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BRIEF REPORT

Age and Personal Values: Similar Value Circles With Shifting Priorities

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This study examined the relationship of personal values to age using data from two representative surveys. We hypothesized that individuals organize personal values, regardless of their age, as a circle with the same order of values on this circle but that older persons are closer to conservation and more remote from openness to change and closer to self-transcendence and more distant from self-enhancement. The structural stability of the value circle over age was largely confirmed across and within individuals. Different age groups exhibited a tendency to more strongly cluster those values that they rated as relatively important.

Keywords: personal values, value circle, age, life span

In addition to performance capabilities, another major field of age-related differences comprises motivational orientations relevant for a wide array of human behavior. These motivational orientations are strongly affected by personal values, such as a person's striving for power, peace of mind, or recognition. However, the relationship of personal values to age has not received much attention so far.

Theoretically, life span approaches predict that older persons focus more strongly on maintaining their resources and their accomplishments rather than on change and development because they face declining physical and cognitive capacities. Moreover, older persons often have more to lose in terms of their achievements (e.g., material wealth) and have invested more on their attainment (e.g., Freund & Ebner, 2005; Heckhausen, Wrosch, & Schulz, 2010 for reviews). Notably, such maintenance requires stabilizing processes that become more important with age (e.g., Baltes & Baltes, 1990).

In addition, life span approaches would also predict that age is positively related to self-transcendence values such as benevolence and universalism and negatively related to self-enhancement values such as power and achievement (for a review, see Ritter & Freund, 2014). For instance, Erikson (1982) stressed that generativity values increase with age (see also McAdams, Diamond, de St. Aubin, & Mansfield, 1997). Moreover, approaches that focus on perceived future time as a resource (e.g., Brandtstädter, Rothermund, Kranz, & Kühn, 2010; Carstensen, 2006) would predict that instrumental and informational values (e.g., learning, achievement, but also autonomy) become less important when future time is perceived as limited because the chances to reach these values in short time periods are relatively small. In contrast, values that provide more immediate rewards (e.g., authenticity, nonconformism) should be more important when future time is restricted.

Initial empirical research confirmed these assumptions, at least partly. For instance, Fung et al. (2016) observed that age was related to communal values (including both self-transcendence and conservation) and negatively associated with agentic values (including both self-enhancement and openness to change) in both individualistic and collectivistic cultures. Robinson (2012) found similar age differences in 12 European countries for two cohorts of the European Social Survey. Ritter and Freund (2014) examined data from the U.S. subsample of the 2005/2007 World Values Survey, observing the largest age differences in the importance of conformity, with higher ratings on conformity and corresponding lower ratings on stimulation for older as compared with younger participants. Moreover, Gouveia, Vione, Milfont, and Fischer (2015) reported higher hedonistic desires and stimulation values for younger as compared with older adults using samples from Brazil.

To embed these findings into an overarching framework that not only considers the full variety of personal values in one integrated system but that also provides a psychological theory about how individuals arrive at value judgments, we examined age-related differences from the perspective of Schwartz's value circle model (Schwartz, 1992; Schwartz, 2015) and its unfolding extension (Borg, Dobewall, & Aavik, 2016; Borg, Bardi, & Schwartz, 2017). This model proposes a circular scale, with a typical order of basic values and with two higher-order value oppositions that split the circle into four parts. These parts are termed self-transcendence

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(comprising the basic values universalism and benevolence) versus self-enhancement (achievement, power) and openness to change (hedonism, stimulation, self-direction) versus conservation (conformity, tradition, security). The value circle is assumed to be a universal structure, shared cross-culturally by all individuals (e.g., Schwartz, 2015). Individuals are expected to differ only in how they position themselves with respect to this circle so that each person is represented in the model by a point located in the plane of the value circle. Persons striving for tradition, for example, locate themselves close to the point representing tradition on the value circle and therefore automatically close to neighboring values (e.g., conformity) and far from opposite values (e.g., hedonism and stimulation). Thus, if a person moves away from stimulation toward tradition, for example, it affects the distances of this person to all other value points in a predictable way—given that the person does not also change his or her structure of basic values.

The value circle model is not just a statistical model describing the intercorrelations of value items across persons but a theory about the dynamics that underlie an individual's judgments of the importance of values as guiding principles. Therefore, examining age-related differences from the perspective of the value circle also allows analyses of structural changes that are not possible in studies that focus only on selected values or value dimensions. Moreover, if ratings on the importance of various values are analyzed such that each individual is preserved in the value model rather than being aggregated away in correlation coefficients, relationships of age to the system of values can be based on a psychologically more meaningful foundation.

Based on the value circle model and life span theories, we predict that older persons are more distant to the part of the circle that contains the basic values hedonism and stimulation (i.e., openness to change) and closer to the opposite side of the circle that comprises tradition and conformity (i.e., conservation). A side condition of this hypothesis is that the value circle itself remains fixed. This may be assumed because the reasons that make values neighbors or opposites should not be affected by age. Schwartz and Bilsky (1987, p. 550) argue that values are "cognitive representations of three universal requirements: (a) biological needs, (b) interactional requirements for interpersonal coordination, and (c) societal demands for group welfare and survival." Hence, even if the relative weights of these fundamental requirements change with age, none of them disappears completely and their principal conflicts remain stable. This is particularly true for higher-order values. Moreover, based on life span theories that posit age-related shifts from instrumental and informational values toward social and emotional values (e.g., Brandtstädter et al., 2010; Carstensen, 2006) as well as increasing interests in generativity values (Erikson, 1982; McAdams, Diamond, de St. Aubin, & Mansfield, 1997), we predict that older persons are also relatively close to self-transcendence (i.e., universalism, benevolence) and more distant from self-enhancement (i.e., power, achievement) in the value circle model.

Method

Samples

As the first data set, we used the 2012 wave (round 6) of the European Social Survey (ESS), an academically driven cross-national survey conducted every 2 years in Europe (Jowell, Roberts, Fitzgerald, & Eva, 2007). The ESS6 obtained probability samples representative of all persons aged 15 years and older who are resident within private households in each of 29 countries. The realized sample comprises 54,673 persons, with 50,408 persons providing complete data on all value items, age, gender, and country. The participation rate was above 50% in all countries except in Germany (34%) and Italy (37%) (Beulens, Matsuo, Loosveldt, & Vandenplas, 2014). In the sample, age varied from 15 to 88 years, with a mean of 48 years.

As the second data set, we used the Freiburg/Heidelberg 1998 survey conducted in the German cities of Heidelberg and Freiburg as part of a study on community crime prevention (Hermann, 2003). The samples are representative random samples of juveniles and adults of these cities. Altogether, 2,930 questionnaires were returned, with a participation rate of 33%. The participants' age ranged from 13 to 79 years, with an average of 39 years.

Instruments

In the ESS, participants completed a short version of the Portraits Value Questionnaire (PVQ) designed for the ESS (Schwartz, 2003; Schwartz, Lehmann, & Roccas, 1999). This PVQ version includes verbal portraits of 21 different people. Each portrait describes a person's goals, aspirations, or wishes that point implicitly to the importance of a value. For example, "Thinking up new ideas and being creative is important to her. She likes to do things in her own original way" describes a person for whom self-direction values are important. "It is important to him to be rich. He wants to have a lot of money and expensive things" describes a person who cherishes power values. The respondents' own values are inferred from their self-reported similarity to people described implicitly in terms of particular values. Regarding each portrait, the respondents answer the following question: "How much like you is this person?" Six labeled responses range from *very much like me* to *not like me at all*. Two or three portraits operationalize each of the 10 basic values of the theory of Schwartz (1992). The score of importance of each value is the mean response to the items that measure it.

In the crime prevention study, values were measured by the 34 items of the Individual Reflexive Value scale (IRV; Borg, Hermann, & Bilsky, 2017; Hermann, 2003). These items are introduced by the preamble: "Please think about what you really strive for in your life. Then, how important are the following things and life orientations to you? . . . Please mark on a scale from 1 to 7 how important this is to you." After this introduction, the items are presented as brief statements (such as "respecting law and order" or "having power and influence"), followed by a 7-point rating scale with end categories labeled as "this is completely unimportant to me" and "this is very important to me," respectively.

Bilsky and Hermann (2016) categorized 30 of the 34 IRV items in terms of Schwartz's 10 basic values. We here added an additional value, peace of mind, measured by the items *inner peace and harmony* and *to have a good conscience*. Moreover, to get a value circle with more points, we split the set of items measuring tradition into those that focus directly on tradition (*to stay with traditions* and *to be proud of German history*) and those asking about religion (*to believe in God* and t*o have one's life guided by Christian norms and ethics*).

Statistical Methods

Following common procedure in value research, the respondents' summative scores for the basic values were first centered, person by person, to control for response style artifacts and to generate relative importance indexes (Borg & Bardi, 2016; Schwartz, 2003). The statistical structure of values was then studied using multidimensional scaling (MDS; Borg & Groenen, 2005). That is, the intercorrelations of the persons' value indexes were optimally mapped into distances among points representing the values in a geometric space with two dimensions. The correspondence of the correlations and the MDS distances was measured by the Stress index. A Stress value of zero indicates perfect model fit. Nonzero Stress values were evaluated against norms based on simulating random data (Spence & Ogilvie, 1973) and by using permutation tests (Mair, Borg, & Rusch, 2016).

In addition, we predicted that the MDS configurations for different age groups all exhibit the value circle. We formed six age groups (<21; 21–30; 31–40; 41–50; 51–65; >65 years) for each of the two samples and compared the MDS configurations of these subsamples in terms of their similarity (after eliminating meaningless differences by Procrustean transformations; see Borg & Groenen, 2005) by computing the product-moment correlations of the coordinate values of corresponding points. These fit measures were assessed against statistical benchmarks reported by Borg and Leutner (1985).

Given that the MDS analyses showed a robust value circle structure for all age groups, the value-shift hypothesis could be tested on an aggregate level by correlating the persons' age with their scores on the various value scales. To examine whether the hypotheses also hold for each individual, we used (ratio level) unfolding to scale the persons' value scores directly without first aggregating these data across persons (Borg, Bardi, & Schwartz, 2017). Unfolding represents values and persons as points in a geometric space such that the distances from each person point to the various value points optimally represent the observed value importance scores of the respective persons on the level of a ratio scale (i.e., up to an overall scaling constant). As in MDS, the fit of the model is measured by the Stress loss function and evaluated statistically using permutation tests.

All data analyses were conducted in the R environment (R Core Team, 2016), using the MDS and the unfolding functions of the SMACOF package (Borg, Groenen, & Mair, in press; De Leeuw & Mair, 2009).

Results

ESS Data

The MDS solutions for the six age groups of the ESS showed an excellent model fit, with Stress values of .064, .064, .069, .053, .036, and .024, respectively. These values are clearly below the critical 5% benchmark value of .154 for 10-point configurations. The p values of the solutions in permutation tests are zero in each case. All solutions exhibit the expected value circle, with essentially the same order of value points on the circle. The MDS solutions are highly similar to each other: The correlations of the coordinates of corresponding points of the MDS solution for the whole ESS sample and the MDS solution for each age group are .966, .974, .991, .991, .992, and .995, respectively, which is far above the statistical norms for such comparisons. Thus, the premise of our predictions (i.e., a stable common value circle for all age groups) was corroborated.

The correlations of the (centered) scores of the personal values with the respondents' age for all respondents of the ESS data support our hypotheses. We found a positive (linear) trend of age and conservation values (age and tradition $r = .33$; conformity, .28; security, .21) and a negative trend for the opposite openness to change (stimulation, −.33; hedonism, −.26). For the second higher-order value set, we observed a weaker positive trend for self-transcendence (benevolence, .12; universalism, .21) and a negative trend for self-enhancement (power, −.12; achievement, −.26). All correlations are highly significant.

Running separate unfolding analyses for the youngest (<21 years of age) and for the oldest age group (>65 years) leads to the solutions shown in Figure 1. The (metric) Stress is .163 for the young age group with 3,660 persons and .165 for the old age group with 9,973 persons. Permutations tests lead to $p = .00$ in both groups, indicating a close fit of the unfolding model to the data. Moreover, unfolding leads to similar value circles in both groups without imposing a circular configuration onto the value points via external constraints. The plots show that older persons were generally closer to tradition, conformity, and security and more distant from the points on the opposite side of the value circle (stimulation, hedonism).

Data of the Crime Prevention Study

The 12-point MDS solutions of the six age groups of the crime prevention study had excellent fit values (.096, .089, .071, .072, .098, and .118, respectively, with .170 as the 5% benchmark value) and zero p values in permutation tests. After eliminating meaningless differences through Procrustean transformations, the configurations appeared highly similar to each other: The six configurations correlated with the configuration for the whole sample with .986, .989, .988, .984, .986, and .960, respectively; all values were clearly higher than the Borg-Leutner benchmarks.

When correlating the respondents' age with their (centered) indexes of the importance of the 12 basic values, we found that the correlations were all positive for tradition (.44), conformity (.23), security (.19), peace of mind (.23), and religion (.34) and all negative for hedonism (−.47) and stimulation (−.49), as expected. This corroborates the ESS findings from above and provides further evidence that age leads to a shift on the *openness to change* versus *conservation* scale. Moreover, power (−.12) and achievement (−.26) were again negatively correlated with age. Only benevolence (−.13) did not show the expected opposite trend with age, and universalism was the only nonsignificant correlation (.03).

Figure 2 exhibits the unfolding solutions for the youngest and the oldest group of persons separately. The (metric) Stress of these solutions is .211 and .209 (with $p = .00$ in permutation tests), respectively, indicating a good and significant fit in both cases. Both configurations show value circles in which the higher-order values are clearly separated, with oppositions as theoretically expected. The cloud of person points of the young sample is positioned much closer to hedonism and stimulation as compared with the points of the older persons, as expected. Older, as com-

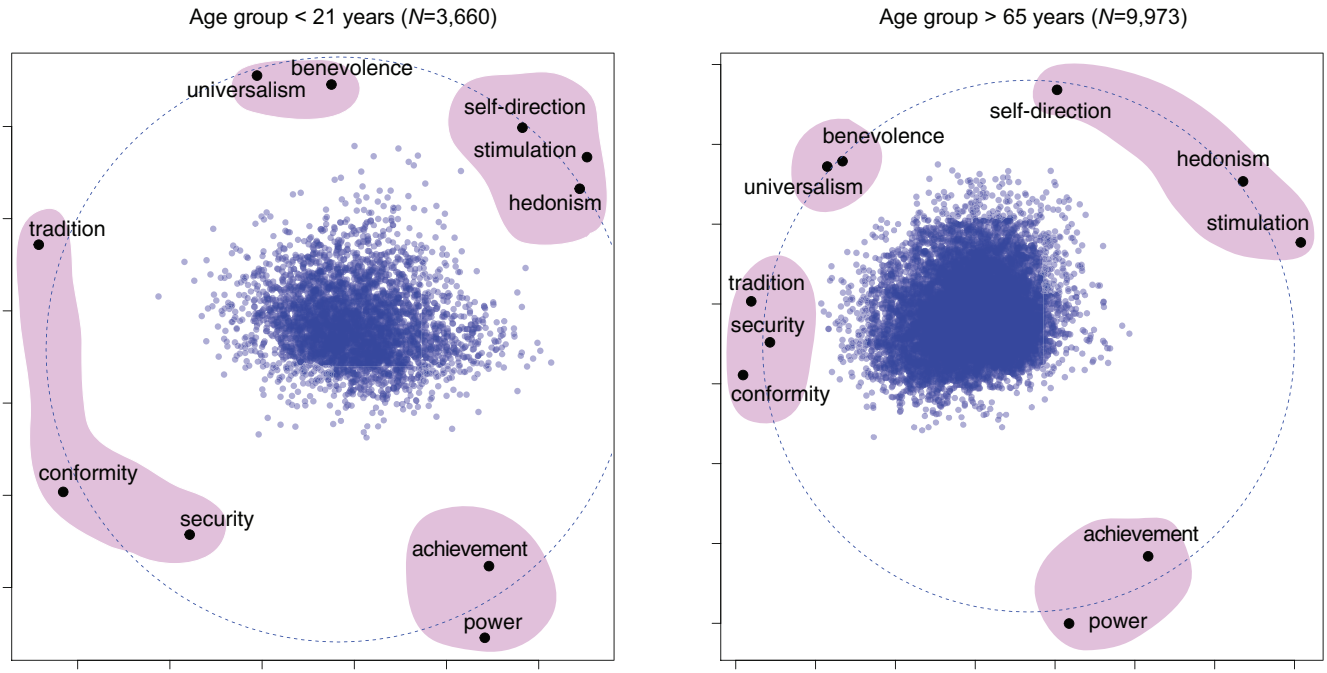

Figure 1. Unfolding solutions for youngest age group of the European Social Survey (ESS; left panel) and the oldest age group (right panel); 10 basic values from Portraits Value Questionnaire 21 (PVQ21) placed in higher-order value regions (shaded); circles optimally fitted to value points; unlabeled points represent the persons, one point per person; the distances from a person point to the value points represent this person's preference ratings. See the online article for the color version of this figure.

pared with younger persons also place self-direction within the openness to change region closer to benevolence and universalism. Moreover, older persons place security closer to peace of mind and benevolence/universalism, but both groups leave security in the conservation region.

Discussion

In this study, we examined age-related differences in personal values viewed from the perspective of Schwartz's value circle model using two separate data sets. As predicted and corroborating prior research, it was found that age was correlated with a clear shift away from openness to change toward conservation. The data from the second data set also suggested that older persons find religion and peace of mind more important than younger persons. Moreover, we also found in both data sets negative (but weaker) correlations of age with self-enhancement values (achievement, power) but only in the ESS data also the predicted positive correlation of age with self-transcendence (universalism, benevolence), supporting partly age differences derived from life span theories (e.g., Fung et al., 2016).

MDS analyses revealed that the order of personal values on the value circle remained essentially the same in all age groups, consistent with our expectations. Moreover, unfolding showed that all individuals could be represented in the value circle model. This supports a universal theory of how individuals arrive at their value judgments. However, one also notes some structural differences in the unfolding configurations when comparing the young and the old sample. This is particularly evident in Figure 2. For example, self-direction in the older sample is relatively close to peace of mind and universalism/benevolence. This suggests that the meaning of self-direction varies somewhat between the different age groups: Whereas self-direction can still be seen as an element of openness to change in the older sample, the emphasis here is less on stimulation and hedonism but more on being able to live on one's own responsibility. This is in line with life span theories noting that stabilizing and maintenance goals require increasing flexibility with higher age (e.g., Hertel & Zacher, in press for summarizing related data from the work context).

More generally, individuals (regardless of age) clustered those groups of values more strongly which they preferred more (see Figures 1 and 2). Geometrically, as a person moves closer to a fixed cloud of value points, the distances to these values not only become smaller but their ratios also become more extreme. Apparently the respondents effectively prevented such ratios to become too extreme by clustering these values. Whereas further research is warranted to better understand these effects, it should be noted that such more complex dynamics cannot be detected in studies that focus only on selected values. Instead, the full range of personal values has to be considered as in the present study.

When comparing the unfolding solutions for the ESS and the crime prevention studies, one should keep in mind that the basic values were measured with different instruments, using very different items, and stressing somewhat different facets of the values. For example, the two IRV items measuring security focus on the importance of striving for security and living health-conscious, whereas the PVQ21 assessed "I want to live in secure surround-

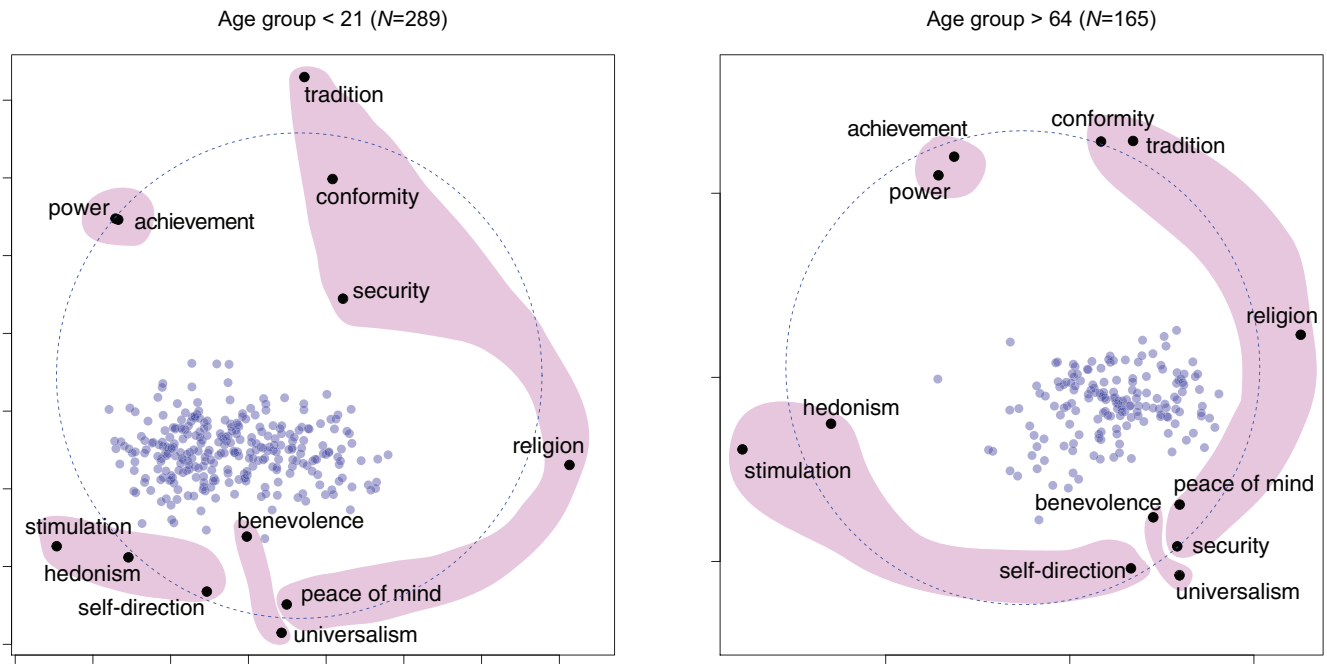

Figure 2. Unfolding solutions for youngest age group of the crime prevention sample (left panel) and the oldest age group (right panel); 12 basic values from Individual Reflexive Value scale (IRV) placed in higher-order value regions (shaded); circles optimally fitted to value points; unlabeled points represent the persons, one point per person. See the online article for the color version of this figure.

ings; I avoid anything that might endanger my safety" and "the government should ensure my safety against all threats; I want the state to be strong so it can defend its citizens." The emphasis on health may explain the location of security close to self-direction and peace of mind in the older age group of Study 2. Nevertheless, the ESS and the IRV data both support the value circle with its higher-order values groups.

Although the cross-sectional data in our study do not exclude cohort effects, the fact that we found similar results using data from different times (2012 vs. 1998) with different mean age might minimize cohort effects as alternative explanations. Moreover, the main trends observed are fully in line with previous studies in other cultures (Gouveia, Milfont, & Guerra, 2014). Hence, it seems that the data are at least partly consistent with longitudinal changes over persons' life spans. On the other hand, even though the value circle structure and the age-related value shifts seem universal, there were marked differences in the size of the value-age correlations in different countries when studying subsamples of the ESS. For example, we found relatively small value-age correlations in Russia but strong ones in Sweden. If the cohort would be more important relative to life span, one would probably have expected the opposite, considering the turbulent changes in Russia compared with the relative stability in Sweden during the last decades.

Together the present analyses of two independent samples collected at different times with different measurement instruments showed an impressive congruence of value representations across age groups. At the same time, age-specific trends that are well in line with existing life span theories occurred. Future research might explore the dynamics of these changes more thoroughly, considering longitudinal designs as well as different environmental and cultural contexts.

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