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When Does Money Matter Most? Examining the Association between Income and Life Satisfaction over the Life Course

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Abstract

Previous research shows that the correlation between income and life satisfaction is small to medium in size. We hypothesized that income may mean different things to people at different ages, and therefore, that the association between income and life satisfaction may vary at different points in the life course. We tested this hypothesis in three nationally representative panel studies. Multilevel modeling techniques were used to test whether age moderated both the within- and between-person associations. Consistent with past research, we found that individuals who earned more on average and individuals who earned more over time reported higher levels of life satisfaction. Importantly, these effects were strongest for midlife individuals (those in their 30s–50s) compared to individuals who were younger or older.

Keywords

income; life satisfaction; age; life course; moderator

Life satisfaction is the subjective global evaluation of whether one is content, satisfied, and/or happy about one's life. A major goal of research on life satisfaction is to examine the factors that predict it and the processes that underlie it. Income has long been of interest to psychologists, economists, and laypeople alike. Intuitively, income should be moderately to strongly linked with life satisfaction because income predicts many additional factors that would be expected to be associated with subjective well-being. For instance, people with high incomes are more likely to have better health (Adler et al., 1994; Ecob & Smith, 1999; Marmot, 2002), a higher standard of living (Argyle, 1999), and better housing (Argyle, 1999). In addition, income provides opportunities for individuals to satisfy more idiosyncratic desires, which means it could potentially provide more ways for them to become satisfied (Diener, Lucas, Schimmack, & Helliwell, 2009). Despite this intuition, however, much research has shown that the association between income and happiness tends to be relatively small in size. The current study investigates one potential reason for the discrepancy between intuition and reality.

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Existing Research on Income and Life Satisfaction

Most early research on the links between life satisfaction and income has used cross-sectional designs to investigate the between-person association between these constructs. These studies consistently show that individuals with high incomes experience a higher level of life satisfaction than those with low incomes (e.g. Diener & Biswas-Diener, 2002; Diener & Oishi, 2000; Stevenson & Wolfers, 2008). Cross-cultural research using the World Values survey has shown a similar pattern across various cultures (Diener & Oishi, 2000). Lucas and Dyrenforth (2006), upon reviewing existing research, concluded that the correlation between income and life satisfaction is in the range of .17 – .21 (for a discussion of the importance of this small correlation coefficient between income and life satisfaction, see Lucas & Schimmack, 2009). Likewise, in a meta-analysis that reviewed 111 independent samples, Howell and Howell (2008) estimated the effect size between income and life satisfaction to be .20.

Although these cross-sectional studies are important, as they establish whether people with more money have higher subjective well-being than those with less money, they are limited in what they can tell about the processes underlying this association. Most notably, they cannot determine whether within-person changes in income are linked with changes in well-being in the same person over time. The distinction between within- and between-person associations of income and life satisfaction is important. To clarify, the between-person association tells us at a single time point, whether person A with a lower income tends to have lower life satisfaction compared to person B with a higher income. The within-person association informs us whether person's A change in income over time is associated with change in life satisfaction over time. These two associations should be considered independent. In other words, evidence for the between-person association should not be interpreted as evidence that increase in income over time leads to higher life satisfaction (i.e., the within-person association).

To test the within-person association of income and life satisfaction, longitudinal or experimental studies are required (though it is typically the case that only longitudinal studies are feasible). Research on the within-person association between income and life satisfaction has yielded mixed findings. In one of the earlier longitudinal studies looking at the within-person effect of income, Diener and his colleagues (1993) found in a large U.S sample that individuals whose income increased over a ten year period reported similar levels of life satisfaction compared to individuals whose income decreased over the same period of time. A recent study by Luhmann, Schimmack, and Eid (2011) tested the within-person effect using two large nationally representative samples from Britain and Germany (two of the same datasets analyzed in the current paper). They found that controlling for between-person effect of income, within-person income change is positively but weakly associated with affective and cognitive well-being. Similarly, Becchetti, Corrado, and Rossetti (2008) showed that a vast majority of British respondents experienced little change in life satisfaction when their income increased. Interestingly, a subset of participants experienced a *negative* change in life satisfaction following a positive change in income. These mixed findings suggest that there is a great deal of variability in the within-person association between income change and life satisfaction. A possible explanation for the

weak within-person association of income and life satisfaction is that income change in the same person tends to be small. For example, in the German sample examined in the current study, the income of the average person increased by only about US$63 (SD= 25,154) per year. This figure is considerably smaller when compared with the discrepancies in income between different individuals.

To summarize, research on the between-person association has found a robust but small association between income and subjective well-being, whereas research on within-person association found little to no association between income change and life satisfaction. The small size of this effect seems to counter intuition that income should play a large role in well-being. Thus, researchers have begun to investigate possible reasons for the smaller than expected effect. For instance, some researchers have examined whether wealth might be a stronger predictor than income (Headey, Muffels, & Wooden, 2008), whether social comparison or adaptation effects reduce the size of the association (Boyce, Brown, & Moore, 2010), or whether moderators, such as people's personality affect the association (Soto & Luhmann, 2012). In the current paper, we address the question of whether the association may differ depending on one's age.

Age as a Moderator of the Association between Income and Life Satisfaction

Although existing studies have provided a broad picture of how income relates to life satisfaction in general, these studies have typically overlooked the fact that income may play a different role in the lives of different individuals. In particular, money—and especially the income that an individual receives—may play a different role for people at different stages in their lives. Based on previous research on age differences in individuals' values of family and work, we predicted that the association between income and life satisfaction may be stronger for midlife individuals compared to younger and older adults.

From the family life cycle perspective (Mattessich & Hill, 1987), people typically go through various life stages: independence, marriage, parenting, launching adult children, and retirement. Individuals face unique challenges at each life stage. Age and stages in the family cycle are strongly linked, and midlife individuals are more likely to be at the parenting stage. In this stage, family becomes a particularly salient aspect of life as individuals learn to adjust to a range of family issues, such as childrearing and caretaking of one's aging parent. One of the implications from these changes in family structures is that intergenerational exchange tends to peak in midlife (Eggebeen, 1992; Remle, 2011). Intergenerational exchange refers to the patterns of assistance (including but not limited to financial assistance) within a family, and exchanges can occur from children to parents as well as from parents to children (Hill & Soldo, 1993). Midlife individuals are often seen as the provider in the family, and they often have financial obligations to support their aging parents as well as their children. These financial obligations could strengthen the association between income and life satisfaction for midlife adults.

In contrast, younger adults tend to be on the receiving end of intergenerational exchange (Shapiro & Remle, 2011; Schoeni & Ross, 2005). They may be partially dependent on their

parents, or parents may at least serve as a “safety net” to whom younger adults can turn if they encounter financial troubles. Moreover, younger adults may have fewer expenses because they may not have dependents to financially support and they may not yet have started saving for the future. For older adults, they receive intergenerational exchange from their adult children, and they may have no other household members to support. Their standard of living may be driven more by accumulated wealth (e.g., accumulated savings, investments, or property) than by the income that they currently receive. Thus, because of these changes in family role and family values, income may be especially important among midlife adults.

In addition to the changing family roles that individuals experience as they age, work and an individual's perspective on work also changes across the lifespan. Specifically, it is often the case that work plays a more central role in midlife than it does during other stages. Previous research suggested that the centrality of paid work peaked in midlife (Moen & Wethington, 1999; Sterns & Huyck, 2001), and financial security or instrumental value of work tends to be higher in midlife compared to older adulthood (Kanfer & Ackerman, 2004). Because income is often seen as an important indicator of one’s career success, the centrality of work in midlife may strengthen the association between income and life satisfaction.

Among younger adults, on the other hand, personal income may be less strongly associated with well-being. Research on emerging adulthood suggests a recent trend in which emerging adults prolong education and delay entering the work force (Arnett, 2000). Moreover, younger adults may forego present earnings with the hope of obtaining greater rewards in the future—either by enrolling in college or by taking on low-paying jobs that have greater potential for advancement. As a result of these changing perspectives on work, in addition to the minimal exchange expectations that exist for younger adults, income and life satisfaction may be less strongly associated among this group than among midlife adults.

Similarly, there are reasons to expect that older adults may not be as strongly affected by income as their midlife counterparts. For instance, the instrumental value of work (i.e., income) tends to decrease after midlife, and instead, older adults increasingly focused on the collaborative nature of work (Kanfer & Ackerman, 2004). These authors argued that age-related changes in cognition and personality (e.g., cognitive decline, decrease in achievement motive) may prompt older adults to recalibrate their priorities towards the intrinsic rewards of work (e.g., self-affirmation) in favor of the extrinsic rewards of work (e.g., income). Moreover, older adults may have less of a need for high incomes because they may be done saving for the future.

In sum, developmental changes across the life course suggest that the links between income and life satisfaction may vary over the life course, with weaker associations among younger adults or older adults. Based on past literature, a potential explanation for the moderating effect of age is that the centrality of family and work tend to peak in midlife. If this is the case, both between-person and within-person effects of income should be enhanced. Using family value and intergenerational exchanges as an example, midlife adults who are generally richer (higher between-person income) and midlife adults who earn more in a particular year (higher within-person income) may provide more financial gifts to their

children and aging parents, thus making income a more important contributor to well-being. Therefore, the enhanced emphases placed on family and work by midlife adults may help explain why both between-person and within-person income become particularly important for well-being for midlife adults.

The Current Study

The goal of the current study was to address whether the association between income and life satisfaction changes over the life course. An important question to consider when examining the role that life stage plays in the income-life satisfaction association is how to operationalize life stage. For instance, one might expect income to matter less among retirees than among those who are still working, in which case, using retirement as a proxy for life stage might be appropriate. On the other hand, those who are approaching retirement may be quite similar to those who are actually retired in terms of the role that present income plays in their well-being (they may have already reduced their retirement savings and limited exchanges to younger family members). Similarly, among young people, one would expect income to be weakly related to life satisfaction before one begins a career (i.e., when one is in college or graduate school), but this weakened association may also be expected among those who are working but who are in low-paying positions that allow one to gain critical employment experience.

For these reasons, we used age as a simple proxy variable for different life stages. In the current study, younger adults were defined as individuals aged 30 or under, midlife adults were defined as individuals aged 31–60, and older adults were defined as individuals aged 61 or above. Previous research has utilized similar cutting points (Ryff & Keyes, 1995; Srivastava, John, Gosling, & Potter, 2003). Midlife adults were used as the reference group because the associations between income and life satisfaction were hypothesized to be stronger for midlife adults compared to younger and older adults. We then explored how work and family values may help explain why age moderates the link between income and life satisfaction.

The purpose of the current study was to examine the moderating effect of age on the between- and within-person associations of income and life satisfaction using three nationally representative samples. Three different samples were used to test the robustness of the associations examined in the current study. We first predict that we will replicate past findings that people with higher incomes will report higher levels of life satisfaction. Second, we expected to find a positive within-person association between income and life satisfaction, but that this effect would be weaker than the between-person association. Third, we predicted that age would moderate the associations between income and life satisfaction, such that both the between-person and within-person associations are stronger for midlife adults compared to younger and older adults. Finally, we tested whether family and work values explained the moderating effects of age on between- and within-person associations of income and life satisfaction (mediated moderation).

Method

Participants

The current study used samples from three nationally representative panel studies: the Germany Socio-Economic Panel (GSOEP), the British Household Panel Study (BHPS), and the Swiss Household Panel Study (SHP). These panel studies assess a wide range of variables, such as income, education, and housing condition. Households were selected using a multistage probability design with systematic sampling to achieve nationally representative samples. Household members over age of 16 were asked to participate in the GSOEP and BHPS. In the SHP, members over age of 14 were asked to participate. Refreshment samples and oversampling of underrepresented population are used to maintain the representativeness of the overall samples. More details about sampling method are provided by Wagner, Frick, and Schupp (2007) for GSOEP, Taylor, Brice, Buck, and Prentice-Lane (2009) for BHPS, and Voorpostel et al. (2012) for SHP. Attritions were relatively low across the three datasets. Lipps (2009) calculated that the wave-to-wave attrition rates were about 1–2% in BHPS and GSOEP and about 5% in SHP. Schonlau, Watson, and Kroh (2010) reported similarly low attrition rates in BHPS and GSOEP.

The GSOEP is an on-going nationally representative household panel study and we use the first 25 waves of data (from 1984 to 2008). Participants were surveyed annually: some in face-to-face interviews, some with self-report questionnaires, and some with computer-assisted testing. Participants (N=42,497; 51% females) had a mean age of 40.6 (SD=17.83; range = 16–102) when they first participated in the panel study.

Like the GSOEP, the BHPS is also a nationally representative panel study, this one conducted in the United Kingdom. Although the first 18 waves of data (from 1991 to 2007) were available to us, data on life satisfaction were only collected in years 1996 – 2000 and 2002 –2007. In addition, income data were missing for the BHPS in 2007 because household taxes numbers were not available when the Cross-National Equivalent File was created, which is the source of income data (described below in the *Measures* section). Thus, only 10 waves of data (1996 – 2000 and 2002 – 2006) were used. Participants (N=24,578; 53% females) had a mean age of 40.75 (SD=19.22; range = 15–98) when they first participated in the panel study.

The SHP is a nationally representative household panel study. It began in 1999 (life satisfaction assessment began in 2000) and 9 waves of data (1999 – 2007) were available to us when conducting these analyses. Annual surveys were conducted over the phone. Participants (N=13,405; 54% females) had a mean age of 40.66 (SD=18.01; range = 13–94) when they first participated in the panel study. Demographic information by age groups for the three samples at the first time point is presented in Table 1. Table 2a, 2b, and 2c present the number of participants and descriptive statistics of life satisfaction and income by year for the three samples.

Measures

Life satisfaction—In the GSOEP, life satisfaction was measured by a single-item measure, “All things considered, how satisfied are you with your life as a whole?”

Participants indicated their life satisfaction on an 11-point scale with 0 being "totally dissatisfied" and 10 being "totally satisfied." In the BHPS, life satisfaction was assessed with the item "How dissatisfied or satisfied are you with your life overall?" Responses were indicated using a 7-point scale ranging from 1 "not satisfied at all" to 7 "completely satisfied." In the SHP, life satisfaction was assessed with the item "All things considered, how satisfied are you with your life as a whole?" Responses were indicated using an 11-point scale ranging from 0 "totally dissatisfied" to 10 "totally satisfied." Previous research has shown that single-item measures of life satisfaction perform well psychometrically (Cheung & Lucas, 2014; Lucas & Donnellan, 2012).

Income—In all three studies, post-governmental household income (i.e. household income after tax) was retrieved from the Cross-National Equivalent File (CNEF). The CNEF contains a wide range of variables that are equivalently defined across multiple panel studies, including the GSOEP, BHPS, and SHP (for more details about the CNEF, see Frick, Jenkins, Lillard, Lipps, & Wooden, 2007). We used the CNEF as the source of income data because post-governmental household income is calculated in a consistent way across the three panel studies. Specifically, post-governmental household income included after-tax income from different sources, such as employment, welfare, scholarships, etc. Income was adjusted for inflation to reflect income in 2000 using each country's Consumer Price Index (for GSOEP, data were drawn from the CNEF; for BHPS, *Office for National Statistics*, 2007; for SHP, *Swiss Federal Statistical Office*, 2011). We applied a log 10 function to the adjusted post-governmental household income because the income variable was positive skewed.

Age—Age was self-reported by participants in each year. We created age-related dummy variables to serve as proxy variables for different life stages: 20 year old and below, 21–30, 31–40, 41–50, 51–60, 61–70, 71–80, and 81 and above.[1] These dummy variables were treated as time-varying variables. For example, if a participant started participating in the GSOEP at age 30 in year 1995, the age dummy variable 21–30 would be coded as 1 and the other age dummy variables would have a value of 0. As the participant turned 31 in year 1996, the age dummy variable 31–40 for that year would be coded as 1, and the other age dummy variables (including the one for 21–30) would be coded as 0.

Values—In GSOEP, participants completed items on family and work values in 1990, 1992, 1995, 2004, and 2008. In GSOEP, respondents were asked "Various things can be important for various people. Are the following things currently (very important/important/less important/not at all important) for you?" on a 4-point scale from 1 "Very Important" to 4 "Unimportant." Three of the ten items were related to family or work. These included "Be successful in ones career," "Have a happy marriage/relationship," and "Have children." The three items on values were reverse-coded (i.e., higher numbers indicate greater importance) then standardized. The two items on marriage and children were then averaged to create a proxy variable for family value. In BHPS, similar value items were only asked in two

[1]The use of 10-year brackets ensured enough participants were included in the brackets to provide accurate estimates. Use of smaller (e.g., 3-year brackets) and larger brackets (e.g., separate participants into 3 groups: 30 and below, 31–60, and 61 and above) revealed similar results. These results are available upon request.

waves. The SHP did not include items on values. As we were interested in examining how values may explain both between- and within-person association of income and life satisfaction, BHPS and SHP were excluded from the mediated moderation analyses.

Covariates—Gender, education, disability status, welfare status, employment status, marital status, year of participation, and number of children living in the same household were included as covariates. Aside from gender, all covariates were treated as time-varying variables. Participants self-reported their gender, employment status, marital status, and number of children living in the same household. For education, the CNEF translated participants' responses on education attainment to years of education in the GSOEP and SHP. In BHPS, education was dummy coded: little/no education (reference group), O-level or equivalent (coded 1/0), A-level or equivalent (coded 1/0), and college (1/0). Previous research has shown that at least in the GSOEP, participants tended to report lower life satisfaction as they took part in a panel study for more years (Baird, Lucas, & Donnellan, 2010). Thus, we also controlled for years of participation.

Since income, age, and life satisfaction may co-vary with disability and welfare status, we included these as covariates. For disability status, participants in the GSOEP were dummy-coded as disabled (1/0) if they reported a legally attested disability of more than 30%. Participants in the BHPS were coded as disabled (1/0) if they reported that their health limited the type or amount of work that they can do. In SHP, participants were asked to self-report on an 11-point scale (0= "not at all"; 10= "a great deal") "to what extent, generally, you health is an impediment in your everyday activities." For welfare status, participants in the GSOEP and BHPS self-reported whether they received welfare. However, welfare status was not asked in the SHP until 2002 and thus was not included as a covariate.[2]

Results

Cross-Sectional Analyses

As a first step, each wave from each panel study was treated as a separate cross-sectional dataset. The goal of this analysis was to examine descriptively how the association between income and life satisfaction changed across the life course. In each dataset, zero-order correlations between income and life satisfaction were computed for each of the age bracket.

Results from Cross-Sectional Analyses

Correlations between income and life satisfaction were plotted against age, and the plots for GSOEP, BHPS, and SHP are presented in Figures 1, 2, & 3, respectively. Consistent across datasets and waves, there was a general inverse-U-shaped pattern that the association between income and life satisfaction started small in size in early adulthood, peaked around midlife, and declined through late adulthood. However, this cross-sectional approach did not take into account the non-independence across time (i.e., participants took part in the panel survey multiple times). Thus, we turned to analyses using a multilevel framework to test whether the link between income and life satisfaction was moderated by age.

[2]Conducting the same set of analyses on SHP waves 2002–2007 with welfare status included as covariate did not change the results.

Longitudinal Analyses

Statistical analyses based on a multilevel modeling framework were conducted using the lme4 package (Bates, Maechler, & Bolker, 2013) in the R statistical program (R Development Core Team, 2010). The goal of this analysis was to formally test whether the inverse-U-shaped pattern found in *Analysis 1* persisted after accounting for non-independence across time. Although it would be possible to test a pure quadratic function, the initial exploratory results (and indeed, the underlying theory itself) suggest that a simple quadratic function may not describe the pattern. Instead, we were interested in the extent to which young-adult and older-adult participants differed from mid-life adults. To test this, we created 7 dummy variables to capture the change in the associations between income and life satisfaction across 8 age brackets. Using results from *Analysis 1*, the age bracket with the strongest association (i.e., 41–50 for GSOEP and SHP and 31–40 for BHPS) was treated as the comparison group.

Given the longitudinal nature of the panel studies, income can be broken down into the between- and within-person differences in income. We hypothesized that age would moderate the associations between income and life satisfaction such that the between- and within-person associations of income would be stronger in midlife and weaker in early and late adulthood. In order to isolate the between- and within-person income, we created two variables based on the income variable using centering procedures. First, to create the variable for between-person income, we averaged each person's income across all years and centered this value around the grand mean income of the full sample. Next, to isolate within-person income, we centered participants' yearly income around their average income across all years.

Main effect models—First, we tested the between- and within-person associations between income and life satisfaction for each of the datasets using multilevel modeling, ignoring the moderating effect of age. In the main effect models, year was nested within person. Life satisfaction was predicted from the within-person income (Level-1) and between-person income (Level-2). Age, education, disability status, welfare status, employment status, marital status, parental status, years of participation (Level-1), and gender (Level-2) were included as covariates. We estimated random effects for the intercept, between-person income, and within-person income.

Interaction models: Age as a moderator of the link between income and life satisfaction—Then, in the interaction models, we added the interactions of the between- and within-person associations and age to test whether age moderated the association between income and life satisfaction. The age bracket with the strongest association (i.e., 41–50 for GSOEP and SHP and 31–40 for BHPS) was treated as the comparison group. Because of the way that age was coded, the coefficients for between-person income and within-person income in the interaction model should be interpreted as the associations for income and life satisfaction for the age bracket with the strongest association. A significant interaction would mean that the association differed for a specific age group compared to the age group with the strongest association. For example, if a negative interaction between income and the dummy variable for age 71–80 was found in the GSOEP, that would indicate

that the link between income and life satisfaction was weaker for respondents aged 71–80 compared to respondents aged 41–50. We hypothesized that the interaction terms would be negative because as we reasoned in the introduction, the association between income and life satisfaction should be stronger in midlife and weaker in early and late adulthood. Thus, this interaction model tested whether the association between income and life satisfaction differed across the life course.

Results from Longitudinal Analyses

Main effect model—We first tested a main effect model that assessed the between- and within-person associations of income and life satisfaction, ignoring age as a moderator. Tables 3, 4, and 5 present these results for the GSOEP, BHPS, and SHP, respectively. Unless otherwise noted, all inferential statistics discussed below were significant for $p < .05$ using two-tailed tests. Consistent with past research, across the three datasets, the between-person association between income and life satisfaction was significant, suggesting that richer individuals tended to report higher life satisfaction. At the within-person level, income also significantly predicted life satisfaction. That is, increase in income over time was associated with higher life satisfaction. As predicted, the within-person association was smaller than the between-person association. Specifically, the within-person association was about one-third the size of the between-person association in the GSOEP (in terms of the unstandardized coefficient). In the BHPS, the within-person association was much smaller than the between-person association. In the SHP, the within-person association was about one-fifth the size of the between-person association.

Interaction model: Age as a moderator of the link between income and life satisfaction—Next, we tested the age-group moderators to determine whether the between- and within-person associations of income and life satisfaction varied across the life course. Figures 4, 5, and 6 illustrate the trajectory of life satisfaction and the association between incomes and life satisfaction across the life course in GSOEP, BHPS, and SHP, respectively.

In the GSOEP, age moderated the between-person as well as the within-person associations of income and life satisfaction. Specifically, participants aged 17–30 and 51 or above showed significantly weaker between- and within-person associations compared to participants aged 41–50. These associations were similar in size for participants aged 31–40 and those who were 41–50 ($p = 0.68$). Thus, an inverse-U-shaped pattern was observed in terms of examining the associations between income and life satisfaction over the life course. In other words, the associations between income and life satisfaction were stronger in midlife and weaker in early and late adulthood.

In BHPS, both the between- and within-person associations were moderated by age. The between-person association was stronger for participants aged 31–40 compared to participants aged 21–30 and 61 or above. The associations did not differ for participants aged 31–40 and those who were under 20 ($p = 0.075$), 41–50 ($p = 0.92$), and 51–60 ($p = 0.089$). Moreover, the within-person association was stronger for participants aged 31–40 compared to participants aged 16 – 30 and 41 – 80. The association did not differ for

participants aged 31–40 and those 81 and above ($p = 0.08$). Similar to the GSOEP, these results illustrated that the associations between income and life satisfaction were generally stronger in midlife and weaker in early and late adulthood.

In SHP, the between-person association was moderated by age. The association was stronger for participants aged 41–50 compared to those who were 16–30 and 61 or above. The associations did not differ for participants aged 41–50 compared participants aged 31–40 ($p = 0.16$) and 51–60 ($p = 0.62$). The results on within-person association were less clear. The association was significantly weaker for participants who were 20 or younger compared to those who were 41–50, but the associations did not differ for other age groups (ps > 0.15).

Based on these analyses, the results showed that consistent across three panel studies, age moderated the between-person association between income and life satisfaction. That is, although the significance level of the precise group-level comparisons sometimes differed, it was generally the case that the differences in average income across individuals were more strongly associated with life satisfaction in midlife than in early and late adulthood. In the GSOEP and BHPS, the within-person association was stronger in midlife than in early and late adulthood. Change in income over time was more strongly linked to life satisfaction for people who were in their 30s–50s. However, this pattern was not observed in the SHP.

Mediation Analyses

Next, we tested family and work values as potential explanations for the strengthened association between income and life satisfaction in midlife. We hypothesized that stronger family and work values in midlife should enhance the associations between income and life satisfaction. Thus, we should find increased emphasis on these domains during midlife, and after accounting for this increased emphasis, the moderating effect of age on the income/life-satisfaction association should be reduced (note that the effect should not be fully mediated, as additional factors including differential exchange relationships and differential need for savings are expected to contribute). It is important to note that we do not expect changing values to completely mediate the association, as this is just one of many factors that may contribute. However, examining the role the values play can help clarify some of the processes that underlie the differential associations identified above.

Only the GSOEP was used to test these hypotheses. The BHPS and SHP were excluded because the BHPS measured family and work values only on two occasions from 1996 to 2006 and the SHP does not contain such items. Therefore, this analysis focused on five waves of data from the GSOEP that measured family and work values. For the following sets of analyses, we created two dummy variables: one for younger adults and one for older adults. The dummy variable for younger adults was coded such that participants aged 30 or below were coded as 1 and other participants were coded as 0. The dummy variable for older adults was coded such that participants aged 61 or above were coded as 1 and other participants were coded as 0. Similar to *Analysis 2*, midlife adults (participants aged 31–60) were treated as the comparison group, and the age dummy variable was a Level 1 (or time-varying) variable. The advantage of this approach was that it directly contrasted the associations between income and life satisfaction for midlife adults vs. younger and older adults.

We first repeated Analysis 2 with the simplified age variable to test if the results held for this subsample. Results are presented in Table 6. Similar to Analysis 2, age moderated the association between income and life satisfaction. Younger adults showed weaker associations for both between- and within-person income when compared to midlife adults. Older adults showed weaker associations for between-person income, but not significantly so for within-person income, $p = .13$. In sum, we found evidence that age moderated the association between income and life satisfaction in this subsample.[3]

Next, we examined 1) whether there were age differences in family and work values and 2) whether family and work values moderate the association between income and life satisfaction. Both of these are necessary conditions for testing whether family and work values mediate the moderating effect of age on the association between income and life satisfaction. In Figure 7, age was plotted against family and work values. Family values peaked during midlife, whereas work values appeared to decrease throughout the life course.

To test family and work values as moderators of the association between income and life satisfaction, we added the main effects of family and work values (Level-1) and the interactions of family value X between-person income, family value X within-person income, work value X between-person income, and work value X within-person income to the model. Results are presented in Table 6. The interaction term for between-person income and family (b=0.21, SE=0.035) was statistically significant, suggesting that the association between between-person income and life satisfaction was stronger for individuals who reported higher family value. However, the interaction term for between-person income and work value was not significant (b=0.06, SE=0.033, p=0.069). Moreover, the two interaction terms for within-person income and family (b=0.07, SE=0.059, p=0.24) and work (b=0.11, SE=0.058, p=0.058) values were not significant. Therefore, mediation analyses were only conducted for the potential mediating role of family values on between-person income.

A multilevel mediated moderation model was used to test whether the moderating effect of midlife on the associations between between-person income and life satisfaction was mediated by the moderating effect of family value on income and life satisfaction. In other words, we tested whether the difference for midlife vs. younger adults and the difference for midlife vs. older adults in the association between income and life satisfaction (the coefficients bolded in Table 6) dropped after accounting for the moderating effect of family values. To clarify, the interaction terms for younger/older adults and between-person income represented the differences in the associations between income and life satisfaction for younger and older adults compared to midlife adults. These interaction terms were used as the independent variables because the goal was to examine mediators for the increase in the association between income and life satisfaction in midlife (and not to examine mediators for the main effect of between-person income per se). The interaction terms for family value and between-person income represented the extent to which higher family values strengthened the associations between income and life satisfaction. These interaction terms

[3]These results also held in this subsample when age was coded into 10-year intervals. Specifically, for between-person income, all age groups showed weaker associations between income and life satisfaction when compared to participants aged 41–50. For within-person income, participants aged 41–50 showed significantly stronger associations compared to participants under 30 and participants above 81. The within-person association between income and life satisfaction was similar for participants aged 31–80.

were used as the mediators because we argued that the moderating effects of family value may help explained the enhanced associations between income and life satisfaction in midlife.

The significance of the mediation analyses were tested by estimating the 95% confidence intervals around the indirect effects. The indirect effects referred to the extent to which the associations between the independent and dependent variables are explained by the mediators. The 95% confidence intervals for each indirect effect were estimated using 1000 Quasi-Bayesian Monte Carlo simulations (Imai, Keele, & Tingley, 2010). Indirect effects with 95% confidence intervals that do not overlap with 0 were interpreted as statistically significant mediations.

Results from Mediation Analyses

Figure 8 presents the results from the mediation analyses. For the moderating effect of midlife on between-person income compared to younger adults, the indirect effect for the moderating effect of family value was significant (Indirect effect = −0.05, 95% CI [−0.07, −0.03]). As predicted, accounting for the enhanced emphasis in family value, the difference for midlife vs. younger adults in the association between income and life satisfaction dropped. The effect from controlling for family value led to a significant reduction in the difference between midlife and younger adults. The indirect effect of family value accounted for 9.1% (95% CI [5.4%, 14.7%]) of the moderating effect of midlife.

For the moderating effect of midlife vs. older adults on between-person income, the indirect effect for the moderating effect of family value was significant. Controlling for the enhanced emphasis on family value, the difference between midlife and older adults in the association of income and life satisfaction reduced (Indirect effect=−0.01, 95%CI [−0.02, −0.01]. The indirect effect of family value accounted for 3.4% (95% CI [1.6%, 7.7%]) of the moderating effect of midlife. To summarize, the enhanced emphasis on family value explained the moderating effect of midlife on the association between income and life satisfaction for both younger and older adults.

Discussion

A critical question for research on subjective well-being concerns the size of the association between life satisfaction and income. Previous research has consistently shown that this effect is robustly positive, but the effect is typically described as surprisingly small (Myer, 2000). The goal of the current study was to examine whether the size of this association may systematically differ at different points in the life span, owing to the fact that money may mean different things at different times. Taken together, four consistent findings emerged across the three nationally representative longitudinal samples we analyzed.

First, consistent with previous research (e.g., Stevenson & Wolfers, 2008), income significantly predicted life satisfaction at the between-person level, which means that individuals with high incomes tend to be happier than individuals with lower incomes. Second, at the within-person level, the changes in income were significantly associated with changes in life satisfaction. Fewer studies have addressed this particular question because it

requires the availability of longitudinal data from a sufficiently long time span that real changes in income can be captured. Furthermore, the research that does exist has typically arrived at inconsistent conclusions. In the current study, all three samples showed a significant within-person association of income, and the size of the within-person association was smaller than the size of the between-person association. Third, the most novel finding from the current study is that both the within- and between-person associations varied across different points in the life course. Specifically, the associations are generally stronger for midlife adults (individuals who are about 30–50 year old) compared to younger adults and older adults (though as we describe below, the within-person association was not moderated by age in SHP). Last but not least, family value, which was used to capture the underlying developmental changes in midlife, mediated the enhanced association between income and life satisfaction in midlife. Specifically, stronger family value was associated with stronger between-person association of income and life satisfaction.

Numerous studies have found that income and life satisfaction correlate to a small to moderate degree. Most researchers have interpreted the small size of the correlation coefficient to mean that income only has a small effect on life satisfaction (if it is indeed a causal one). We suggested that interpretations of this association must consider the possible reasons *why* income might be associated with life satisfaction: The effect of income on life satisfaction could be moderated by individual differences, and thus, the effect might be stronger for certain individuals and weaker for others. The results from the current study provided evidence for this explanation as the between- and within-person associations of income varied as a function of one's life stage. Across the three samples, the association between income and life satisfaction was generally stronger among midlife adults than among their older or younger counterparts. When the between-person association was examined, the moderating effect of age was significant in all three samples, and it was significant for two out of the three samples when the smaller within-person association was tested.

In addition to illustrating the trajectory of the association between income and life satisfaction over the life course, the current study also showed evidence that the moderating effect of age could be attributed to developmental changes in the centrality of family during midlife. Midlife adults often have more financial responsibilities (e.g. monetary support for aging parents and their children) than individuals who are younger or older (Remle, 2011). For midlife adults, income is often a major source of financial resource, whereas for younger adults and older adults, other financial resources may often be available (e.g. financial support from parents for younger adults and retirement funding for older adults). Thus, it is understandable that the effect of between-person income is strongest for midlife adults. However, we did not find evidence that age-related change in work value moderates the relation between income and life satisfaction.

Interestingly, the moderating effects of values were not evidenced for the within-person association of income in the GSOEP. This may be due to the weaker overall effect at the within-person level. It may be more difficult to detect a moderator if the overall effect is smaller (especially if the small effect is due to small within-person changes in income). The results suggested that the within-person effect of income was about one-tenth to one-third

the size of the between-person effect of income. That is, the same amount of income change at the between- and within-person levels had different associations with life satisfaction. While past research has shown that specific kinds of within-person income change (e.g., winning medium size lottery) increased life satisfaction considerably (Gardner & Oswald, 2007), the current study suggested that naturally occurring income change tends to be weakly associated with life satisfaction. These findings highlighted the importance of distinguishing between- and within-person income because different mechanisms could be in play for these two processes. Future research should continue to investigate the different effects of between- and within-person income on subjective well-being.

Income can have different meanings for individuals at different life stages, and thus, future research examining the association between income and life satisfaction should conduct analyses that take age into account. In addition to age, past research has shown that the associations between income and life satisfaction are moderated by personality factors (Soto & Luhman, 2013), divorce status, and education (Becchetti, Corrado, & Rossetti, 2008). Future research should continue to identify factors that moderate the link between income and life satisfaction. For instance, macroeconomic variables, such as income inequality and unemployment rate, could moderate the association between income and life satisfaction. As income inequality increases, the discrepancy in income between people increases, which may lead to stronger social comparison of income. As a result, increased income inequality could make the association between income and life satisfaction stronger.

Limitations

The current study examined three nationally representative samples with up to 25 waves of data. However, a limitation in the current study is that these samples came from relative rich Western countries. There are likely substantial differences in the association between income and life satisfaction across countries, and we cautioned generalizing results from the current study to other countries. For example, in developing countries where income can help meet basic needs, it is plausible that income would be equally important for all age groups. In countries where the welfare systems are not as generous as the countries we examined (i.e., Germany, United Kingdom, and Switzerland), there may not be a decline in the link between income and life satisfaction in older adulthood. The generalizability of the current findings ultimately relies on future research looking at a broad range of societies.

The current study broadly examined the difference between young, midlife, and older adults. The results suggested that midlife adults showed distinctively stronger association between income and life satisfaction compared to younger and older adults. However, there could be qualitative differences even within these subgroups. That is, people in their 30s are likely to be different from people in their 50s. Future research should take a more nuanced approach and consider, for instance, whether income leads to life satisfaction through different mechanisms within different subgroups of midlife adults.

To summarize, we found that the between- and within-person associations of income significantly predict life satisfaction across three large-scale nationally representative panel studies. Life course development was found to moderate the strength of these associations. Specifically, the associations between income and life satisfaction are particularly strong for

midlife adults, compared to younger adults and older adults. Taken together, our findings suggest that if money does buy happiness, it does so to different degrees for different people.

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Figure 1.

Correlations between income and life satisfaction in Germany from 1984–2008. Error bars represent ±2 *SE*s.

Figure 2.
Correlations between income and life satisfaction in Britain from 1996–2006. Error bars represent ±2 *SE*s.

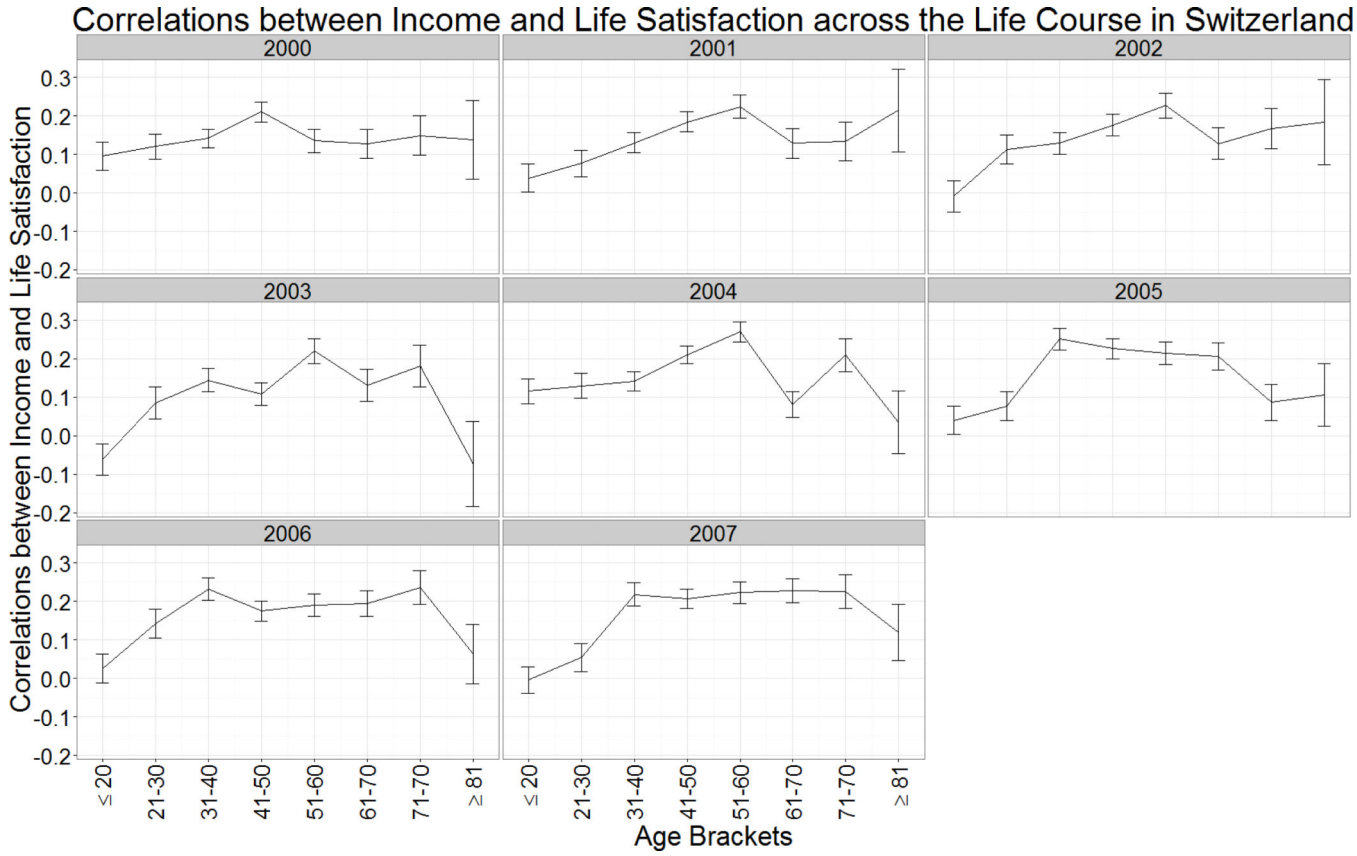


Figure 3.
Correlations between income and life satisfaction in Switzerland from 2000–2007. Error bars represent ±2 *SE*s.

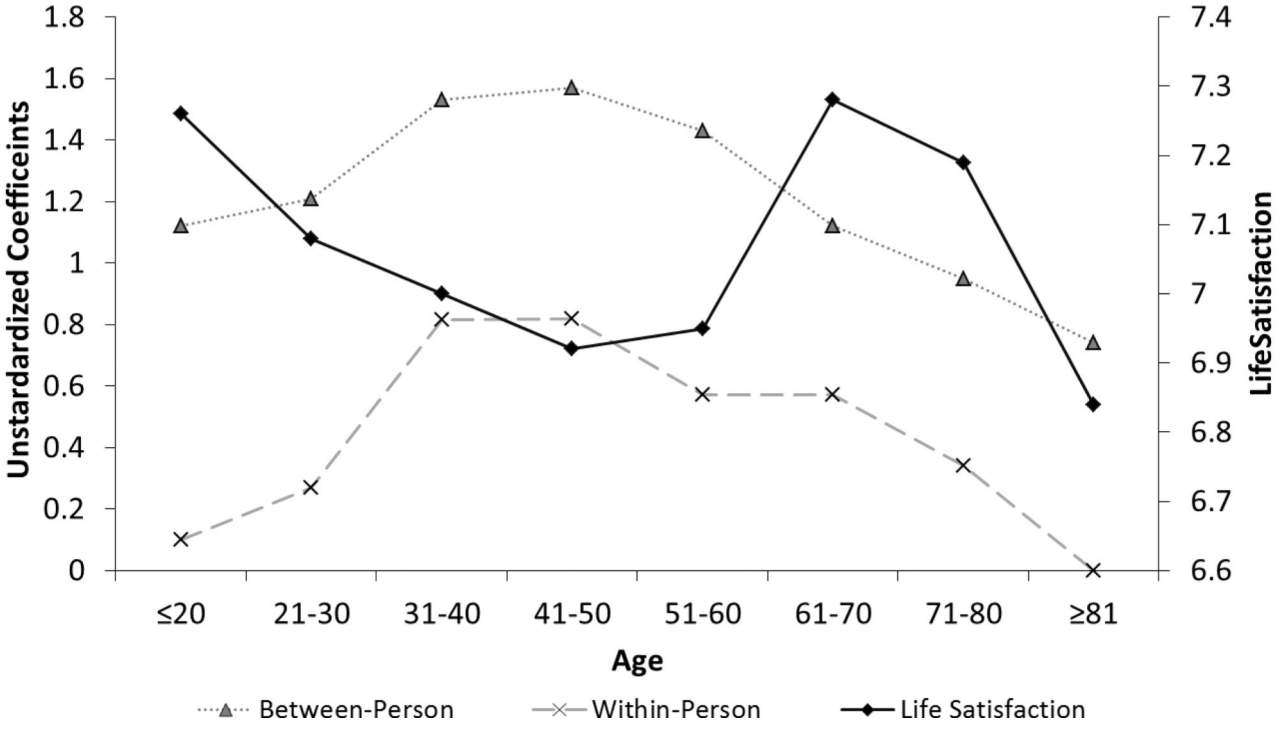


Figure 4.

The U-shaped pattern of life satisfaction and inverse-U-shaped pattern of the link between income and life satisfaction in the GSOEP.

Figure 5.
The U-shaped pattern of life satisfaction and inverse-U-shaped pattern of the link between income and life satisfaction in the BHPS.

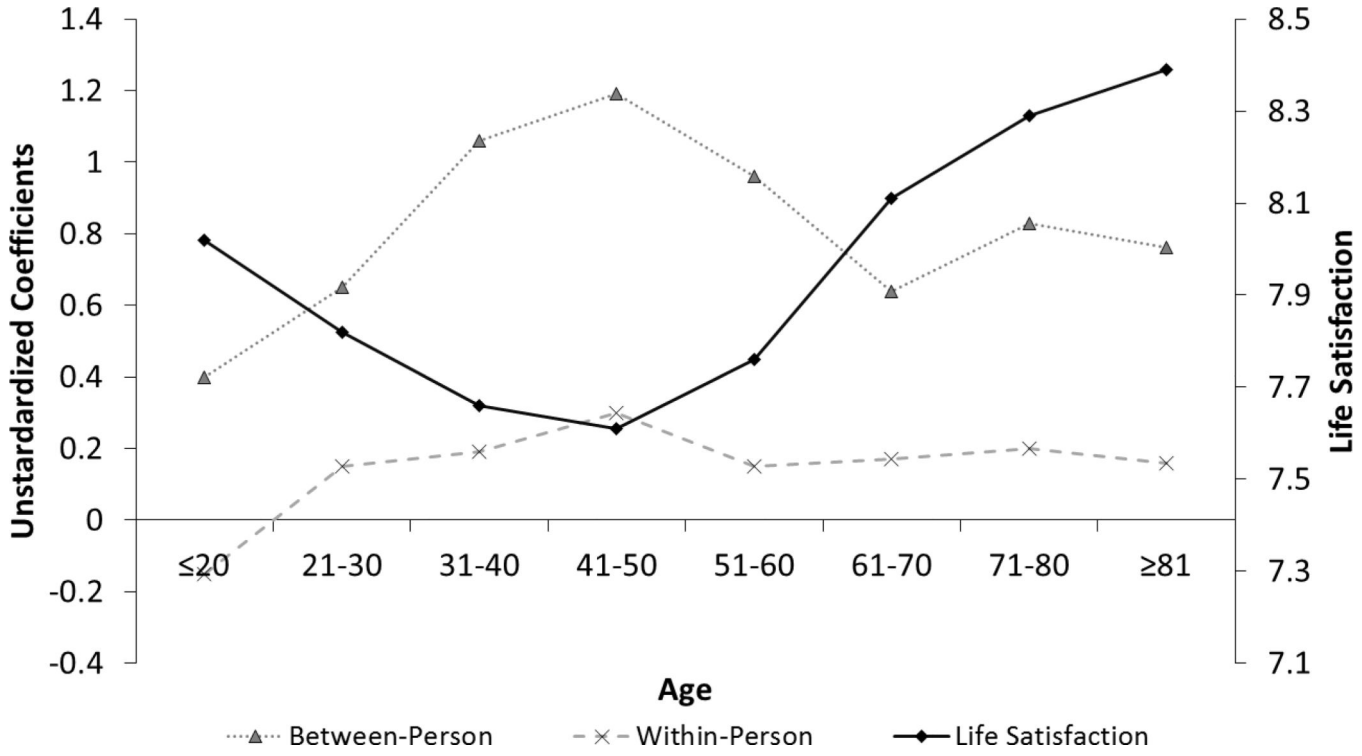
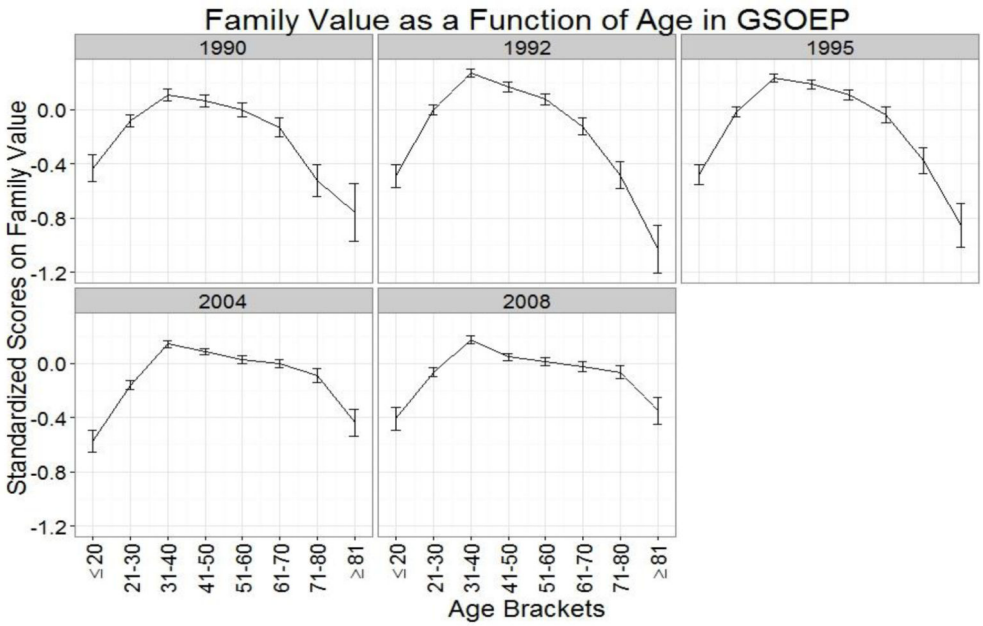
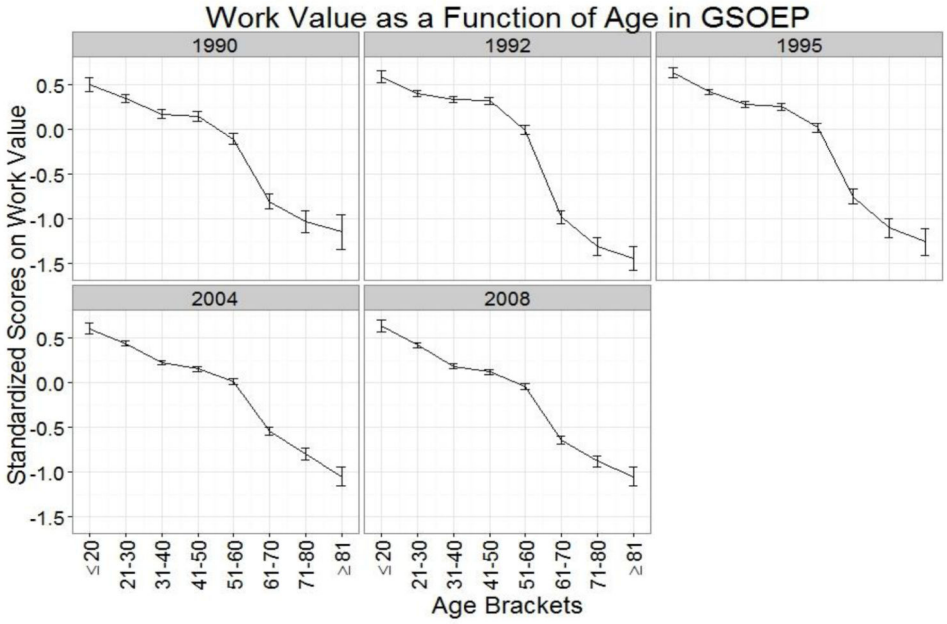


Figure 6.
The U-shaped pattern of life satisfaction and inverse-U-shaped pattern of the link between income and life satisfaction in the SHP.

a)





b)

Figure 7.
Family (a) and work (b) values as a function of age. Error bars represent ±2 *SE*s.

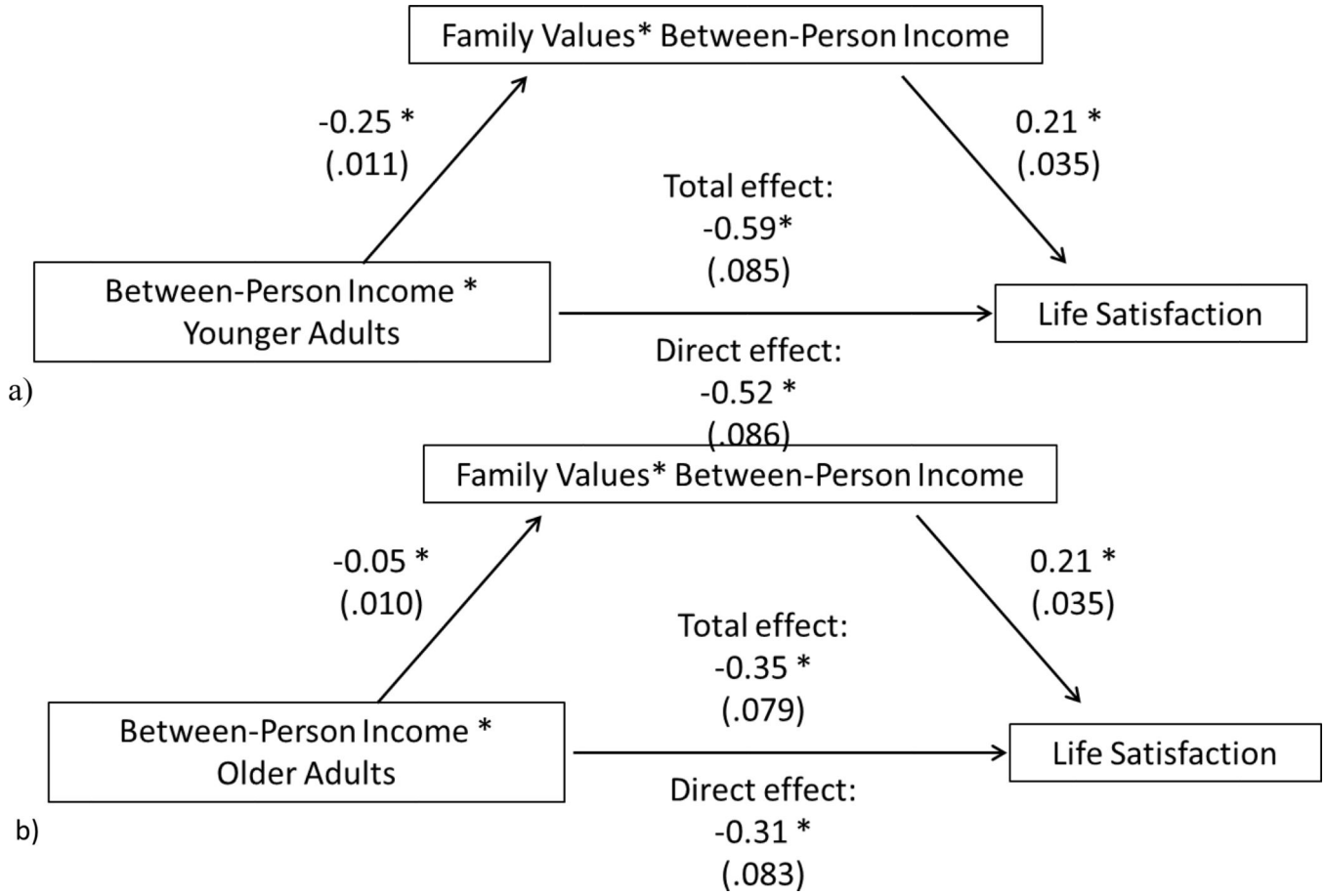


Figure 8.

Mediation analyses suggested that the moderating effect of age on the association between income and life satisfaction was reduced after controlling for the enhanced emphasis on family value.

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Table 1

Demographic Information by Age Groups in GSOEP, BHPS, and SHP

	Age											
	≤20			21-30			31-40			41-50		
Variable	**G**	**B**	**S**	**G**	**B**	**S**	**G**	**B**	**S**	**G**	**B**	**S**
n	5,411	4,111	1,093	7,858	5,020	1,971	7,760	4,590	2,645	7,036	3,405	2,491
Life Satisfaction	7.49 (1.85)	5.33 (1.24)	8.25 (1.37)	7.28 (1.87)	5.18 (1.23)	8.15 (1.36)	7.25 (1.88)	5.07 (1.31)	8.08 (1.46)	7.26 (1.90)	5.07 (1.34)	8.03 (1.57)
Household Income	36735 (20954)	22423 (17056)	121133 (85149)	32026 (30072)	20969 (13640)	95915 (59533)	36041 (22335)	22214 (15084)	94357 (59023)	42595 (30459)	24121 (17518)	111923 (84283)
Number of Children	0.55 (0.83)	1.49 (1.21)	1.27 (1.20)	0.50 (0.81)	0.58 (0.94)	0.34 (0.71)	1.20 (1.06)	1.41 (1.24)	1.30 (1.20)	0.59 (0.86)	0.95 (1.12)	1.10 (1.12)
Years of Education	9.20 (1.54)	--	9.73 (1.28)	11.72 (2.25)	--	12.83 (2.39)	12.02 (2.74)	--	13.40 (2.83)	11.89 (2.88)	--	13.00 (2.71)
Disabled*	0.9%	6.4%	1.17 (2.14)	1.3%	10.2%	1.13 (2.10)	3.0%	13.1%	1.30 (2.57)	5.2%	19.4%	1.51 (2.49)
% Female	50.0	52.6	50.4	50.3	51.8	52.3	50.8	51.7	55.6	49.7	51.2	54.9
% Married	3.2	0.7	3.8	37.3	25.8	48.7	71.7	59.4	80.7	80.7	67.6	81.7
% Received Welfare*	15.9	3.4	--	7.3	3.1	--	4.1	4.9	--	2.4	4.2	--
% Employed	33.8	40.2	61.3	76.3	78.4	80.5	82.2	80.2	82.7	83.8	79.0	85.3

	Age											
	51–60			61–70			71–80			≥81		
Variable	**G**	**B**	**S**	**G**	**B**	**S**	**G**	**B**	**S**	**G**	**B**	**S**
n	5,582	2,785	1,863	3,903	2,304	1,206	2,167	1,741	695	628	622	180
Life Satisfaction	7.23 (2.01)	5.17 (1.53)	8.15 (1.71)	7.40 (1.90)	5.60 (1.44)	8.40 (1.69)	7.31 (2.07)	5.59 (1.47)	8.40 (1.72)	6.63 (2.45)	5.51 (1.53)	8.41 (1.80)
Income	41841 (41639)	21281 (16328)	109980 (77815)	31836 (41274)	17257 (15519)	88438 (93372)	23527 (19330)	14661 (12407)	68927 (67272)	25399 (22456)	13656 (9882)	54234 (44061)
Number of Children	0.11 (0.40)	0.20 (0.56)	0.18 (0.52)	0.03 (0.23)	0.05 (0.31)	0.02 (0.23)	0.03 (0.24)	0.02 (0.16)	0.01 (0.11)	0.07 (0.34)	0.01 (0.13)	0.02 (0.24)
Years of Education	11.60 (2.82)	--	12.74 (2.74)	11.35 (2.59)	--	12.44 (2.78)	10.90 (2.32)	--	11.90 (2.78)	10.40 (2.07)	--	12.11 (2.90)
Disabled*	14.6%	30.0%	1.94 (2.78)	20.9%	32.8%	2.02 (2.64)	21.2%	42.2%	2.48 (2.73)	21.7%	57.6%	3.33 (3.04)

	Age											
	51–60			61–70			71–80			≥81		
Variable	**G**	**B**	**S**	**G**	**B**	**S**	**G**	**B**	**S**	**G**	**B**	**S**
% Female	49.4	52.5	54.6	51.6	53.9	53.0	57.9	58.8	59.9	69.6	65.8	66.1
% Married	81.1	72.0	79.0	75.5	65.9	76.4	55.3	47.4	56.1	21.3	25.2	32.2
% Received Welfare*	2.1	4.9	--	2.2	5.3	--	2.0	14.4	--	4.0	33.0	--
% Employed	71.6	62.2	78.2	21.2	20.4	28.4	3.2	2.8	4.9	1.0	1.8	2.2

Note.

*Not directly comparable across datasets.

Table 2

a Demographic Information by waves in GSOEP

		GSOEP			
Waves	**N**	**Life Satisfaction**		**Income**	
		M	**SD**	**M**	**SD**
1984	11060	7.42	2.14	30242	16883
1985	9968	7.24	2.03	30829	17966
1986	9615	7.28	1.94	31149	18146
1987	9449	7.13	1.96	32821	17895
1988	8990	7.09	1.95	33736	17905
1989	8705	7.10	1.93	34523	18327
1990	8541	7.27	1.81	35121	19666
1991	8399	7.35	1.72	36545	19794
1992	11990	6.91	1.81	34375	17847
1993	11865	6.87	1.89	34418	18571
1994	12058	6.86	1.83	34176	18762
1995	12366	6.89	1.82	33006	18272
1996	12104	6.89	1.78	33112	18173
1997	11782	6.78	1.78	33364	17691
1998	12695	6.93	1.77	32900	18373
1999	12484	6.97	1.78	33258	18689
2000	22245	7.09	1.78	34505	21355
2001	19864	7.11	1.73	35049	20321
2002	21201	7.04	1.75	41629	38091
2003	19984	6.96	1.77	40735	36355
2004	19415	6.79	1.82	40443	64405
2005	18505	6.93	1.83	40161	70562
2006	19718	6.91	1.80	39039	51720
2007	18558	6.94	1.78	38799	33667
2008	17383	6.99	1.75	38881	45413

b Demographic Information by waves in BHPS

		BHPS			
Waves	**N**	**Life Satisfaction**		**Income**	
		M	**SD**	**M**	**SD**
1996	8049	5.24	1.32	21253	12854
1997	9501	5.23	1.34	20553	12658
1998	9299	5.30	1.27	20957	16732
1999	12924	5.20	1.35	20477	15984
2000	12875	5.16	1.31	21254	12910
2002	12796	5.24	1.30	22783	14843
2003	12770	5.27	1.29	23373	17296
2004	12233	5.23	1.28	23396	14172
2005	12125	5.16	1.29	23504	14630
2006	11742	5.21	1.26	22837	13174

c Demographic Information by waves in SHP

		SHP			
Waves	**N**	**Life Satisfaction**		**Income**	
		M	**SD**	**M**	**SD**
2000	7071	8.19	1.48	97165	64188
2001	6607	8.10	1.47	100056	84550
2002	5701	8.03	1.43	105187	112739
2003	5219	8.05	1.42	103327	67201
2004	8109	8.06	1.53	105478	76401
2005	6547	8.00	1.51	104313	82993
2006	6663	7.95	1.50	103920	81369
2007	6988	7.99	1.47	107009	108708

Table 3

The Associations between Income and Life Satisfaction for Different Age Groups in the GSOEP

Predictors	Main Effect Model		Age as Moderator	
	Estimates	SE	Estimates	SE
Intercept	6.92*	0.016	6.91*	0.016
≤ 20	0.34*	0.019	0.36*	0.019
21–30	0.16*	0.013	0.18*	0.013
31–40	0.08*	0.010	0.10*	0.010
51–60	0.03*	0.010	0.05*	0.011
61–70	0.36*	0.014	0.37*	0.014
71–80	0.27*	0.019	0.25*	0.020
≥81	−0.08*	0.028	−0.14*	0.033
Between-Person Income	1.29*	0.030	1.57*	0.046
≤ 20			−0.45*	0.083
21–30			−0.36*	0.063
31–40			−0.04	0.052
51–60			−0.14*	0.048
61–70			−0.45*	0.059
71–80			−0.62*	0.076
≥81			−0.83*	0.109
Within-Person Income	0.52*	0.024	0.82*	0.054
≤ 20			−0.72*	0.094
21–30			−0.55*	0.068
31–40			−0.004	0.070
51–60			−0.25*	0.074
61–70			−0.25*	0.083
71–80			−0.48*	0.113
≥81			−0.82*	0.174
Covariates				
Female	0.06*	0.013	0.06*	0.013
Married	0.18*	0.010	0.17*	0.010
Number of Children	−0.01	0.005	−0.01	0.005
Disabled	−0.47*	0.013	−0.47*	0.013
Received Welfare	−0.10*	0.009	−0.10*	0.009
Employed	0.10*	0.008	0.09*	0.008
Years of Participation	−0.04*	0.001	−0.04*	0.001
Years of Education	0.02*	0.002	0.02*	0.002

Note.

* $p<.05$.

N=348,944. Because of the way that age was coded, the intercepts in both models and the coefficients for the between- and within-person income in the interaction model described participants aged 41–50.

Table 4

The Associations between Income and Life Satisfaction for Different Age Groups in the BHPS

Predictors	Main Effect Model		Age as Moderator	
	Estimates	Standard Error	Estimates	Standard Error
Intercept	5.08*	0.021	5.06*	0.021
≤ 20	0.24*	0.019	0.26*	0.020
21–30	0.05*	0.013	0.07*	0.014
41–50	−0.04*	0.013	−0.04*	0.013
51–60	0.11*	0.017	0.12*	0.017
61–70	0.43*	0.020	0.44*	0.021
71–80	0.56*	0.023	0.54*	0.025
≥81	0.56*	0.031	0.53*	0.037
Between-Person Income	0.54*	0.029	0.74*	0.051
≤ 20			−0.24*	0.074
21–30			−0.20*	0.062
41–50			−0.06	0.058
51–60			−0.21*	0.069
61–70			−0.45*	0.084
71–80			−0.53*	0.104
≥81			−0.57*	0.143
Within-Person Income	0.07*	0.021	0.28*	0.048
≤ 20			−0.25*	0.074
21–30			−0.18*	0.065
41–50			−0.23*	0.072
51–60			−0.32*	0.072
61–70			−0.31*	0.081
71–80			−0.26*	0.105
≥81			−0.35*	0.135
Covariates				
Female	0.05*	0.013	0.04*	0.013
Married	0.20*	0.011	0.20*	0.012
Number of Children	−0.03*	0.005	−0.03*	0.005
Disabled	−0.37*	0.010	−0.37*	0.010
Received Welfare	−0.24*	0.015	−0.24*	0.015
Employed	0.05*	0.010	0.05*	0.010
Years of Participation	−0.02*	0.001	−0.02*	0.001

Predictors	Main Effect Model		Age as Moderator	
	Estimates	Standard Error	Estimates	Standard Error
Education				
O-level	−0.02	0.017	−0.02	0.017
A-level	−0.02	0.019	−0.02	0.019
College	−0.01	0.015	−0.01	0.016

Note.

*p<.05.

N=114,314. Because of the way that age was coded, the intercepts in both models and the coefficients for the between- and within-person income in the interaction model described participants aged 31–40.

Table 5

The Associations between Income and Life Satisfaction for Different Age Groups in the SHP.

Predictors	Main Effect Model		Interaction Model	
	Estimates	Standard Error	Estimates	Standard Error
Intercept	7.62*	0.032	7.61*	0.032
≤ 20	0.35*	0.037	0.41*	0.039
21–30	0.19*	0.028	0.21*	0.029
31–40	0.04	0.021	0.05*	0.021
51–60	0.14*	0.023	0.15*	0.025
61–70	0.49*	0.031	0.50*	0.032
71–80	0.65*	0.041	0.68*	0.045
≥81	0.78*	0.066	0.78*	0.087
Between-Person Income	0.84*	0.052	1.19*	0.091
≤ 20			−0.79*	0.161
21–30			−0.54*	0.135
31–40			−0.13	0.110
51–60			−0.23*	0.103
61–70			−0.55*	0.126
71–80			−0.36*	0.160
≥81			−0.43	0.247
Within-Person Income	0.17*	0.035	0.30*	0.083
≤ 20			−0.45*	0.160
21–30			−0.15	0.125
31–40			−0.11	0.119
51–60			−0.15	0.119
61–70			−0.13	0.120
71–80			−0.10	0.158
≥81			−0.14	0.255
Covariates				
Female	0.15*	0.021	0.15*	0.021
Married	0.29*	0.022	0.27*	0.022
Number of Children	0.02*	0.009	0.02*	0.009
Disabled	−0.07*	0.003	−0.23*	0.003
Employed	0.07*	0.017	0.07*	0.017
Years of Participation	−0.04*	0.002	−0.04*	0.002
Years of Education	0.002	0.004	0.0001	0.004

Note.

* $p<.05$.

N=50,970. Because of the way that age was coded, the intercepts in both models and the coefficients for the between- and within-person income in the interaction model described participants aged 41–50.

Table 6

The Associations between Income and Life Satisfaction in the GSOEP subsample (waves 1990, 1992, 1995, 2004, and 2008).

Predictors	Age as Moderators		Age as Moderators with Family and Work Values	
	Estimates	SE	Estimates	SE
Intercept	6.83*	0.027	6.90*	0.028
Younger adults	0.28*	0.021	0.28*	0.021
Older adults	0.40*	0.024	0.41*	0.024
Between-Person Income (BPI)	1.64*	0.052	1.61*	0.052
Younger adults	**−0.59***	0.085	**−0.52***	0.086
Older adults	**−0.35***	0.079	**−0.31***	0.083
Within-Person Income (WPI)	0.79*	0.070	0.80*	0.070
Younger adults	−0.65*	0.112	−0.65*	0.115
Older adults	−0.21	0.138	−0.12	0.144
Family Values			0.19*	0.010
Family Values * BPI			0.21*	0.035
Family Values * WPI			0.07	0.059
Work Values			0.00	0.008
Work Values * BPI			0.06	0.033
Work Values * WPI			0.11	0.058
Covariates				
Female	0.03	0.018	0.00	0.018
Married	0.12*	0.019	0.02	0.020
Number of Children	0.02*	0.009	0.001	0.009
Disabled	−0.65*	0.027	−0.64*	0.027
Received Welfare	−0.46*	0.049	−0.45*	0.049
Employed	0.07*	0.019	0.06*	0.020
Years of Participation	−0.02*	0.001	−0.02*	0.001
Years of Education	0.02*	0.003	0.01*	0.003

Note.

* $p<.05$.

N=59,858. Because of the way that age was coded, the intercepts in both models and the coefficients for the between- and within-person income in the interaction model described participants aged 31–60.