linked social support to measures of subjective well-being (Newsom and Schulz 1996; Pinquart and Sörensen 2000; Thomas 2010), some researchers have found negative or no consequences of social support on SWB (Lahey et al. 2010; Lee et al. 1995; Lepore et al. 2008). One possibility for the variation in findings is how researchers conceptualize and operationalize social support and subjective well-being—both of which are often used as umbrella terms for complex constructs. There are several facets of social support that have varied relations with SWB. In this paper we will examine the three components of SWB (i.e., life satisfaction, positive affect, and negative affect) and the following components of social support, as specified by Barrera (1986)—social integration or embeddedness, enacted support, and perceived support. We will also focus on provided support, which recent research has linked to SWB (e.g., Brown et al. 2003).

### 1.2.1 Social Embeddedness

Social embeddedness refers to the frequency of contact with those in one's social network (Barrera 1986; Granovetter 1985). In a meta-analysis, Finch et al. (1999) found that the number of support providers (a measure of social embeddedness) had a small negative association ( $r = -0.11$ ) with psychological distress (most frequently assessed with measures of depression). However, measures of social embeddedness do not necessarily assess the quality of the relationship, which may be crucial in determining emotional consequences. And, in fact, in a meta-analysis of subjective well-being correlates, Pinquart and Sörensen (2000) found that life satisfaction, self-esteem, and happiness showed a stronger relationship with ratings of social contact quality than with social contact quantity (i.e., social embeddedness).

### 1.2.2 Enacted Support

Enacted support refers to actual received support, whether it is received emotional support, received tangible support, or received informational support (Barrera 1986). Enacted support and well-being share a complex relationship, with some research showing a small positive relationship between enacted support and psychological well-being (Finch et al. 1999; Wethington and Kessler 1986) and other research linking enacted support to increased negative affect (Barrera 1986; Lakey et al. 2010; Seidman et al. 2006). Seidman et al. (2006) suggest that the relationship between enacted support and distress may be mixed due to the confounding effect of distress on emotional well-being. Obtaining tangible or emotional enacted support would likely occur as a result of experiencing some form of distress, and the negative effects of this distress may be linked to lowered well-being. Further, receiving support may activate feelings of low self-worth from not having the capacity to take care of oneself (Lepore et al. 2008) and being in debt to the support provider (Marroquín 2011). For example, Lee et al. (1995) found that among older adults, aid received from children was positively related to depression. The authors suggest that this relationship between received aid and parental depression can be linked to “perception of a loss of independence in old age” (p. 823).

Collectively, research on enacted support indicates that enacted support is specifically associated with an increase in negative affect or mood (as opposed to a decrease in positive affect or life satisfaction) (e.g., Bolger et al. 2000; Liang et al. 2001; Shrout et al. 2006).

### 1.2.3 Provided Support

Provided support, which refers to the emotional, tangible, or informational help that one is able to supply to others, has also been linked to health and well-being (Brown et al. 2003; Lu 1997). Thomas (2010) specifically examined whether it is more beneficial to give or receive support in a sample of older adults. She found that total provided support was the strongest predictor of well-being in a model that included several predictors, whereas total received (i.e., enacted) support was positively associated with well-being, but only when examined in a model without provided support. Thomas (2010) concludes that “it is often better for the well-being of older adults to give than to receive” (p. 351). Similarly, others have found that those who have a higher tendency to provide social support report lower levels of depression (Piferi and Lawler 2006), and in a daily diary study providing support to a partner was associated with both reduced negative mood and improved positive mood (Gleason et al. 2003).

There are several potential explanations as to why providing support may influence SWB. Providing support to others may give one a sense of meaning and purpose (Taylor and Turner 2001), or increase self-evaluations (Williamson and Clark 1989). Alternatively, one may feel pride or pleasure from the opportunity of influencing someone’s life, regardless of how small the act (Sommer and Bourgeois 2010), and research on altruism suggests that it increases positive affect (Post 2005). An exception to these findings is the experience of caregiving, which is related to decreased well-being (e.g., Pinquart and Sörensen 2006).

### 1.2.4 Perceived Support

Perceived support refers to satisfaction with support exchanges and anticipated support. It differs from enacted support in that perceived support refers to the expectation that support

will be provided rather than referring to specific instances in which one has received support. Generally, perceptions of availability of social support have been linked to better outcomes during times of stress (e.g., Sarason et al. 1997; Wethington and Kessler 1986). In a meta-analysis Finch et al. (1999) reported that the weighted  $r$  for the relationship among ratings of perceived availability of support and psychological distress ranged from  $-0.29$  to  $-0.35$ . These weighted correlations were substantially larger than the correlations reported among measures of enacted support and psychological distress ( $r$ s ranging from  $-0.12$  to  $-0.17$ ). In addition, Finch et al. (1999) reported that perceived support satisfaction was a unique predictor of depression when examined in the context of a structural equation model with several simultaneous predictors (including the Big Five personality traits and types of coping). In regards to the cognitive-judgmental component of SWB, Newsom and Schulz (1996) found that greater perceived social support was correlated with higher life satisfaction and linked to fewer depressive symptoms in older adults.

### 1.3 Personality

Personality traits are important factors to consider when examining predictors of SWB. In particular, neuroticism and extraversion have consistently been shown to predict the affective components of SWB (e.g., Diener and Lucas 1999; Schimmack et al. 2002). Steel et al. (2008) argue that the constructs of SWB and personality constructs are very similar and, “in particular, Neuroticism and Extraversion are nearly identical to two elements of SWB, negative and positive affect, respectively. Neurotic individuals tend to be anxious, easily upset, and moody or depressed, whereas extraverts tend to be sociable, optimistic, outgoing, energetic, expressive, active, assertive, and exciting” (p. 139). Furthermore, extraverted individuals are more likely to experience positive life events and individuals high in neuroticism are more likely to experience negative life events (e.g., Magnus et al. 1993). In a recent meta-analysis Steel et al. (2008) reported the mean correlation between life satisfaction (one component of SWB) and each of the Big Five traits as measured by the NEO inventory (Costa and McCrae 1992) are as follows: openness to experience (0.03), conscientiousness (0.25), extraversion (0.49), agreeableness (0.30), and neuroticism ( $-0.46$ ). Steel et al. (2008) report that personality can account for as much as 39 % of the variance in SWB.

### 1.4 Age Differences

Carstensen's socioemotional selectivity theory (1987, 1992) proposes that social goals change with age. As people get older, their desire to interact with acquaintances and their satisfaction levels from these interactions decline. Thus, they selectively prune their social networks, focusing their time and energy on emotionally intimate social contacts, such as close friends and family. For example, Bowling (2011) found that compared to those under the age of 65, those over the age of 65 report having significantly fewer people to turn to for comfort and support in a time of crisis and significantly fewer people available for practical support (see supplemental material Tables 3 and 5 in Bowling 2011). However, it is unclear whether the smaller numbers of individuals in the social network are due to choice or to circumstances. Regardless, these differences in social contacts and social goals suggest there may be age differences in how people report their social support experiences and subjective well-being.

It is clear that social relationships are an important aspect of well-being in older age. For instance, Bowling et al. (2003) asked a series of open-ended questions to 999 individuals

over the age of 65 regarding quality of life (e.g., what makes your life good?). Eighty-one percent of the sample mentioned that social relationships contributed to their quality of life; this was the most frequently cited answer. How different types of social relationships (and social support) are related to well-being in older age is less clear. Thomas (2010) suggests that receiving support from others can threaten an older adult's identity and sense of competence, thereby creating a negative relationship between enacted support and well-being. It may be the case, then, that enacted support is associated with increased well-being in younger age groups, but not among older adults.

## 1.5 The Current Study

As summarized above, the nature of the association between social support and SWB may differ, depending on the aspects of social support and SWB. The first goal of this study was to examine the relationship among different dimensions of social support to different dimensions of SWB. Based on the research summarized above, we expect that both provided and perceived support will be positively related to SWB. Based on previous research, we do not expect that there will be a strong relationship between social embeddedness and SWB, especially since social embeddedness does not speak to the quality of relationships. Because of the complicated nature of enacted support (i.e., the need for enacted support suggests distress) it is difficult to predict the relationship between enacted support and SWB. However, we expect that, based on the findings by Lee et al. (1995), the relationship between enacted support and well-being may differ across age such that enacted support is associated with increased well-being in young adults, but not among older adults. This leads to our second goal, which was to examine whether there are age differences in the strength of the association between social support and SWB, as the type of support needed by older adults might be different from younger adults (particularly in the relationship between enacted support and SWB). Because self-reports of social support might be colored by respondents' personality, in particular extraversion and neuroticism, we also examined whether the relations among social support and SWB are altered when personality variables are included in the model.

## 2 Method

### 2.1 Participants

Participants consisted of 1,166 adults who completed the Social Network questionnaire (Shaw et al. 2007). The Mini-Mental State Exam (MMSE; Folstein et al. 1975) was used to screen for dementia and individuals with a MMSE score of  $<24$  ( $n = 55$ ; 4.7 %) were excluded from the analyses, resulting in 1,111 individuals between the ages of 18 and 95. Participants were recruited from the Charlottesville, VA community through newspaper advertisements, flyers, and referrals from prior participants.

One percent of the sample ( $n = 11$ ) identified as American Indian/Alaskan native, 1.2 % ( $n = 13$ ) identified as Asian, 9 % ( $n = 100$ ) identified as Black, 85.4 % ( $n = 948$ ) identified as White, and 3.1 % ( $n = 34$ ) identified as "more than one race". Four participants (0.4 %) did not answer the question. Additional participant characteristics are reported in Table 1, divided by age group.

**Table 1** Means, SD, and age correlations for each variable

	Total	Young (ages 20–45)	Middle-aged (ages 46–65)	Older (ages 66–95)	Age <i>r</i>
<i>N</i>	1,111	230	527	354	
Age	57.10 (15.26)	34.17 (7.26)	56.03 (5.35)	73.61 (6.18)	
Gender (% female)	67.1	67.8	71.7	59.6	
Years of education	16.10 (2.77)	16.05 (2.65)	15.86 (2.71)	16.50 (2.89)	0.09*
MMSE	28.72 (1.36)	28.86 (1.31)	28.79 (1.33)	28.53 (1.40)	−0.11*
<i>SWLS</i>					
Ideal	4.76 (1.60)	4.53 (1.68)	4.67 (1.64)	5.02 (1.44)	0.12*
Conditions	5.02 (0.150)	4.87 (1.64)	4.95 (1.53)	5.22 (1.37)	0.09*
Satisfied	5.17 (1.45)	4.97 (1.57)	5.11 (1.47)	5.38 (1.32)	0.11*
Important	5.31 (1.46)	4.97 (1.60)	5.27 (1.51)	5.60 (1.20)	0.16*
Change	4.12 (1.76)	4.05 (1.83)	4.07 (1.72)	4.25 (1.77)	0.06
<i>Positive affect</i>					
PANAS positive sum	31.75 (7.77)	29.69 (8.31)	31.90 (7.61)	32.85 (7.40)	0.13*
<i>Negative affect</i>					
PANAS negative sum	12.31 (3.97)	13.26 (4.44)	12.19 (4.04)	11.88 (3.42)	−0.15*
CESD total	16.43 (6.88)	18.00 (6.90)	16.54 (7.14)	15.24 (6.23)	−0.15*
STAI total	33.97 (9.07)	36.60 (9.79)	34.11 (9.14)	32.06 (8.00)	−0.18*
<i>Social network</i>					
Family embeddedness	6.69 (2.03)	6.94 (2.03)	6.66 (2.06)	6.58 (1.99)	−0.09*
Friend embeddedness	7.25 (2.16)	7.64 (2.24)	7.12 (2.22)	7.20 (2.00)	−0.09*
Enacted support	25.55 (5.89)	26.90 (5.69)	26.01 (5.52)	23.99 (6.23)	−0.19*
Provided support	27.11 (5.99)	28.85 (5.51)	27.56 (5.74)	25.31 (6.20)	−0.23*
Perceived support	14.31 (2.16)	14.42 (2.13)	14.39 (2.11)	14.11 (2.25)	−0.06
<i>Personality traits</i>					
Emotional stability	35.43 (7.32)	33.67 (7.40)	35.38 (7.17)	36.65 (7.27)	0.14*
Extraversion	32.21 (7.49)	32.93 (7.95)	31.89 (7.53)	32.23 (7.10)	−0.02
Conscientiousness	38.05 (6.10)	36.35 (6.71)	38.46 (5.73)	38.53 (6.02)	0.11*
Agreeableness	41.35 (5.54)	40.68 (6.34)	41.50 (5.48)	41.35 (5.54)	0.06
Openness	36.49 (6.46)	37.47 (6.48)	36.25 (6.47)	36.20 (6.39)	−0.07

\*  $p < .01$ 

## 2.2 Measures

Participants completed several questionnaires, in addition to the Social Network questionnaire, including the Satisfaction with Life Scale (SWLS; Diener et al. 1985), and measures of depression, anxiety, positive affect, negative affect, and personality. The research design was correlational in nature and all participants completed the same measures.

### 2.2.1 Social Network Questionnaire

The Social Network Questionnaire (Shaw et al. 2007) comprises 27 items and was designed to assess the following dimensions: (1) social embeddedness as provided by



family and social embeddedness as provided by friends, (2) enacted support which includes emotional, tangible, and informational support received from others, (3) provided support, as assessed with emotional, tangible, and informational support provided by respondents to others and (4) perceived support. In the current study, social embeddedness as provided by family and as provided by friends was split into two separate variables because the correlation among the variables representing the sum of each dimension was fairly low in magnitude ( $r = 0.16$ ,  $p < .01$ ) providing evidence of discriminant validity between the two constructs.

Composite variables were created for each of the social network dimensions, corresponding to the dimensions described above. Both the *family embeddedness* and *friend embeddedness* variables were the sum of three items from the scale that measured the frequency of contact with family and friends. The *enacted support* variable was the sum of three categories of enacted support from the scale (emotional support, tangible support, and informational support). The *provided support* was the sum of the three categories of provided support (provided emotional support, provided tangible support, and provided informational support). The *perceived support* variable was the sum of two categories (satisfaction with support exchanges, anticipated support). See Shaw et al. (2007) Table 1 for scale items.

### 2.2.2 Subjective Well-being

The tripartite structure of SWB (life satisfaction, positive affect, and negative affect) was examined recently in a review by Busseri and Sadava (2011), who describe five conceptual models that have been used in the literature to examine SWB. In the current paper, SWB is consistent with Model 1 described by Busseri and Sadava (2011) in which life satisfaction, positive affect and negative affect are three different, yet correlated, aspects of SWB. As such, subjective well-being was represented by three latent variables—life satisfaction, positive affect, and negative affect.

Depression was measured with the Center for Epidemiological Studies–Depression scale (CES-D; Radloff 1977). In the current sample Cronbach's alpha was 0.88. The trait anxiety subscale of the State-Trait Anxiety Inventory (STAI; Spielberger et al. 1983) was used to assess trait anxiety (Cronbach's alpha = 0.92). Positive and negative affect was assessed with the Positive and Negative Affect Scale (PANAS; Watson et al. 1988). In the current sample Cronbach's alpha was 0.91 and 0.88 for the positive items and negative items, respectively. For each measure, higher values indicate greater degree of each trait assessed (i.e., depressive symptoms, trait anxiety, positive affect, and negative affect).

The negative affect construct comprised three observed variables representing the sum of the CES-D items (positive items were reverse scored), the sum of the STAI- Trait scale items (positive items were reverse scored), and the sum of the negative items from the PANAS. The positive affect construct comprised the PANAS positive items; to reduce the number of indicators, three parcels were created from the 10 positive items. The life satisfaction construct comprised the five items from the SWLS (Diener et al. 1985; see Fig. 1) and higher values indicate higher levels of life satisfaction.

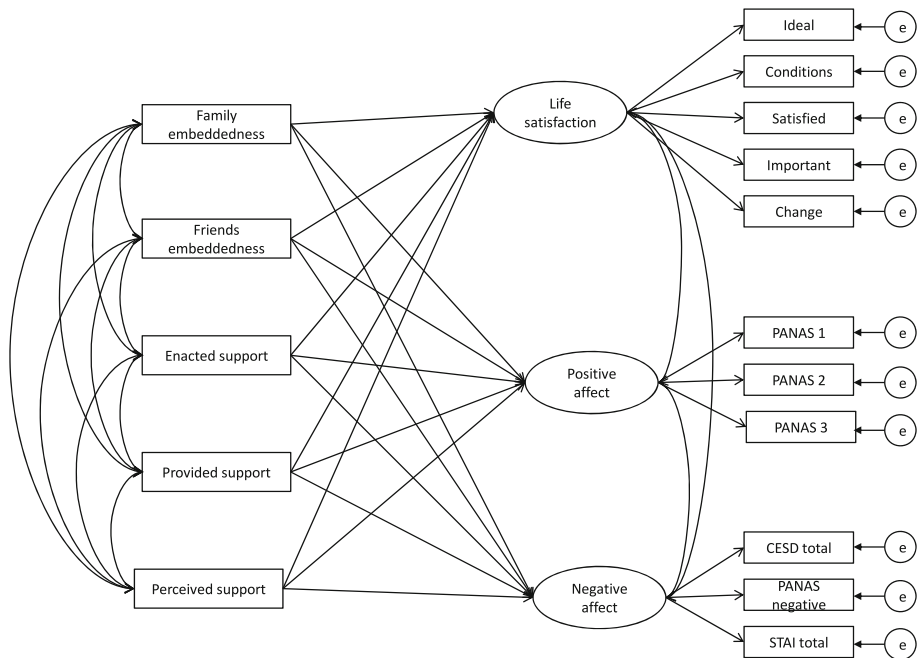
### 2.2.3 Personality

The “Big Five” dimensions of personality were assessed with the 50-item version of the IPIP inventory (Goldberg 1999). Ten items each were used to measure openness to experience, conscientiousness, extraversion, agreeableness, and emotional stability (the

opposite end of the scale from neuroticism). The 50-item IPIP scale does not assess lower-order facets. For a complete listing of the items go to [http://iPIP.ori.org/New\\_IPIP-50-item-scale.htm](http://iPIP.ori.org/New_IPIP-50-item-scale.htm). Composite scores were created by summing the items within each trait respectively. For example, a composite extraversion score was created by summing the 10 extraversion items (after reverse scoring the appropriate items). For each composite score higher values indicate higher levels of each personality characteristic.

### 2.3 Analyses

Structural equation models and confirmatory factor analyses were conducted with Amos 19.0 (Arbuckle 2010). Maximum likelihood estimation was used to deal with missing data. Two separate models were examined. In *Model 1* the five social network domains, represented by composite variables, were simultaneous predictors of three latent constructs reflecting subjective well-being (life satisfaction, positive affect, negative affect; see Fig. 1). The three SWB constructs were examined simultaneously to be consistent with a common conceptualization of SWB (Bussèri and Sadava 2011). The social network domains were represented by composite variables, rather than latent constructs, in order to reduce the number of parameters to be estimated, thereby ensuring adequate power when the sample was divided into three age groups. In *Model 2* the five personality composite variables were entered into the model as predictors of SWB.



**Fig. 1** Rectangles represent observed variables and circles represent latent constructs. The latent variables labeled “e” represent the error and unique variance associated with the observed variables. The two-headed arrows represent correlations among the variables. The paths from the observed variables to the latent constructs represent the relationship between the predictors and the latent constructs. The paths from the latent constructs to the observed variables represent the loading of each variable onto its respective construct

### 2.3.1 Invariance Analyses

Invariance analyses were conducted in order to examine age difference in the relations among the variables that comprise the SWB constructs, and to examine differences in the magnitude of the standardized coefficients from the predictors to the SWB constructs. Several levels of invariance analyses were evaluated. *Configural invariance*, in which the factor structure is constrained to be the same across the groups, serves as a baseline model. Good model fit provides evidence of configural invariance. *Metric invariance* is examined by constraining the unstandardized coefficients from the latent constructs to the observed variables to be the same across the groups. *Scalar invariance* is examined by constraining the intercepts on the latent variable indicators to be equal across the three age groups. An aspect of structural invariance was also examined by constraining coefficients from the predictors to the latent constructs to be the same across the groups. Invariance is tested by comparing the fit of each model to the previous model (i.e., the fit of the metric invariance model is compared to the fit of the configural invariance model, the fit of the scalar invariance model is compared to the fit of the metric invariance model, etc.). For all model comparisons, a change in CFI greater than  $-0.01$  is an indication of a substantial decrease in fit (Cheung and Rensvold 2002). Change in  $\chi^2$  per change in  $df$  can also be examined but because of its dependence on sample size it is often supplemented with inspection of change in CFI, and inspection of overall fit. If a model fits substantially worse than the previous model then evidence for invariance is lacking.

## 3 Results

Means, standard deviations, and age correlations for each of the variables are presented in Table 1. Age was significantly positively correlated with 4 of the 5 SWLS items, significantly positively correlated with positive affect, and significantly negatively correlated with each of the negative affect variables. Age was also significantly negatively correlated with four of the five social network composite scores such that increased age was associated with less friend and family embeddedness, less enacted support, and less provided support.

### 3.1 Predictors of Subjective Well-being

#### 3.1.1 Model 1

The model depicted in Fig. 1 fit well across the total sample ( $\chi^2 = 439.99$ ,  $df = 81$ ,  $\chi^2/df = 5.43$ , CFI = 0.957, RMSEA = 0.063). The standardized loadings from each latent construct to its respective observed variables were all fairly large (ranging from 0.56 to 0.92) and significantly greater than zero ( $p < .01$ ), thereby providing evidence of convergent validity. The life satisfaction construct significantly correlated  $-0.65$  and  $0.32$  with the negative affect and positive affect constructs, respectively. The positive and negative affect constructs were negatively correlated ( $r = -0.48$ ,  $p < .01$ ). Standardized regression coefficients from the social network variables to the latent subjective well-being constructs are presented in Table 2. Across the total sample, perceived support was a significant predictor of life satisfaction and negative affect. Enacted support was also a significant positive predictor of life satisfaction. Family embeddedness and provided support were significant predictors of positive affect.

**Table 2** Standardized regression coefficients (99 % confidence intervals) for each model

	Model 1	Model 2
<i>N</i>	1,111	1,111
<i>Life satisfaction</i>		
Family embeddedness → Life sat	0.03 (−0.04 to 0.10)	0.04 (−0.03 to 0.10)
Friends embeddedness → Life sat	0.04 (−0.03 to 0.11)	0.04 (−0.03 to 0.10)
Enacted support → Life sat	0.13* (0.03 to 0.23)	0.18* (0.09 to 0.26)
Provided support → Life sat	−0.02 (−0.11 to 0.06)	−0.05 (−0.13 to 0.03)
Perceived support → Life sat	0.18* (0.10 to 0.25)	0.10* (0.03 to 0.18)
Emotional stability → Life sat		0.33* (0.26 to 0.40)
Conscientiousness → Life sat		0.16* (0.09 to 0.23)
<i>Positive affect</i>		
Family embeddedness → Pos affect	0.09* (0.02 to 0.16)	0.09* (0.02 to 0.16)
Friends embeddedness → Pos affect	0.07 (0.00 to 0.15)	0.02 (−0.04 to 0.09)
Enacted support → Pos affect	−0.05 (−0.14 to 0.04)	−0.01 (−0.09 to 0.07)
Provided support → Pos affect	0.13* (0.04 to 0.23)	0.07 (−0.01 to 0.16)
Perceived support → Pos affect	0.05 (−0.03 to 0.12)	−0.02 (−0.09 to 0.05)
Emotional stability → Pos affect		0.24* (0.17 to 0.31)
Extraversion → Pos affect		0.22* (0.15 to 0.29)
Conscientiousness → Pos affect		0.22* (0.16 to 0.29)
<i>Negative affect</i>		
Family embeddedness → Neg affect	−0.02 (−0.10 to 0.05)	−0.03 (−0.08 to 0.02)
Friends embeddedness → Neg affect	−0.02 (−0.09 to 0.05)	0.02 (−0.03 to 0.07)
Enacted support → Neg affect	0.03 (−0.07 to 0.12)	−0.06 (−0.13 to 0.01)
Provided support → Neg affect	0.00 (−0.07 to 0.07)	0.06 (0.00 to 0.12)
Perceived support → Neg affect	−0.25* (−0.33 to −0.17)	−0.11* (−0.17 to −0.06)
Emotional stability → Neg affect		−0.66* (−0.74 to −0.57)
Extraversion → Neg affect		−0.13* (−0.17 to −0.08)
Conscientiousness → Neg affect		−0.20* (−0.25 to −0.15)

Model 1 included family embeddedness, friends embeddedness, enacted support, provided support and perceived support as simultaneous predictors of the three facets of SWB (life satisfaction, positive affect, and negative affect). Model 2 included three additional predictors (emotional stability, extraversion, and conscientiousness)

\*  $p < .01$

### 3.1.2 Model 2

The five personality composite variables were subsequently included in the model as predictors of SWB. Only those coefficients that were significantly different from zero were retained in the final model. Agreeableness and openness were not significantly associated with any facet of SWB so they were excluded from the model. The relationship between extraversion and life satisfaction was not significant, thus that path was also excluded from the model. The ensuing model fit well:  $\chi^2 = 488.00$ ,  $df = 106$ ,  $\chi^2/df = 4.60$ , CFI = 0.96, RMSEA = 0.057. With the inclusion of the personality variables as predictors, provided support was no longer a significant predictor of positive affect. To further assess this relationship partial correlations between provided support and positive affect were

examined controlling for each of the relevant personality variables (i.e., emotional stability, extraversion, and conscientiousness). Provided support and positive affect correlated 0.14 ( $p < .01$ ) and this correlation was changed to 0.10 ( $p < .01$ ), 0.15 ( $p < .01$ ), and 0.12 ( $p < .01$ ) when controlling for extraversion, emotional stability, and conscientiousness respectively. When all three personality variables were controlled for in one model, the correlation between provided support and positive affect was 0.09 ( $p < .01$ ).

In addition, the magnitude of the relationships between perceived support and life satisfaction and perceived support and negative affect were substantially reduced (0.18\* reduced to 0.10\*, and  $-0.25^*$  reduced to  $-0.11^*$ ). However, the overlapping 99 % confidence intervals suggest that the differences in magnitude are not significant.

Further, emotional stability and conscientiousness were positively associated with life satisfaction and positive affect and negatively associated with negative affect. Extraversion was positively associated with positive affect and life satisfaction.

### 3.2 Age Differences

To examine whether there were differences across age, the sample was divided into three age groups: young adults (ages 20–45,  $n = 230$ ), middle-aged adults (ages 46–65,  $n = 527$ ), and older adults (ages 66–95,  $n = 354$ ) and invariance analyses were conducted on the model with 8 predictors (family embeddedness, friend embeddedness, enacted support, provided support, perceived support, emotional stability, extraversion, and conscientiousness). The results presented in Table 3 indicate that despite significant decreases in fit as measured by the Chi square, the change in CFI was not substantial for any model comparison. Furthermore, the final invariance model fit well in absolute terms ( $\chi^2 = 931.89$ ,  $df = 402$ ,  $\chi^2/df = 2.32$ ; CFI = 0.94; RMSEA = 0.034). Thus, using guidelines suggested by Cheung and Rensvold (2002), the results indicate that the model demonstrated configural, metric, scalar and structural invariance across the three age groups. Specifically, the factor structure, the magnitude of the factor loadings, the observed variables intercepts, and the magnitudes of the coefficients from the predictors to the latent dependent variables were not substantially different across the age groups.

## 4 Discussion

Both social support and SWB are multi-dimensional constructs and in this study we sought to conduct a comprehensive investigation of the relationship among them. A novel aspect of this paper was the evaluation of how the different facets of social support relate to all facets of SWB simultaneously. By examining the social support predictors in one model we are able to evaluate the unique contribution of each predictor, independent of the variance it shares with the other predictors. Consistent with previous research, we found that the different forms of SWB were differentially related to the facets of social support. Specifically, *life satisfaction* was predicted by enacted and perceived support, *positive affect* was predicted by family embeddedness and provided support, and *negative affect* was predicted by perceived support.

Whereas past research has found that enacted support is often associated with increases in negative affect, we found that enacted support was associated with increased life satisfaction. One potential explanation of this finding can be linked to recent work that found that material conditions (income, having a television, having a computer, access to internet, etc.) are more strongly associated with life satisfaction than positive or negative affect,

**Table 3** Invariance analyses across age groups for Model 2

Model	$\chi^2$	<i>df</i>	$\chi^2/df$	CFI	RMSEA	$\Delta\chi^2$	$\Delta df$	<i>p</i> < .01	$\Delta$ CFI
Configural invariance	742.59	318	2.34	0.955	0.035				
Metric invariance	780.76	334	2.34	0.952	0.035	38.18	16	Yes	-0.003
Scalar invariance	867.33	356	2.44	0.946	0.036	86.57	22	Yes	-0.006
Structural invariance	931.89	402	2.32	0.944	0.034	64.55	46	No	-0.002

In the configural invariance model only the structure was constrained to be the same across the age groups. In the metric invariance model coefficients from the latent constructs to observed variables were constrained to be equal across the three age groups. In the scalar invariance model the intercepts on the latent indicators were constrained to be equal across the three age groups. In the structural invariance model the regression coefficients from the predictors to the latent subjective well-being construct were constrained to equal across the three age groups

whereas social psychological prosperity (measured by perceived social support, feeling respected, learning something new, doing what you do best, choosing how your time is spent) was more strongly associated with positive affect than life satisfaction (Diener et al. 2010). Receiving support (i.e., enacted support) suggests that living conditions were improved when needed. To the extent that life satisfaction is based in part on living conditions, it makes sense that enacted support would be positively associated specifically with life satisfaction.

Perceived support was a predictor of both increased life satisfaction and decreased negative affect, which is consistent with previous research (Newsom and Schulz 1996; Sarason et al. 1997). Perceived support may increase one's coping competence by providing comfort that supporters are available to help if needed (Wethington and Kessler 1986). Perceived support is also not confounded with incidents of distress in the same way that enacted support may be.

In the current study, social embeddedness was measured by the frequency of contact with family and friends. Results showed that family embeddedness predicted positive affect. Our results are also consistent with results reported by Pinquart and Sörensen's (2000) meta-analysis of SWB in older age, which found that social network size (a measure of embeddedness) is associated with happiness (a measure of positive affect). Although Pinquart and Sörensen (2000) found that social network quality was a better predictor of SWB than social network size, social embeddedness has also been viewed as a psychological resource.

The relationship between neuroticism and extraversion and the affective components of SWB is well-documented (e.g., Diener and Lucas 1999; Finch et al. 1999; Schimmack et al. 2002; Steel et al. 2008). This relationship can be explained through both direct and indirect mechanisms. For example, research on the neurotransmitter serotonin suggests that there is evidence of a neurobiological link between neuroticism and depressive and affective disorders (e.g., Frokjaer et al. 2008). Personality can also indirectly impact SWB by influencing life events. Notably, sociability (a facet of extraversion) has been linked to increased positive affect (Emmons and Diener 1986); sociable individuals spend more time in social situations, which has been linked to happiness (Emmons et al. 1985). Life satisfaction has also been linked to personality traits, as demonstrated by the results of the meta-analyses reported by Steel et al. (2008). Although the strongest associations involve neuroticism and extraversion, conscientiousness and agreeableness also have moderate associations with SWB. We found that when entered simultaneously in a model that also included social support variables as predictors, emotional stability (conceptually at the

opposite end of the scale to neuroticism), extraversion, and conscientiousness had significant associations with each facet of SWB.

Interestingly, once the personality variables were included in the model, the relationship between positive affect and provided support became non-significant. Since provided support has been consistently linked to increased well-being (e.g., Brown et al. 2003; Lu 1997; Thomas 2010), our findings suggest that it is important to include assessments of personality when evaluating the relationships between social support and SWB. The relationship between positive affect and provided support was reduced the most when controlling for the personality dimension of extraversion. This suggests that personality, and extraversion in particular, is related to provided support. This may be because individuals who are more extraverted generally have more friends (e.g., Demir and Weitekamp 2007; Hills and Argyle 2001; Pollet et al. 2011) and thus additional opportunities to provide support. In addition, the magnitude of the relationships between perceived support and negative affect and between perceived support and life satisfaction were reduced when the personality variables were included in the model (although the differences were not significant). This can be partially explained by the fact that perceived support has been viewed as stable, individual differences characteristic which may reflect relationship well-being (e.g., Goodwin et al. 2004; Sarason et al. 1986). For example, Sandler and Barrera (1984) found that enacted support did not correlate with measures of anxiety, depression, somatization, or psychological disorder, but a support satisfaction scale (i.e., perceived support) related to all of the measures.

We found no significant differences across three age groups (i.e., young, middle-aged, and older adults) in terms of the relations among the variables, magnitudes of loadings, or the magnitude of the standardized coefficients from the predictors to SWB. These findings therefore suggest that social support and personality have similar influences on SWB across age. Thus despite potential differences in social goals with age, the influence of the different facets of social support do not appear to differ significantly across age.

#### 4.1 Limitations and Future Directions

Despite the fairly large sample that spans the adult lifespan, there are some limitations to the current study. Our sample comprised individuals who were relatively healthy and performed normally on a screening test for dementia. As such, their need for help in everyday life may be limited, and our findings may not generalize to populations who are not healthy and relatively independent. In addition, our sample was composed of mostly White participants and thus future studies should test the generalizability of our findings to non-White, non-Western samples. Because the study was cross-sectional in nature, we are unable to make casual inferences—longitudinal studies would help to explicate the directionality of the relationships.

## 5 Conclusion

A major aim of the current study was to understand the nature of the association between social support and SWB, in an attempt to understand why quality of social relationships is so beneficial. We conducted a comprehensive examination of the relationship among two multi-dimensional constructs—social support and SWB. Our results suggest that the different facets of SWB can be predicted by different aspects of social support. We found that perceived support was a significant predictor of life satisfaction and negative affect,

enacted support was a significant predictor of life satisfaction, and family embeddedness had unique relations with positive affect.

It makes sense that both enacted support and perceived support are predictors of life satisfaction. Life satisfaction is an overall evaluation of life and thus perceived social support (namely an expectation of being able to rely on someone when needed) is important. Furthermore, life satisfaction is based in part on living conditions so enacted support may be an important component of improving living conditions when needed.

The relationship between perceived support and negative affect may be interpreted as consistent with previous research that has shown that perceived support is correlated with anxiety and depression (Sandler and Barrera 1984), and to some degree may be considered an individual differences characteristic. Thus is it not surprising that the relationship between perceived support and negative affect was reduced when the personality variables (including emotional stability) were included in the model.

In conclusion, our findings suggest that different facets of social support differentially predict the facets of SWB. It remains unclear, however, why a particular facet of social support is linked to a particular facet of SWB. For example, the relationship between enacted support and living conditions can be examined to evaluate whether the relationship between enacted support and life satisfaction can be explained by their link to living conditions. Future studies should seek to further elucidate underlying mechanisms between social support and SWB.

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