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Do Associations Between Sense of Purpose, Social Support, and Loneliness Differ Across the Adult Lifespan?

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Past research has suggested that the path to purpose involves connections with people along the way. In support, sense of purpose appears higher amongst those adults with more positive social relationships and interactions. However, research has yet to consider whether associations between sense of purpose and social relationship variables differ across adulthood. The present study examined this claim using a sample of Swiss adults, who completed measures for sense of purpose, loneliness, received support, and provided support. A large, nationally representative sample of 2,312 Swiss adults (52.34 years old; $SD = 17.35$) completed these measures, as part of a larger survey. Local structural equation modeling was employed to estimate the means and associations of these constructs across adulthood. Sense of purpose was negatively associated with loneliness, but positively associated overall with both support variables. No evidence was found for age moderation for the association between sense of purpose and loneliness. However, moderation was evidenced insofar that sense of purpose was less associated with both support variables with age. Sense of purpose again appears related to more positive social well-being and relationships, and consistently linked to lower loneliness. The age moderation effects for purpose-support associations are discussed with respect to theories of adult development.

Public Significance Statement
The present study helps advance our understanding of how closely social support and loneliness are tied to feeling purposeful and goal-directed across the adult years. Given the importance of sense of purpose for healthy aging, this work provides further insight into when social roles and interactions are more central to a sense of direction in life.

Keywords: sense of purpose, social support, loneliness, local structural equation modeling, age moderation

Adults who report both greater social support (e.g., Weston et al., 2021) and more positive social interactions (e.g., Pfund, Hofer, et al., 2022) tend to feel a greater sense of purpose. Sense of purpose is often defined as the perception one has a sense of direction in life guided by commitment to a life aim (Ryff, 1989a), which helps promote greater life engagement (Scheier et al., 2006). Increasing attention has been paid to understanding the correlates of sense of purpose, given that multiple studies have pointed to how sense of purpose may prove critical for promoting healthy aging (Pfund & Lewis, 2020). Missing from the literature though are two critical pieces for understanding the connections between sense of purpose and the social environment over time. First, research is needed to examine whether having a sense of purpose is more or less tied to having supportive, positive social ties throughout adulthood. Finding evidence that associations differ can help elucidate linkages between sense of purpose and theories of adult social development, which have described the potential for social goals to change across adulthood (e.g., Socioemotional Selectivity Theory; Carstensen et al., 1999). Second, extant work on sense of purpose typically focuses on a single indicator of social relationships, such as perceived support (Weston et al., 2021) or loneliness (Sutin et al., 2022). This work thus fails to provide deeper insights into when providing or receiving support may be more tied to feeling purposeful, or

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The current findings and work were not disseminated prior to submission. We reanalyzed an existing panel study data set (MOSAiCH; Stähli et al., 2021), which can be downloaded free of charge by researchers at https://www.swissubase.ch. Sample size thus was determined by the available data, and we included all potential responses. All analyses were run in R Version 4.1.3 (R Core Team, 2022) with the R packages *dplyr* (Wickham, François, Henry, & Müller, 2022), *haven* (Wickham, Miller, & Smith, 2022), *lavaan* (Rosseel, 2012), *psych* (Revelle, 2022), *semTools* (Jorgensen et al., 2022), and *sirt* (Robitzsch, 2020). Analysis scripts are available in an Open Science Framework repository at https://osf.io/2yjea/?view_only=2d12d83af8fe4e84bff8256267e6eea4.
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The present study was not preregistered.
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whether sense of purpose is equally linked to more positive versus negative social indicators.

The present study addresses these concerns by examining whether associations between sense of purpose and social variables differ throughout adulthood. This investigation employs data from the Measurement and Observation of Social Attitudes in Switzerland (MOSAiCH; Stähli et al., 2021) study of Swiss adults, ranging from emerging to older adulthood. Participants completed measures of sense of purpose, loneliness, received social support, and provided social support. As such, the present study focuses on perceptions, behaviors, and feelings related to social relationships, rather than on objective presence or absence. Throughout, we thus refer to "received support" and "provided support" with respect to the participants' self-reported perceptions on each front, rather than capturing a more dyadic perspective on support. The present study employed local structural equation modeling (LSEM; Hildebrandt et al., 2009, 2016; Olaru et al., 2019), allowing us to estimate the associations based on latent variables and examine nonlinear age-moderation patterns across continuous age instead of commonly used age groups (e.g., multigroup confirmatory factor analysis). Using this strategy, we examined three critical research questions. First, we expected to replicate and extend past work demonstrating that sense of purpose is positively associated with social support but negatively with loneliness. Second, we provided the most comprehensive examination to our knowledge of whether these associations differ across the adult years, which may be expected given the differing life tasks and challenges faced. Third, we compared age moderation findings across the social variable of interest, which has been underexamined given most of the literature on purpose and social development has focused on a single social indicator.

Given the cross-sectional nature of the MOSAiCH study, all these questions consider age differences in the associations between sense of purpose and social indicators. This work sets the stage for later longitudinal investigations that can more thoroughly consider directionality in these associations. That said, we outline below the past theoretical and empirical work that considers these associations from both directions, in order to underscore that bidirectionality is both possible and in fact likely. Moreover, we describe when during adulthood a directional finding may be stronger or weaker, as support for when the basic, zero-order association between purpose and social indicator of interest may differ in magnitude.

Purpose and Social Development in Adulthood

Although sense of purpose appears valuable for development across the adult years (Pfund & Lewis, 2020), few studies have considered its differential correlates from a lifespan perspective. The present study focused on addressing this need with respect to social indicators of support and isolation, given a burgeoning theoretical and empirical literature pointing to connections between social environments and sense of purpose. During adolescence and emerging adulthood, researchers have noted how instructors (Colby, 2020; Pfund et al., 2020), peers (Lund et al., 2022), and parental attachments (Hill et al., 2016) may play a critical role in helping individuals shape their purpose in life. These social connections provide role models, supportive figures, and "sounding boards" for discussions on which future avenues are viable for the individual. Socioemotional selectivity theory (Carstensen et al., 1999) suggests that individuals are most likely to employ their social relationships to discover personal strengths and identity-relevant information during adolescence and young adulthood. As such, one may expect social connections to be most associated with sense of purpose during younger adulthood.

That said, social connections should remain important correlates with sense of purpose throughout adulthood. First, socioemotional selectivity theory points to how individuals may winnow their social networks to focus on social ties of greatest personal meaning (Carstensen, 1992; Carstensen et al., 1999); individuals may make these choices based on which social connections best scaffold their pursuit of purpose-driven aims. Second, qualitative studies with middle and older adult samples suggest that social relations and support are critical to how people think about living a purposeful life (e.g., Lewis et al., 2022; Sharma & Bluck, in press). These studies find that, when asked what it means to have a purpose, individuals often discuss connections to others and working toward prosocial aims, that make a difference.

Underlying this work is the common belief that purpose development and social connections go hand-in-hand over adulthood. Purposeful individuals may develop more positive social relations as part of their purpose-driven pursuits, because these pursuits lead them to connect more with others. Pursuing a purpose likely makes an impact on others (see Damon et al., 2003), which presumably may led to opportunities to build support and avoid loneliness. In tandem, it may prove difficult to feel purposeful and directed in life without positive connections to others, particularly when starting out on the path to purpose. Theories of purpose development posit that one pathway to finding a purpose is through social learning, and having connections with role models (Hill et al., 2014; Kashdan & McKnight, 2009). As such, sense of purpose may be more tied to supportive social relations earlier in adulthood, when one needs assistance finding their direction in life.

Differences Across Social Measures

That said, social support is not a unitary construct (e.g., Uchino et al., 1996), and indicators of social function and dysfunction may be differentially related to well-being. The present study thus focused on three self-perceptions related to the social environment: received support, provided support to others, and their levels of loneliness. Each of these social indicators is linked to the theoretical literatures noted above. Received support provides insight into whether people feel scaffolded and assisted by others in their goal and life pursuits. Provided support connects to whether purposeful people help and make a difference for others. Finally, purposeful individuals will have difficulty engaging with their goals, regardless of the aim, when they feel more lonely and isolated. Past research has demonstrated that all three are significantly associated with sense of purpose, though the literature has largely yet to investigate age moderation in any case.

Sense of Purpose and Received Support

Using data from the Health and Retirement Study (Sonnega et al., 2014), research finds that sense of purpose is associated with social support cross-sectionally and longitudinally in older adulthood (Weston et al., 2021). In that work, purposeful adults were more likely to report positive support (and less strain) across all social relationships. Moreover, as people felt more supported over time,

they also tended to report greater sense of purpose. Missing from the purpose-support literature though is a broader representation of the adult years, as the literature typically has focused on older adult samples, with some studies among adolescent and emerging adult samples (e.g., Mariano et al., 2011).

The focus on these two ends of adulthood is not without reason. Again, it is likely that receiving support may be more valuable when people first start cultivating a life direction, around adolescence, and emerging adulthood. However, middle adulthood tends to be a period of higher sense of purpose relative to other points of the lifespan (Ryff, 1989b; Ryff & Keyes, 1995). As such, there may be a reduced need for support from others because middle adults are committed to their purposeful roles. Later in the lifespan, the need for support may arise again for two reasons. First, retirement brings the opportunity to find new purposeful pursuits (Yemiscigil et al., 2021), but it may require assistance from others to find new activities. Increased activity engagement appears to promote sense of purpose among retirees (Lewis & Hill, 2020), and this engagement may be linked to more connections and support from others. Second, support may be more necessary as physical and cognitive functioning declines. Studies show that older adults with limitations or chronic conditions still report moderate-to-high levels for sense of purpose (Hill, Beck, et al., 2021). However, work also suggests that social support may help distinguish which adults are more likely to report higher levels when dealing with a condition (Lewis et al., 2020). Therefore, one would predict a potential U-shaped age moderation, wherein sense of purpose is most associated with received support during early and late adulthood.

Sense of Purpose and Provided Support

Provided support though would appear to have a less clear story for age moderation. Two accounts exist for why sense of purpose would positively relate to provided support: (a) individuals with a clearer life direction are better able to pursue it, thus enabling them to impact others and (b) people may derive a sense of purpose from helping others. The first account would predict an upside-down U-shaped age moderation, because middle adulthood again seems to be a period where individuals reach a peak sense of purpose (Ryff, 1989b; Ryff & Keyes, 1995). Reasons for this peak include that individuals may be more settled in their work, family, and community roles during middle adulthood, allowing them greater ability to pursue purposeful aims (Pfund & Lewis, 2020). This point also suggests why the provision of support may be greater at this time, as purposeful individuals may have greater ability to support others in these committed roles.

The second account though presents the potential for similar associations to hold across adulthood. Prosocial purposes, life goals focused on helping others in need, appear moderately stable from young to middle adulthood (Hill et al., 2010, 2011), and that work finds levels of prosocial purpose endorsement remain high across time. With respect to older adulthood, qualitative interviews find that retirees often find purpose through helping those in their retirement community (Lewis et al., 2022). Accordingly, providing support to others may be viewed as a consistent path to feeling purposeful across adult development. This prediction also arises when considering the tasks of identity development during adulthood. Identity theory (Erikson, 1959) underscores the importance of providing for others at each adult stage, including being a supportive partner in intimate relationships, a generative individual, and someone capable of imparting wisdom upon future generations.

Sense of Purpose and Loneliness

Recent meta-analytic work across 36 cohorts (total n = 135,227) found that sense of purpose was significantly, negatively associated with loneliness (Sutin et al., 2022). However, tests of linear age moderation effects for this association led to mixed results: across samples, there was some evidence for age moderation in both direction. In most samples, though, the study found nonsignificant moderation, and none of the interaction terms were substantial in magnitude (largest effect size was .08). These findings coincide with a lack of theoretical grounds for why loneliness would be differentially related to sense of purpose with age. If leading a purposeful life involves greater life engagement (Scheier et al., 2006), any such engagement would almost necessitate being around others to some capacity.

However, the present study sought to address two potential limitations of that previous work (Sutin et al., 2022). First, the meta-analysis included several studies that, by study design, had limited age representation across adulthood, due to their focus on older or middle adult development. Second, the work examined only linear age moderation effects, due to its employment of typical regression-based strategies. The present study instead employs a nationally representative sample of Swiss adults, allowing for greater representation for each age group. Moreover, we tested all age moderation effects using a LSEM (Hildebrandt et al., 2009, 2016; Olaru et al., 2019) strategy. This approach allows greater insight into nonlinear moderation effects, by estimating the associations between sense of purpose, loneliness, and social support at each year of age. LSEM can estimate the associations at each year of age by using a sample weighting approach to achieve a sufficient sample size for the estimation of the models at each year. This allows us to identify nonlinear age moderation effects and identify critical age points at which associations change substantially.

The Present Study

The present study employed Measurement and Observation of Social Attitudes in Switzerland (MOSAiCH; Stähli et al., 2021) data to test three research questions. First, we expected to replicate past research that sense of purpose was negatively associated with loneliness, but positively associated with received and provided support. The current work provides one of the first efforts to examine all three in the same sample, providing insights into differential associations across social indicators. Second, we predicted that sense of purpose would be more associated with received support in early and older adulthood. This examination would provide a critical foundation for future work on how receiving support may help promote feeling purposeful (and vice versa), by establishing when such efforts may be more useful. Third, we explored age moderation for associations between sense of purpose and either loneliness or provided support, but we did not make predictions given the lack of empirical and theoretical grounds. Indeed, the current work advances the literature by providing a foundation for connecting sense of purpose to theories of adult social development, such as socioemotional selectivity theory, which provide age-graded predictions regarding when and which social ties may be more salient for adult development.

Method

Transparency and Openness

The present study was not preregistered. We reanalyzed an existing panel study data set (MOSAiCH; Stähli et al., 2021), which can be downloaded free of charge by researchers at https://www.swissubase.ch. Sample size thus was determined by the available data, and we included all potential responses. All analyses were run in R Version 4.1.3 (R Core Team, 2022) with the R packages *dplyr* (Wickham, François, Henry, & Müller, 2022), *haven* (Wickham, Miller, & Smith, 2022), *lavaan* (Rosseel, 2012), *psych* (Revelle, 2022), *semTools* (Jorgensen et al., 2022), and *sirt* (Robitzsch, 2020).

Participants

Data for the present study came from the MOSAiCH study (Stähli et al., 2021). MOSAiCH provides a nationally representative sample of Swiss adults, who complete a long, multifaceted survey in two parts. Participants reported on topics including health care utilization, health status, demographics, social attitudes, and household background. In the 2021 survey, they included measures of sense of purpose, loneliness, and received or provided social support for the first time, and the present study thus focused on data from this assessment. Surveys are translated into German, French, or Italian to suit the participant's spoken language. The final analytic sample included 2,312 participants (53.6% female), who were on average 52.34 years old ($SD = 17.35$; range 19 to 91 years old). With respect to the highest level of education achieved, 2.5% have completed early childhood and primary school, 13.8% lower secondary education, 3.6% elementary vocational training, 22.4% full vocational training, 8.2% a general secondary education degree qualifying for tertiary education, 18.0% higher vocational training, 13.4% a degree (bachelor or master) from an applied/vocational university, 14.4% a degree (bachelor or master) from a university, and 3.3% a PhD. Participants also reported on their health using a single-item, "In general, would you say your health is … " on a scale from 1 (*excellent*) to 5 (*poor*). After reverse-scoring the item, participants reported relatively good physical health on average ($M = 3.46$, $sd = 1.07$). This study was deemed exempt from ethics review by Washington University, due to the use of a publicly available data source.

Measures of Interest

Full details on survey administration are available on the MOSAiCH platform (Stähli et al., 2021). Below we report the primary measures of interest.

Sense of Purpose

Participants completed the six-item Life Engagement Test (Scheier et al., 2006), which was developed by health researchers for capturing sense of purpose. The initial measure development study provided evidence for the measure's construct validity and reliability across multiple general population and clinical samples. Sample items include "There is not enough purpose in my life" and "I value my activities a lot." Participants respond to these items using a Likert scale from 0 (*does not apply at all*) to 6 (*applies completely*). Reliability in the current sample was $\alpha = .78/\omega = .79$.

Loneliness

Loneliness was measured with three items. Participants were asked to what extent they experienced the following feelings during the last 4 weeks: "lack of companionship," "isolated from other people," and "left out or passed over." Participants responded on a 5-point Likert scale ranging from 1 (*never*) to 5 (*very often*). Reliability in the current sample was $\alpha = .80/\omega = .83$.

Provided and Received Social Support

Provided and received social support was measured with three items each. Participants were asked whether they provided/received "emotional support," "practical advice," and "information" to/from the most important people in their life (e.g., partner, family members, close friends). Participants responded on a 5-point Likert scale ranging from 1 (*not at all true*) to 5 (*extremely true*). Reliability for provided and received social support was $\alpha = .86/\omega = .86$ and $\alpha = .83/\omega = .83$, respectively. Preliminary analyses did find that a two-factor structure was a better fit to the data than considering support as a single factor; therefore, we retained and examined these constructs as separate.

Analytic Plan

First, we established and tested the measurement models for sense of purpose, loneliness, and provided/received social support in a confirmatory factor analysis using common cutoffs for goodness-of-fit indices (Bentler, 1990; Hu & Bentler, 1999). To examine how the factor means and associations change across age, we used LSEM (Hildebrandt et al., 2009, 2016; Olaru et al., 2019). LSEM allows for a model estimation at each year of age using sample weights instead of grouping participants into age groups. For each model estimation, sample weights are based on the participant's age in comparison to the target age for the model. For example, for estimating the model at age 30, 30-year-old participants are fully weighted (i.e., 1), 29- and 31-year old participants are weighted slightly lower (i.e., 0.9), 28- and 32-year old participants even lower (i.e., 0.8), and so on. To ensure that the weights are particularly high for participants close to the target age, the weighting function follows a Gaussian kernel function (see Olaru et al., 2019, for an illustration). We estimated the models from a target age of 24 years to 80 years at every year of age. We chose 24 and 80 years of age as boundaries because the symmetrical weighting function in LSEM requires participants on both sides of the target age. The ages of 24 and 80 years represented the 5% and 95% percentiles of the age distribution, ensuring that 5% participants were available outside of the chosen age range (see also Hartung et al., 2018; Olaru et al., 2019). This resulted in a weighted sample size from $Nw = 399.6$ at age 24 to $Nw = 368.3$ at age 80, with a peak of $Nw = 828.2$ at age 56.

To test whether the age effects were significant, we used a permutation test (Hülür et al., 2011). In the permutation test, the estimates across age are compared to a distribution of estimates based on a 1,000-fold random allocation of age to participants. By randomly reassigning age to participants, any systematic effect of age on model parameters such as factor means or correlations should be eliminated. As such, the percentile of the original estimates within this distribution of 1,000 estimates can be interpreted similar to p values.

Before examining how factor correlations and means changed across age, we tested for measurement invariance across age. We tested if

factor loadings and item intercepts could be constrained to equality across age. To do so, we used the joint estimation function for LSEM (Robitzsch, 2020), which corresponds to a multigroup factor analysis in which weighted sample is treated like an independent group. This allows for constraining factor loadings and item intercepts to equality across age and comparing the effects on model fit using conventional cutoffs (i.e., Δ comparative fit index [CFI] = .010; Chen, 2007).

The LSEM strategy thus improves upon the traditional strategy of basic regression tests of moderation using age as a continuous variable in at least three critical ways. First, it enables us to estimate associations between the variables of interest at different points of the age continuum, as evidenced in the figures below. Second, it allows us a fuller consideration of how age influences all aspects of the structural equation model (factor means, item loadings, and so forth). Third, it helps accounts for the fact that samples may not be evenly distributed across age. The estimation strategy accounts for the fact that some ages may have more representation than others, and weights the age-based estimates according to the available data.

Results

Based on commonly observed effect sizes in individual differences research (Gignac & Szodorai, 2016), we interpret a correlation of $.10 < r \geq .20$ as weak in magnitude, of $.20 < r \geq .30$ as moderate, and of $.30 < r$ as strong. Because of the large number of tests, we used a significance level of $\alpha \leq .01$ throughout. Table 1 presents descriptive statistics and zero-order correlations for sense of purpose, loneliness, social support, and demographic variables.

Figure 1 shows the factor loadings and correlations associated on the full sample (with and without controlling for age, gender, education, income, self-rated health, and retirement status). In support of our first hypothesis, sense of purpose was moderately positively associated with social support, and strongly negatively with loneliness. We found no associations between social support and loneliness. The observed associations were similar between the model in which we did and did not control for covariates.

Measurement Invariance

Before examining the effect of age on factor means and correlations, we tested for measurement invariance (see Table 2). For purpose, received, and provided social support, scalar measurement invariance was supported (i.e., ΔCFI < .01 between nested models). For loneliness, only metric measurement invariance could be achieved (scalar: ΔCFI = .015). An examination of the item intercepts showed that this was due to responses to Item 3 ("left out or passed over") decreasing much stronger across age ($r = -.20$) than Item 1 ("lack of companionship"; $r = -.05$) and Item 2 ("isolated from others"; $r = -.10$).

Age Differences in the Factor Means

Next, we considered age trends in the constructs, and factor means across age are presented in Figure 2. To estimate the factor means, we identified the factors using the effects coding approach by constraining the factor loadings of a factor to an average of 1 and the item intercepts to an average of 0 (in contrast to the default factor identification approach in which the first loading is constrained to 1 and the factor means to 0; see Little et al., 2006). This ensures that the factor means represent a weighted (by the loadings) mean of all items on the same metric as the items (i.e., 0–6 for purpose; 1–5 for loneliness, provided, and received social support). All factor means were significantly affected by age ($p < .001$). Purpose increased from an initial value of $M = 4.41$ at 24 years of age to $M = 4.87$ at age 64, and then decreased again to $M = 4.68$ at 80 years of age. Received and provided social support were highest in young adulthood ($M = 3.39/3.52$), and continuously decreased until old age ($M = 2.78/2.66$). For loneliness, scalar measurement invariance was not reached (see Table 2), suggesting that the items showed differential patterns across age. However, because the scale consisted of only three items, we deemed estimating the factor mean using the effects coding approach on all items more adequate than to estimate it just based on two items under partial invariance constraints. More items would have been preferable to identify a group of invariant items and ensure that the third item represents a deviation from the trend. Based on all three items, we found a decrease in loneliness from $M = 2.50$ to $M = 2.18$ across the entire age range (estimating the factor mean only based on the first two items resulted in a decrease from $M = 2.39$ to $M = 2.08$).

Age Differences in the Factor Correlations

To test whether age moderated associations between sense of purpose and social variables, we then estimated factor correlations across age, which are presented in Figure 3. Because controlling for the covariates did not affect the factor correlations, we estimated the

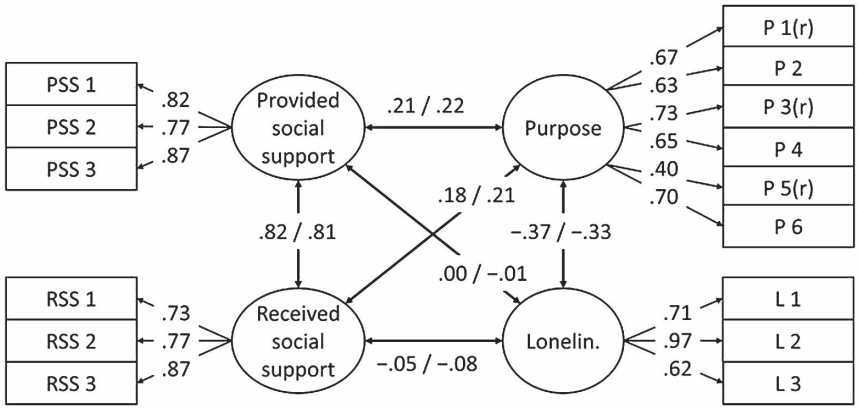
Table 1
Descriptive Statistics and Correlations

Variable	*N*	*M*	*SD*	1	2	3	4	5	6	7	8	9
1. Age	2,311	52.34	17.35	—								
2. Gender (female)	2,312	1.54	0.50	−.05*	—							
3. Education	2,232	11.33	6.77	−.21**	−.11**	—						
4. HH income	1,856	5.52	2.66	−.19**	−.09**	.38**	—					
5. Retired	2,312	0.24	0.43	.68**	−.02	−.18**	−.27**	—				
6. Health	2,304	3.46	0.86	−.23**	.00	.21**	.23**	−.21**	—			
7. Purpose	2,300	4.68	1.07	.11**	.02	.07**	.04	.01	.25**	—		
8. Loneliness	2,305	2.31	0.90	−.13**	.04	.00	−.01	−.05*	−.14**	−.35**	—	
9. Rec. social support	2,283	3.10	1.11	−.18**	.12**	.13**	.19**	−.15**	.10**	.16**	−.06**	—
10. Pro. social support	2,282	3.23	1.06	−.29**	.11**	.21**	.19**	−.26**	.22**	.17**	.00	.68**

Note. HH income = household income; Rec./Pro. social support = received/provided social support.
* $p < .05$. ** $p < .01$.

Figure 1

Factor Loadings and Correlations for the Four Primary Constructs of Interest



Note. Presented are the standardized factor loadings and factor correlations estimated on the full sample ($N = 2{,}312$). Correlations before the slash are uncontrolled for any covariates, correlations after the slash controlled for age, gender, education, income, subjective health, and retirement status.

model without covariates across age to not restrict the sample due to missing values on the covariates (e.g., household income). Counter to our second hypothesis, the correlation between purpose and received support decreased continuously with age from $\rho = .36$ to $\rho = -.01$ (age moderation: $p = .008$). Regarding our third research question, there was evidence of age moderation as well for associations between purpose and provided support $\rho = .38$ to $\rho = .09$ (age moderation $p < .001$). Although, we found some fluctuations for the correlation between purpose and loneliness from $\rho = -.47$ to $-.29$ across age, the effect of age was not significant ($p = .202$).

For full presentation and sake of comparison, we also examined age moderation in associations for the social variables. The correlation between loneliness and received social support was also significantly moderated by age ($p < .001$). In young adulthood, the correlation was around $\rho = -.19$ ($p < .001$), but did not differ significantly from 0 (at the $p < .01$ level) from 56 to 80 years of age. Despite descriptive similarities to the correlation with received support, the correlation between loneliness and provided support was nonsignificant across the entire age range, and also not moderated by age ($p = .015$). And finally, the correlation between received and provided social support decreased from $\rho = .92$ to $\rho = .74$ across age (all $p < .001$), but the age moderation was not significant ($p = .011$).

Discussion

The route to a purposeful life typically is not a path taken on one's own; social connections and close others along the way provide support for, sources of, and even recipients of purposeful pursuits. The present study provided empirical support for this claim across the adulthood, as sense of purpose overall was related to less loneliness, more provided support, and greater perceived support. Using LSEM analyses, we were able to more precisely estimate the associations between these constructs at different ages in adulthood, which yielded important findings for age moderation. To start, sense of purpose was negatively associated with loneliness to a similar magnitude across the adult years. Moreover, this work replicated and extended the previous suggestion that age moderation effects are minimal for this association (Sutin et al., 2022). However, sense of purpose was less associated with both support variables with increasing age, to the point that support was largely unassociated with sense of purpose by age 80. We start our discussion by considering these unexpected findings, before describing additional results. When describing these findings, we point to potential implications for future longitudinal research that can consider directionality of these associations.

Age Moderation of Sense of Purpose and Received Support

Although received and provided support were highly correlated but distinct in the present study, it is valuable to consider them separately when couching the current findings in the purpose literature. Past research has suggested the importance of receiving

Table 2

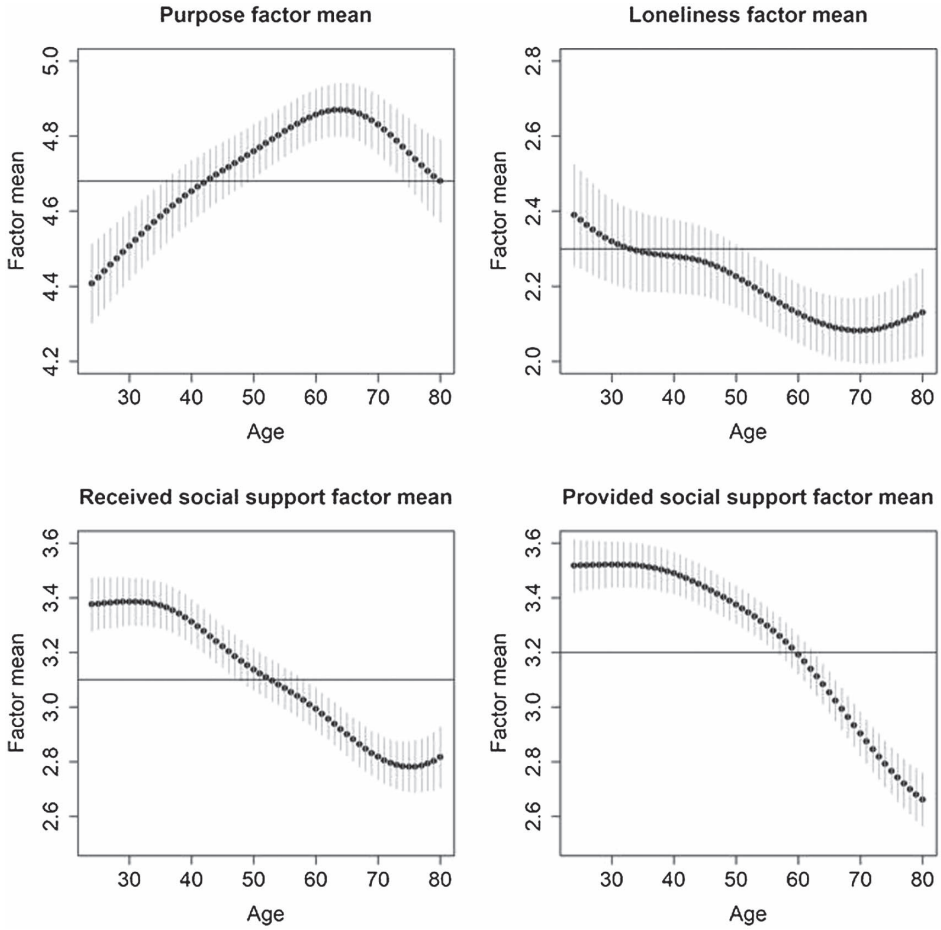
Measurement Invariance Across Age

	Purpose			Loneliness			Received social support			Provided social support		
MI level	CFI	RMSEA	SRMR	CFI	RMSEA	SRMR	CFI	RMSEA	SRMR	CFI	RMSEA	SRMR
Configural	.970	.072	.029	1.000	.000	.000	1.000	.000	.000	1.000	.000	.000
Metric	.972	.056	.034	**.999**	**.020**	**.024**	1.000	.000	.013	1.000	.000	.013
Scalar	**.965**	**.054**	**.039**	.984	.068	.043	**1.000**	**.000**	**.013**	**.996**	**.038**	**.025**

Note. MI level = measurement invariance level; CFI = comparative fit index; RMSEA = root-mean-square error of approximation; SRMR = standardized root-mean-square residual. Supported measurement invariance levels (based on ΔCFI < .010) are marked in bold.

Figure 2

Factor Means of Purpose, Loneliness, and Social Support Across Adulthood



Note. Presented are the (cross-sectional) factor means and confidence intervals estimated at each age point with local structural equation modeling (LSEM).

support from close connections particularly in the earlier years of purpose development (e.g., Mariano et al., 2011). Similarly, socioemotional selectivity theory points to how individuals are less likely to use their social networks for learning about themselves and personal identities as they age (Carstensen et al., 1999). Therefore, the current findings do align with these predictions, insofar that the association between received support and sense of purpose peaked at the youngest age in our sample, during the period of young adulthood.

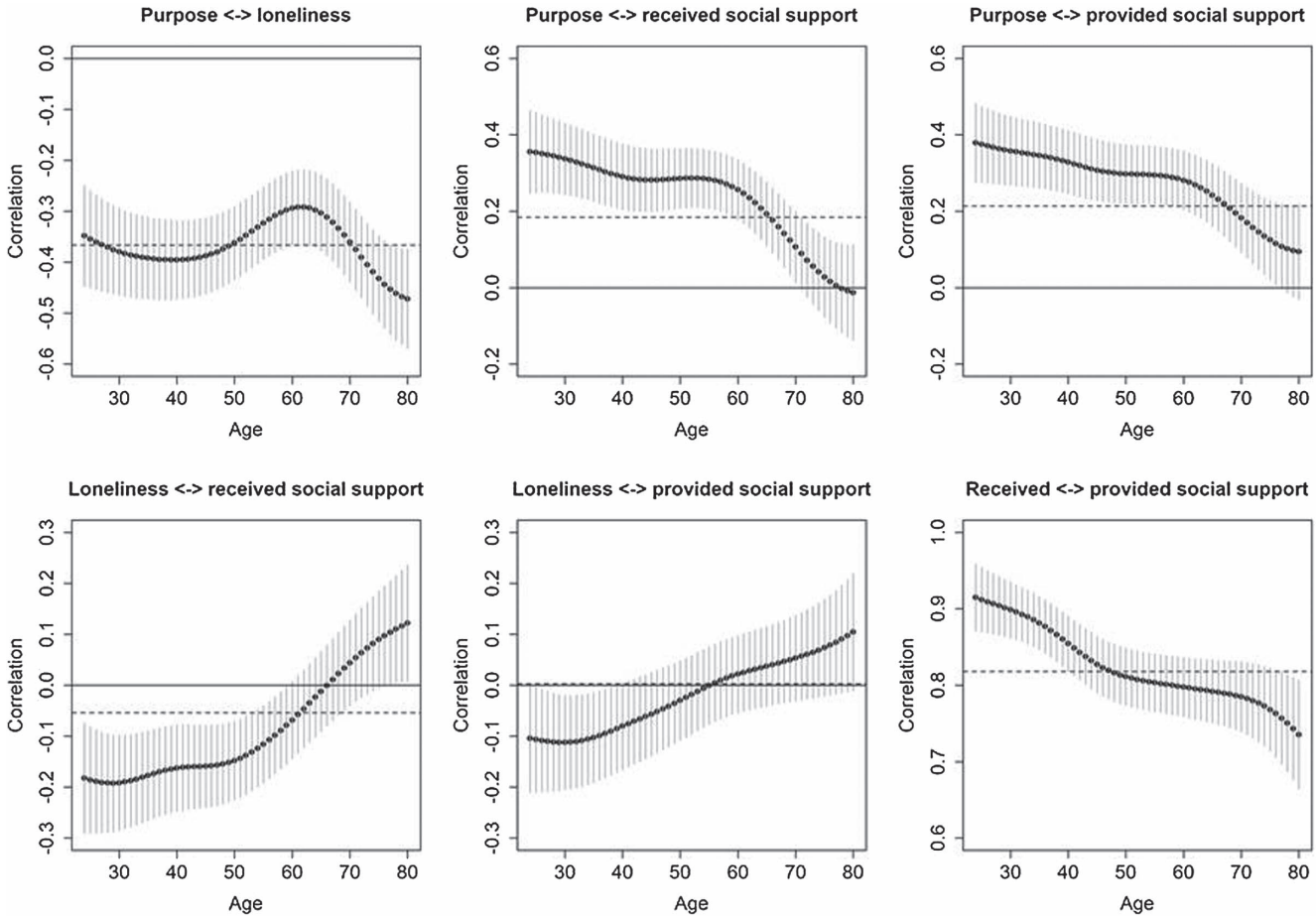
However, no evidence was found for receiving support helping individuals feel purposeful later in the lifespan as well. In fact, received support was not significantly associated with sense of purpose among adults past around age 70. Past work with samples in this age range has found, though, that perceived social support is positively associated with sense of purpose (e.g., Weston et al., 2021). Pairing these findings together, the narrative told is older adults may benefit when they perceive support is available, but not when they feel they receive a lot of it. Such work echoes the literature on invisible support (Bolger et al., 2000; Zee & Bolger, 2019), which speaks to how older adults may desire to not be a burden upon their families, in part because it may leave them feeling more useless (e.g., Jiang et al., 2018). Clearly such a perception runs counter to the belief one can energetically engage with life, and thus would yield the potential vulnerability for purposelessness. That said, it is noteworthy that the association did not become significantly negative at any point. These findings speak to the nuanced role that receiving support may play in leading a purposeful life during older adulthood, wherein some support is necessary, although not to an extent that leaves one feeling helpless. Future research thus should consider programs that allow older adults to feel supported in ways that promote purposeful pursuits, without reminders of their "need" for such support.

Age Moderation of Sense of Purpose and Provided Support

Similar age moderation was found for provided support, although the declines in association strength were not as pronounced; by age 80, the oldest age estimated, the association was still modestly positive with sense of purpose. However, in several ways, this

Figure 3

Associations Between Purpose, Loneliness, and Social Support Across Adulthood



Note. Presented are the (cross-sectional) factor correlations and confidence intervals estimated at each age point with local structural equation modeling (LSEM).

finding is more surprising than exhibited for received support. As noted earlier, studies across adulthood have supported the general claim that being prosocial, volunteering, and providing for others are linked to a greater sense of purpose (Hill et al., 2010; Kiang, 2012; Machell et al., 2016). Part of the explanation may come from the age trends in provided support in the current sample. Although both forms of support tended to have lower levels with increasing age, this pattern was sharper for provided support. These findings suggest that older adults in our sample may have viewed themselves less capable of supporting others, for financial, health, or other reasons.

As a result, older adults may be likely to compensate for their diminishing ability to provide support by developing other methods to live purposeful lives. The selection–optimization–compensation (Baltes & Baltes, 1990; Freund & Baltes, 1998; Freund & Baltes, 2002) model points to how older adults may find new strategies to compensate for losses in mental and physical acuity with age. Toward this end, older adults may similarly seek alternative sources of purposefulness, rather than focusing their efforts on providing support. Instead, the value of social relationships for sense of purpose may result more from having positive daily interactions (Pfund, Hofer, et al., 2022) rather than ones that require assisting others. Consistent support provision also may leave individuals feeling as though their social connections are more straining in nature, which has been linked to reduced sense of purpose (Weston et al., 2021). Building from these possibilities, future research is needed to further disentangle the multifaceted nature of provided support, as findings may differ depending on the extent to which giving support leads to feelings of strain and if exceeds one's personal resources available. If support is provided in a manner that avoids these concerns, it may still be positively associated with sense of purpose in later life.

Age Trends and Additional Findings of Note

In line with expectations, sense of purpose remained negatively associated with loneliness to a similar magnitude across adulthood. Moreover, these two constructs evidenced age trends that also aligned with previous research. With age, participants tended to report somewhat lower levels of loneliness, in line with past studies suggesting declines are common until age 70–80 (Hawkley et al., 2019, 2022; Luhmann & Hawkley, 2016). That

previous work does suggest nonlinearity though, insofar that loneliness may increase thereafter; our factor means do suggest that loneliness levels may have started to tick upwards around age 70. Two caveats though are worth noting. First, we were limited in our age range to replicate the increases seen in those past studies. Second, caution must be taken in discussing age trends for loneliness, given the lack of measurement invariance. Age trends for sense of purpose also aligned with the previous research. Multiple studies show that older adulthood is a period of potential vulnerability to declines in sense of purpose (Pinquart, 2002), and that retirement may be one catalyst for declines (Hill & Weston, 2019). Similarly, Figure 2 found that sense of purpose levels modestly increased with age, until around the required age of retirement in Switzerland (64 for women, 65 for men), after which point declines occurred. These findings continue to support calls for purpose-targeted interventions among older adults (e.g., Friedman et al., 2017; Hill, Beck, et al., 2021), as it is a period susceptible to declining purposefulness.

Although not central to our investigation into sense of purpose, it is noteworthy that loneliness was only weakly associated with the support variables. Moreover, that weak negative association even decreased in strength across adulthood: young and middle-aged adults who reported receiving more support tended to report less loneliness, whereas we found no significant association for older adults (descriptively the correlation even turned positive). One explanation aligns with the discussion above on purpose and received support; namely, if older adults feel they need a lot of support, then they may be left out, or select out, of social engagements that require greater self-sufficiency. Another possibility is that support provision may result from loss of social connections in older adulthood. A prominent life task during this developmental period is dealing with losses to family and friends, which are more common with advanced age (Havighurst, 1972; Hutteman et al., 2014). As a result, the received social support from close family members may not compensate for the experienced loneliness due to a loss of social partners. Future research should attempt to replicate these findings in other contexts, and then test these potential explanations.

Limitations and Conclusion

Indeed, the present study is limited by its sole consideration of a Swiss context, which is more homogeneous racially and ethnically than other countries. However, the broad age range and nationally representative nature of the sample do provide clear strengths for the current sampling strategy. Three additional limitations merit attention in future research, all of which result in part from the utilization of a large-scale data set. First, the present study was limited in its choice of measures, and as noted earlier, it would be valuable to replicate and extend these findings with longer, and more multifaceted measures, particularly for the support constructs. In particular, it would have been valuable to have more loneliness items in order to better deal with the lack of invariance for comparisons of the factor mean across age (for the comparison of correlations the measurement invariance was sufficient). Second, again, the present study did not seek to make any causal claims regarding the directionality of the associations, because we were limited by the single assessment, cross-sectional design. Future research is needed to continue considering whether and when sense of purpose is more likely to lead to social outcomes, and vice versa. Third, all measures were solely from the self-perspective, and observer-reports were not available. For several of our explanations above, the self-report is the most valuable piece of the puzzle, as, for instance, it provides insight into when people may feel like others are giving them too much support regardless of the amount provided. However, to fully test predictions garnered from the invisible support literature (e.g., Bolger et al., 2000; Zee & Bolger, 2019), it would be valuable to collect data as well on how much support close others felt they received or provided to the target participant. Fourth, on a related note, it would be valuable to consider caregiver status or other obligations to provide support, in order to disentangle for whom provided support is more related to sense of purpose.

These caveats aside, the present study provides valuable insights and advances to the literature on sense of purpose. First, this study continues to suggest retirement may be a period of vulnerability for declines in sense of purpose, now in a Swiss context with a set retirement age. Second, sense of purpose appears a relatively consistent (negative) correlate of loneliness across adulthood, pointing to the potential value of purpose-based interventions for reducing feelings of loneliness. Third, our findings point to a nuanced relationship between measures of social support and sense of purpose. Namely, support may be more tied to feeling purposeful earlier in adulthood, and we note several reasons above why this may be the case. Such findings point to a clear need for older adult interventions to thoughtfully consider when and how they implement support for their participants, in order to avoid risking further reductions in sense of purpose during this vulnerable developmental period.

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