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## **The Roles of Religiosity and Affluence for Adolescents' Family Orientation: Multilevel Analyses of 18 Cultures**

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## **The Roles of Religiosity and Affluence for Adolescents' Family Orientation: Multilevel Analyses of 18 Cultures**

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*Abstract:* Recent sociological and psychological debates concern the nature of the relation between changing religious beliefs and changing significance of the family. The current study analyzes multilevel relations between religiosity (personal and culture-level) and several aspects of family orientation for  $n = 4902$  adolescents from 18 nations/areas from diverse cultural contexts covering a number of religious denominations with data from the Value-of-Children-Study (Trommsdorff & Nauck, 2005). In addition, cultural values from the World Values Survey representing religious versus secular values as well as survival versus self-expression values are examined at the cultural level of analysis as a joint effect with nation-level economic development. Results showed that religiosity/religious values were positively related to all aspects of adolescents' family orientation at the individual as well as the cultural level, while societal affluence was only related to a loss of importance of the traditional and hierarchical aspects of family orientation. Postmaterialist self-expression values were unrelated to adolescents' family orientation.

*Keywords:* adolescence, religiosity, family orientation, multilevel models

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## **Introduction**

Religions represent significant value systems that affect the way (religious) people feel, think and behave – also and especially with respect to the family. At the same time, the family as the place where major socialization processes occur plays an important role for children's and adolescents' religious (or nonreligious) development (e.g., Trommsdorff, 2012). At the societal level, economic and cultural changes are related to a (debated) loss of significance of both religion and the family in many societies. Religion and the family are thus closely linked at the societal as well as at the individual level. However, it is an open question as to how far changes in the importance given to religion have affected changes in the family and/or vice versa (Eberstadt, 2013). The current study adds cross-cultural evidence with regard to individual-level and culture-level relations between religiosity and several aspects of adolescents' family orientation.

Adolescence is a time when the search for an identity becomes salient, and religion has been (and still is in many cultural regions) the main source of answers to existential questions. The transition to adulthood is also related to questions regarding what it means to be an adult, including having one's own family. Most adolescents all over the world would like to have a family in the future, although the ideas about and the values regarding family relationships differ widely (e.g., Kağıtçıbaşı, 2007; Mayer & Trommsdorff, 2010). The main focus of the current study is therefore on the relation between adolescents' religiosity and aspects of their family orientation. Taking a cross-cultural and multilevel perspective, we will explore the individual-level relations between religiosity and socioeconomic status with traditional as well as nontraditional aspects of adolescents' family orientation. Further, we will analyze culture-level relations of societal indicators representing 1) the importance of religion (vs. secular-rational values); 2) the importance of an individualistic/self-expression cultural orientation; and 3) of societal affluence, with aspects of adolescents' family orientation. The analyses are based on data from 18 nations/regions from the cross-cultural research project "Value of Children and Intergenerational Relations" (Trommsdorff & Nauck, 2005).

We define adolescents' family orientation in a broad sense in order to study the effects of religiosity on both traditional normative as well as more psychological and future-oriented aspects of the family. Thus, in our study family orientation encompasses a) traditional family values (related to hierarchical family roles and to the importance of the family cohesion vis-

à-vis the outside world), b) whether or not adolescents would like to have children themselves in the future (and how many), and c) the importance of two different kinds of reasons for having children (value of children, VOC). The value of children is related to the needs that children fulfill for their parents and the benefits they provide (Hoffman & Hoffman, 1973). While the VOC-construct has been originally conceived as an individual-level psychological mediating factor in the relation between macro-cultural changes and changes in fertility rates (Arnold et al., 1975), the two main dimensions, utilitarian-normative VOC and psychological VOC, can also be seen as generalized value orientations reflecting different aspects of family orientation, namely a traditional aspect (utilitarian-normative VOC) versus a nontraditional subjective emotional aspect (psychological VOC) (Kağıtçıbaşı, 1982, 2007). Mayer and Trommsdorff (2010) showed in a twelve-culture study with adolescents from the VOC-study that cross-cultural differences with regard to utilitarian-normative VOC were immense (with societal affluence related to a lower importance of these reasons for having children) while few differences resulted for the psychological VOC (high in all cultures).

Thus, the main question of the current study is: How are religiosity as well as socioeconomic status related to *traditional aspects* of adolescents' family orientation, and how are they related to *personal and future-oriented aspects* of adolescents' family orientation (psychological values of children and intended number of children) – both at the individual level as well as at the cultural level? In the following sections we will discuss the link between religion/religiosity and family orientation separately for the cultural level (closely related to cultural/societal change) and for the individual level (focusing on psychological and socialization processes).

### **Religion and the Family: Culture-Level Links**

Many religious traditions (e.g., Islam, Judaism, most traditions in Christianity) declare family relations and specific family roles and hierarchies as sacred. Taking the Christian tradition as an example, the Bible (especially parts of the Old Testament) affirms and authorizes positive norms of filial obligations and assistance to family members. The milestones of family life, such as birth and marriage, are celebrated through religious rituals and ceremonies. Thus, the importance and normativity of religion in a specific cultural context should be related to the importance

and normativity of the family in this context, reflecting a positive correlation at the cultural level.

With regard to this culture-level link we have to consider processes of cultural and economic change over time that have led to a decline of both religion and the family during the last decades. Although a general decline of religiosity and a concomitant rise of secular orientations is a controversial issue (Halman & Pettersson, 2006), it is largely acknowledged that the phenomenon of secularization, reflecting a continuous decline of religiosity in Western Europe and the English-speaking world during the second half of the 20th century, has empirical validity (Eberstadt, 2013). In a large-scale longitudinal study of religion and its intergenerational transmission, Bengtson and colleagues analyzed the changes of religious beliefs, values, and practices across three decades and three connected generations in the United States. From 1971 to 2000 there was a considerable decline of reported religious affiliation for all three generations (Bengtson, Copen, Putney, & Silverstein, 2009).

Secularization has been described as resulting from economic development and related modernization and individualization processes: economic prosperity and the rise of welfare state provisions can buffer existential risks related to religious needs (Norris & Inglehart, 2011). Furthermore, a number of phenomena that are more or less linked to modernization processes, such as the rise of rational and scientific thinking starting with the enlightenment era, have contributed to a loss of the importance of religion (Eberstadt, 2013). Although it is acknowledged that traditional religious values can persist to some degree (Inglehart & Baker, 2000; Inkeles, 1998), it is often assumed that sooner or later all cultures will overcome traditional religious values and prefer secular-rational and autonomous self-expressive values ("human development sequence", see Inglehart & Welzel, 2005). This view has not been unchallenged, however. Georgas (2006) argues that the thrust of modernization itself is based on religious and cultural values that have developed out of Calvinist Protestantism, as originally suggested by Weber ([1904] 1958). In a similar vein, Eisenstadt (1973) postulates that the development of transcendental religions during the axial age (Confucianism, Buddhism, Hinduism, Judaism, Christianity, and later Islam) are the basis of later modernization processes. In a study of Christian societies with data from the International Social Survey Programme, Höllinger and Haller (2009) conclude that although traditional forms of religion have declined considerably in some cultures, religion continues to play an important role in the public sphere as

well as in private life in other cultures. The authors argue that the worldviews and doctrines of Protestantism have led to a greater “disenchantment of the world” (p. 281) and to a subsequent decline of religiosity as compared to Catholicism and Orthodoxy (see also Georgas, 2006). Furthermore, bureaucratic state churches (as in some Western European countries) and communism in most Eastern European nations were related to lower religiosity (with the exception of Poland, where religiosity declined only after the collapse of communism).

Theoretical approaches related to modernization have also widely discussed a decline of the family. The origins of this process can be traced back to the French Revolution, which disturbed the equilibrium of the traditional extended family system and patriarchal authority (according to Auguste Comte, cited after Georgas, 2006). Similarly, Parsons (1949) argued that the industrial revolution required the formation of a nuclear family that became more and more alienated from its extended kin network. There are manifold indicators of this decline continuing today: an increasing number of single-parent families; an increasing divorce rate; an increase in step-families and patchwork families; and, most of all, a declining birth rate (Georgas, 2006; Goode, 1963). The postnuclear family (Popenoe, 1988) is characterized by a further decreasing family size, fewer joint activities and less quality contact between parents and children, and reduced contact with collateral kin (e.g., aunts, nephews, etc.), but more contact with grandparents.

Bengtson (2001) argues that the increasing importance of multigenerational bonds may signify a qualitative change in family solidarity structures rather than an overall loss of importance of the family. In a similar vein, Pankhurst and Houseknecht (2000) argue that in spite of the manifold changes that religion and the family undergo in the modern era, both institutions are not on the decline but still vital and important in most societies, raising doubts with regard to the general validity of the secularization thesis and the thesis of family decline. In addition, Kağıtçıbaşı (2007) contends in her theory of family change that despite rising affluence, a shift towards a lower overall importance of the family is not necessarily taking place in modernizing cultures of the majority (i.e., non-Western) world. Rather, she postulates a shift toward a *family model of psychological interdependence*, characterized by continuing emotional/psychological interdependence but declining material interdependence together with rising personal autonomy. In this family model, the traditional hierarchical and financial security aspects of the

family are thus assumed to lose significance while the family per se and the emotional relations in the family stay important. Thus, the notion of a general decline of the family (i.e., a declining importance of all family relationships in addition to macro-social indicators like declining fertility rates, rising divorce rates, and lesser contact with kin) must be questioned in light of the theorizing just presented. In the current study we will not study family decline as defined from a sociological perspective, but instead analyze adolescents' family orientation in terms of their family-related values and future plans. We will explore whether culture-level indicators of economic development, religion, and cultural value orientations are related only to the traditional hierarchical and economic aspects of family orientation or whether – in addition to that – also the psychological and future-oriented aspects of adolescents' family orientation are affected by these culture-level indicators.

Thus, both the process of secularization and the process of a decline of the family (at least in the sociological sense) seem to be fueled first and foremost by economic development. As stated above, though, since values regarding the family are deeply rooted in many religious traditions, a decline of the importance of the family can also result directly from a decline of religious beliefs. Indeed, secularization and modernization theoretical approaches have championed the hypothesis that religious decline actually leads to family decline when religion-based family and fertility norms lose their power and set people free to decide for themselves whether they want to form a family (by marrying and having children) as well as continue a family (at least with respect to marriage/divorce) (Norris & Inglehart, 2011). Recently, Eberstadt (2013) argued that the reverse process – family decline leading to religious decline – may be an additional powerful and hitherto neglected factor explaining the loss of significance of both traditional institutions in the Western world. In short, her argument is that religion “runs in families” – that religious values are transmitted across generations in well-functioning families (see also Trommsdorff, 2009). Lower family cohesion as well as a general decline of marriages and a rise of divorce rates may therefore lead (or have lead) to a decline of religious values and practices. Indeed, according to Boyatzis, Dollahite, and Marks (2006) the factor with the greatest impact on children's religious development is the socialization experience within the family. Further, in their three-generation longitudinal study, Bengtson et al. (2009) found that parents as well as grandparents substantially influenced several aspects of their offspring's religiosity. Thus, for most adolescents, the importance of a



specific religious belief is strongly influenced by their family's religious beliefs (see also Regnerus, Smith, & Smith, 2004). Eberstadt (2013) also suggests that the family factor could explain what has been called the "problem of American exceptionalism". This "problem" refers to the fact that Americans (as compared to Western Europeans) are still very religious when considering their very high level of modernization and economic development. Attempts to explain this fact include the Puritan religiosity of the original immigrants from Europe, but also the notion that the real explanandum is actually the very low religiosity of Western Europeans (e.g., Beck, 2010). Eberstadt (2013) contends that it is the relative high family functioning (e.g., more marriages, more children) in the US as compared to Western Europe that can at least partly explain the difference in the importance of religion.

To summarize, we have seen that – from a sociological perspective – both religiosity and family orientation have been on decline in large parts of the (Western) world, and this development seems to be mainly driven by a syndrome called modernization that in turn is powered by economic development. But there are also direct relations between (the decline of) religiosity and (the decline of) the family. Qualifying this notion, alternative theoretical approaches and empirical findings, especially from cross-cultural psychology, suggest that a decline of the family may be restricted to the traditional hierarchical aspects of the family and to the material interdependencies in family relationships that become obsolete with economic development; there may be no decline of the family per se, especially in modernizing cultures with a collectivistic cultural background (Kağıtçıbaşı, 2007). In our study we will try to disentangle these relationships by analyzing culture-level effects of religiosity (operationalized through *Traditional-Religious vs. Secular-Rational Values* from the World Values Survey (WVS); World Values Survey, 2009) and economic development (operationalized through the *Human Development Index* (HDI); United Nations Development Programme, 2010) on different aspects of adolescents' family orientation. In addition, we will consider culture-level effects of *Survival vs. Self-Expression Values* (World Values Survey Association, 2009) on adolescents' family orientation (Inglehart & Welzel, 2005). In earlier writings Inglehart and colleagues (e.g., Inglehart & Baker, 2000; Inglehart & Oyserman, 2004) referred to this value dimension as *postmaterialist values* that represent a kind of "positive individualism". These values are thought to have been growing out of the release of (a great part of) mankind from the shackles of the fight for



survival through modernization and economic development. Thus, while we focused our discussion on secularization up to now, with the *Survival vs. Self-Expression* dimension a syndrome of autonomy/independence/personal choice explicitly enters the stage as part of the modernization syndrome. It is unclear whether this additional dimension affects family orientation (traditional and/or general) uniquely and in addition to the other variables. As we will see below, in our study of 18 cultures the level of economic development (HDI) was positively related to both WVS value dimensions, but the two value dimensions themselves were *unrelated* with each other. It is therefore of special interest to analyze the joint as well as the respective unique culture-level contributions of affluence, *Traditional-Religious vs. Secular-Rational Values* and of *Survival vs. Self-Expression Values* to different aspects of adolescents' family orientation.

### **The Importance of Religiosity for the Development of Family Orientation in Adolescence: Individual-Level Links**

Adolescence is an important period for religious and spiritual development. Adolescent identity development comes with an intense striving for meaning and a need for autonomy and relatedness (Erikson, 1968; Youniss & Smollar, 1985). Therefore, adolescents often engage in religious and spiritual exploration (Elkind, 1964; Good & Willoughby, 2008; Oser, Scarlett, & Bucher, 2006). Several studies have shown that religiosity is associated with better physical and mental health, and with a positive moral development in adolescence (George, Ellison, & Larson, 2002; King & Furrow, 2004; for a summary see Trommsdorff, 2012).

As mediators of these effects, religion's positive influences on social capital – social support, and community inclusion were identified (George et al., 2002). The *family* as an essential source of social support plays an important role for the link between religiosity and adolescent developmental outcomes (Regnerus & Burdette, 2006; Pearce & Thornton, 2007). However, most studies on religiosity (especially from a psychological perspective) are based on Western, educated, industrialized, rich, and democratic (WEIRD, see Henrich, Heine, & Norenzayan, 2010) samples. Few studies shed light on the function of religiosity for adolescent development across cultures. In a recently edited volume on the role of values and religion in adolescent development in different cultures,

Trommsdorff & Chen (2012) included contributions specifically dealing with relations among religion, family and culture. In one of the chapters, Mayer and Trommsdorff (2012) analyzed cultural differences and similarities in the *strength* of individual-level effects of adolescents' religiosity on their traditional family values as well as their family future orientation (importance of having a family in the future). This study used partly the same data set as the current study, but with a different theoretical and empirical focus, a slightly different sample of cultures, and partly different dependent variables. The results of the study showed that the individual-level effects of religiosity on adolescents' family orientation differed across cultures and that the differences could be partly explained by the cultural mean level of adolescents' aggregated religiosity. This cultural mean level of religiosity can be interpreted as representing a level of normativity of religion in a specific culture. The direction of the effect was such that a *stronger* cultural normativity of religion was related to a *stronger* individual-level effect of religiosity on traditional family values, illustrating the interplay between cultural norms and individual values. In another study, Sabatier, Mayer, Friedlmeier, Lubiewska, and Trommsdorff (2011) found that religiosity was indirectly related to adolescent life satisfaction via family orientation in four cultures with a Christian religious background (France, Germany, Poland, and the United States); and in a study of US adolescents with Latin American, Asian, and European backgrounds, Lopez, Huynh, and Fuligni (2011) showed that regardless of religious and cultural background, changes in adolescents' religious identity were closely related to changes in their family identity.

Religions are packed with values - generalized notions of what is good and desirable that influence behavior in a number of domains (Schwartz, 2012). Indeed, values, related moral prescriptions, and the reasoning related to these could be seen as the core of religious teachings. Though different religions harbor different values, religiosity by itself (and therefore in a universalistic sense) may be related to a certain set of values that may in turn relate to different ways of 'doing family'. In early cross-cultural studies on the role of religion for value orientations, religious participants reported a higher importance of values like salvation, forgiveness, and obedience than did nonreligious participants, who reported a higher importance of independence, pleasure, and intellectualism (Rokeach, 1969). Later studies using the Schwartz' circumplex model of values tended to find similar associations (e.g., Schwartz & Huisman, 1995). In a meta-analysis, Saroglou, Delpierre, and Dernelle (2004) corroborated these

findings across 21 samples from 15 countries and three denominations (Christians, Jews, and Muslims): higher religiosity was positively related to values supporting the preservation of the social order and to prosocial values while it was negatively related to values promoting openness to change and autonomy as well as to hedonistic values. This brings us directly to the topic of religions as cultural systems propagating family ideologies by instilling an “ethos” of the family (Chatters & Taylor, 2005; Pankhurst & Houseknecht, 2000; Pearce & Thornton, 2007). Moral directives derived from religious doctrines (e.g., that children are advised to honor their parents) “can constitute a key form of religious influence among youth” and can offer “purposes and processes that have no direct equivalent within secular systems of meaning and motivation.” (Regnerus & Burdette, 2006, p. 178). Religion therefore has a powerful impact on adolescents and their development (Benson, Donahue & Erickson, 1989) including the formation of childbearing preferences (Pearce, 2002). Religion emphasizes a strong family orientation, thus enhancing the motivation for having children (Barber, 2000). It influences individual behavior directly by promoting pronatalist values, such as encouraging marriage and responsible parenthood (Lesthaeghe & Surkyn, 1988).

### **Research Questions**

The current study explores multilevel relationships between religious values and economic development with adolescents' family orientation across 18 cultural groups. We will relate two culture-level indicators taken from the *World Values Survey* (World Values Survey Association, 2009; one of them representing religious values) and the *Human Development Index* (UNDP, 2010) (representing the level of economic development of a culture) to hierarchical/traditional as well as to personal/future-oriented aspects of adolescents' family orientation using data from the Value of Children Study. At the individual level, adolescents' personal religiosity and their family's socioeconomic status are used as predictors. Relationships at both levels are simultaneously analyzed using hierarchical linear modeling (Raudenbush & Bryk, 2002).

In the theoretical part we considered only the individual-level relation between adolescents' *religiosity* and their family orientation. Now we will additionally include adolescents' (or rather: their family's) self-reported *socioeconomic status* as another individual-level predictor. The self-

reported socioeconomic status indicates an adolescent's perceived status relative to others in his/her cultural group. One could argue that a relatively high socioeconomic status should be related to a higher family orientation (especially with regard to having own children in the future), because a certain financial security is necessary to start a family. On the other hand, relative socioeconomic status could be negatively related to more traditional aspects of family orientation like the utilitarian-normative value of children since a high status may reduce the importance of having children for economic reasons. In particular, the following hypotheses will be tested:

1) Based on the considerations in the theoretical part, we expect that, overall, individual-level religiosity is positively related to adolescents' family orientation. We hypothesize that this relation holds for all aspects of adolescents' family orientation – the traditional conservative ones (traditional family values and utilitarian-normative value of children, see below) as well as the more general and future-oriented ones (psychological value of children and intended number of children). These expectations are based on religions' overall occupation with family-promoting values, both regarding the traditional as well as the general and pronatalist aspects.

2) With regard to culture-level effects, we expect that both the importance of traditional-religious values as well as societal affluence have important implications for the role of the significance of the family in a society. As discussed above, however, a high level of socioeconomic development cannot be equated with religious decline/secularization since religious traditions often moderate or canalize changes brought about by modernization processes. Consequently, both phenomena are assumed to have unique effects on adolescents' family orientation across cultures. Specifically, we hypothesize that

a) *Traditional-Religious vs. Secular-Rational Values* (i.e., a dimension representing *non*-religiosity at the positive pole) will be negatively related to all four aspects of adolescents' family orientation, based on the above argument that religion affects all facets of family life;

b) Societal affluence (HDI) is also related to *all* aspect of adolescents' family orientation, based on modernization theoretical arguments (family decline); based on alternative culture-psychological and sociological conceptions of family change (e.g., Kağıtçıbaşı, 2007), we could, however, expect that the HDI will be negatively related only to the material and to the traditional aspects of adolescents' family orientation but not to the general and personal ones.

c) *Survival vs. Self-Expression Values* (i.e., a dimension representing the importance of autonomy/independence/self-expression at the positive pole) may be negatively related only to the traditional aspects of adolescents' family orientation, but not to the general and personal ones, based on the premises that this dimension is explicitly related to financial/existential security (at the cultural level) but also to a postmodernist self-actualization perspective that is not opposed to the notion of having (and being happy with) a family.

### **Sample**

The study is part of the cross-cultural study "Value of Children and Intergenerational Relations" (VOC-IR study; Trommsdorff & Nauck, 2005), which has been carried out in 18 nations and regions. The VOC study is a three-generation study that includes about 300 adolescents, their mothers, and about 100 maternal grandmothers in each of the countries studied. Countries from diverse geographical regions were included to represent a wide range of cultural orientations towards religion and the family. In cultures with continuing strong urban-rural differences (i.e., China, India, Indonesia, Poland, South Africa, Turkey), samples from both rural and urban areas were included. In all other cultures, participants were from suburban or urban regions. In multiethnic countries (Indonesia, Israel, South Africa, USA) ethnically homogeneous samples were collected because the samples sizes did not allow for further differentiations. Participants from Israel were all Jewish, partly from secular and partly from orthodox Jewish contexts. Participants from South Africa were recruited from the Northern Sotho cultural group (Limpopo Province), whose standard of living is considerably below the South African average (Sam, Peltzer, & Mayer, 2005). There were two Indian samples: one from Northern India (Varanasi area), and one from Southern India (Pondicherry area). Since the two Indian samples are culturally diverse and speak different languages (Hindi in the North, Tamil in the South) we considered them as separate cultural groups for our analyses.

The procedures of recruitment were adapted to the specific circumstances of the respective country. In most countries, families were recruited through the schools of the target adolescents. In some contexts, participants were chosen through resident registration lists, by a random selection from telephone books, or by a multistage cluster procedure. The

data collection of most of the cultures took place between 2002 and 2004 (China, Czech Republic, France, Germany, India, Indonesia, Israel, Italy, Japan, Romania, South Africa, Switzerland, Turkey), in Poland and the United States between 2005 and 2007, in Russia in the years 2006 and 2007, and in Estonia in 2009. Thus, while the data collection extended over a quite long period, most of the data were collected within about four years. Furthermore, in light of the stability of basic cultural features and the relatively slow pace of cultural change regarding religious and other very basic values (Saroglou, 2012), we believe that the differences in data collection time are not questioning the validity of our results.

In the current study only the adolescent sample was used. Overall,  $N = 4902$  adolescents (and some emerging adults) (58.6 % females) participated in the study. The samples in the eighteen cultural groups varied between  $n = 100$  (Romania) and  $n = 381$  (Italy), and the percentage of females varied between 50.0 % (India, Pondicherry) and 64.1 % (United States) with the exception of the Czech Republic, where *only* females participated in the study. The adolescents were between 12 and 23 years old, with 97.5% of the sample being between 13 and 19 years old ("teenagers"); the overall mean age was 15.57 years ( $SD = 1.65$  years) and the median age was 16 years. All adolescents over the age of 20 came from Switzerland ( $M = 19.8$  years), where a somewhat older sample including emerging adults up to the age of 23 was realized ( $n = 70$  participants from Switzerland were older than 19 years). Age differed significantly across the twenty cultural groups,  $F(17, 4823) = 235.84, p < .001$ . The sample sizes as well as the means and standard deviations of age per culture are shown in Table 1. In a first round of analyses all models were run with age as a covariate. Since the results did not differ compared to models without the age variable, we report the results without covariates to reduce the complexity of the multilevel analyses.

## **Procedure**

In all cultures participants were surveyed by members of the local collaborating team. They completed the VOC-IR study questionnaire for adolescents (Trommsdorff, Nauck, Schwarz, Chakkarath, & Schwenk, 2002) either at home (during the mothers' interview, but in a separate place) or in school. The questionnaire contained questions concerning sociodemographic characteristics, religiosity, the (grand)parent-child

relationship, parenting, attachment, exchange of support between the generations, family-related values and self-construals, subjective well-being, peer relationships, and future plans. All language versions were translated from the original English version into the respective target language by a bilingual native speaker of the target language. The questionnaires were then back translated and inconsistencies were corrected in cooperation with the translators from the respective cultures. Of all instruments, the current study includes only the measures related to adolescents' religiosity, family-related values, and family-related future plans, that are introduced in the following.

## Measures

*Individual-level predictors.* Individual-level predictors were adolescents' self-reported religiosity and socioeconomic status. To assess religiosity, we asked for the participants' religious belief/denomination and for the importance of these beliefs. The latter was a one-item measure, with ratings ranging from 1 (not important at all) to 5 (very important); this item was only to be answered when a specific religious belief/denomination was indicated before. In case participants indicated that they were not religious/had no religious affiliation, a value of 1 (not important at all) was set *a posteriori* in the importance measure. The cross-cultural differences in religiosity were highly significant,  $F(17, 4792) = 237.16, p < .001, \eta^2 = .46$ . Estonian adolescents reported the lowest religiosity ( $M = 1.38$ ) while Indonesian adolescents reported the highest religiosity ( $M = 4.84$ ). With the exception of Indonesia ( $SD = 0.41$ , probably due to a ceiling effect), there was substantial within-culture variation in religiosity with standard deviations ranging from  $SD = 0.84$  (Estonian adolescents) to  $SD = 1.39$  (Chinese adolescents). Means and standard deviations per culture are shown in Table 1. To assess adolescents' relative socioeconomic status, we asked participants to answer the question: "Compared to others living here in (name of the country): What economic status do you consider yourself to have?" on a scale from 1 (low) over 2 (lower middle), 3 (middle), and 4 (upper middle), to 5 (upper). Since by mistake in the Estonian questionnaire only those adolescents who were currently working (in gainful employment) indicated their socioeconomic status we used the socioeconomic status indicated by adolescents' mothers as a proxy of household socioeconomic status in Estonia.



Table 1. Sample, Age, Religiosity, Socioeconomic Status and Culture-Level Indicators

Culture	N	Females %	Age M (SD)	Religiosity M (SD)	Socioeconomic Status M (SD)	Human Development Index (HDI) <sup>a</sup>	Traditional- Religious versus Secular-Rational Values <sup>b</sup>	Survival versus Self-Expression Values <sup>b</sup>
China	306	57.8	13.82 (1.14)	2.36 (1.39)	2.68 (0.75)	0.772	1.000	-1.045
Czech Republic	260	100.0	13.76 (0.80)	1.54 (1.14)	3.17 (0.67)	0.903	1.230	0.380
Estonia	298	50.7	15.53 (1.12)	1.38 (0.84)	2.66 (0.68)	0.883	1.270	-1.190
France	200	55.0	15.73 (1.21)	2.38 (1.33)	3.47 (0.59)	0.961	0.575	1.035
Germany	311	55.9	15.67 (1.07)	2.29 (1.31)	3.22 (0.59)	0.947	1.310 <sup>c</sup>	0.510 <sup>c</sup>
India (Pondicherry)	300	50.0	14.86 (0.99)	3.81 (1.02)	2.73 (0.72)	0.612	-0.440	-0.405
India (Varanasi)	300	50.7	16.01 (1.50)	4.28 (0.90)	3.17 (1.00)	0.612	-0.440	-0.405
Indonesia	300	55.0	15.25 (1.00)	4.84 (0.41)	2.83 (0.73)	0.734	-0.770	-0.650
Israel	188	63.3	15.77 (1.38)	3.53 (1.17)	2.87 (0.65)	0.935	0.260	0.360
Italy	381	53.8	17.01 (1.27)	2.79 (1.17)	3.10 (0.80)	0.951	0.160	0.725
Japan	207	62.8	16.46 (0.77)	1.74 (1.07)	3.07 (0.72)	0.960	1.935	0.245
Poland	327	60.2	15.21 (1.26)	3.91 (0.91)	3.06 (0.71)	0.880	-0.605	-0.370
Romania	100	52.0	14.92 (1.24)	4.16 (0.92)	3.31 (0.67)	0.837	-0.335	-1.575
Russia	333	54.4	16.06 (1.39)	2.92 (1.09)	2.76 (0.61)	0.817	0.790	-1.650
South Africa	317	61.5	14.96 (1.21)	4.14 (1.06)	2.63 (0.87)	0.683	-1.105	-0.100
Switzerland	131	58.0	19.84 (1.92)	2.59 (1.35)	3.17 (0.69)	0.960	0.740	1.900
Turkey	306	52.9	14.74 (1.11)	3.93 (1.07)	3.13 (0.85)	0.806	-0.875	-0.335
USA	337	64.1	16.24 (1.45)	3.80 (1.33)	3.22 (0.70)	0.956	-0.665	1.675

Note. M = Mean. SD = Standard Deviation. Religiosity is both an individual-level predictor (group-centered) and a culture-level predictor (cultural mean values) in the multilevel models. <sup>a</sup> Human Development Index as of 2007 (United Nations Development Programme, 2009). <sup>b</sup> derived from the World Value Survey, positive values refer to a more secular/self-expressive orientation. <sup>c</sup> sample weighted mean of the values of East Germany and West Germany (samples from both regions were included in the German sample).

The cross-cultural differences in socioeconomic status were significant,  $F(17, 4660) = 29.20, p < .001, \eta^2 = .10$ . Estonian participants reported the lowest socioeconomic status ( $M = 2.60$ ) while French participants reported the highest socioeconomic status ( $M = 3.47$ ) (see Table 1). Overall, the eighteen cultural groups were relatively similar with regard to their relative socioeconomic status - all groups would be categorized as middle class – and this enhances the validity of the cross-cultural comparisons on the variables of interest. The within-culture variation in socioeconomic status was also relatively low with some exceptions (especially with regard to cultures where both rural and urban groups were surveyed): standard deviations ranged from  $SD = 0.59$  (French adolescents) to  $SD = 1.00$  (Varanasi Indian adolescents).

*Culture-level predictors.* Multilevel analyses were carried out with three culture-level indicators external to the current data set: the Human Development Index (HDI, UNDP, 2009) as well as the two most prominent value dimensions from the World Values Survey (WVS, World Value Survey Association, 2009): *Traditional-Religious vs. Secular-Rational Values* and *Survival vs. Self-Expression Values*. According to Inglehart and Oyserman (2004), the former represents the dimension of religiosity<sup>1</sup> while the latter is strongly related to the collectivism/interdependence versus individualism/independence dimension. To assess the relationship among the culture-level indicators we used both Pearson ( $r$ ) as well as Spearman rank correlations ( $r_s$ ) to account for potential biases arising from the distribution of these indicators as well as from the low sample size. The correlations among the three culture-level indicators showed that the HDI was positively correlated with both *Survival vs. Self-Expression Values* ( $r = 0.54, p < .05; r_s = 0.71, p < .001$ ; see Figure 1a) and *Traditional-Religious vs. Secular-Rational Values* ( $r = 0.53, r_s = 0.49, both p < .05$ ; see Figure 1b), while the latter were uncorrelated

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<sup>1</sup> This was confirmed by a very strong negative correlation between *Traditional-Religious vs. Secular-Rational Values* from the WVS and the cultural mean values of our individual-level *religiosity* measure from the Value of Children Study:  $r = -0.92, r_s = -0.88, both p < .001 (n = 18)$ .

with each other ( $r = 0.07$ ,  $r_s = 0.05$ , both  $p > .05$ ; see Figure 1c).

Figure 1a. Scatterplot of the Human Development Index (HDI; UNDP, 2010) and "Survival vs. Self-Expression Values" from the World Values Survey (World Values Survey Association, 2009) for the Nations in the Current Study ( $r = 0.54$ ,  $r_s = 0.71$ ).

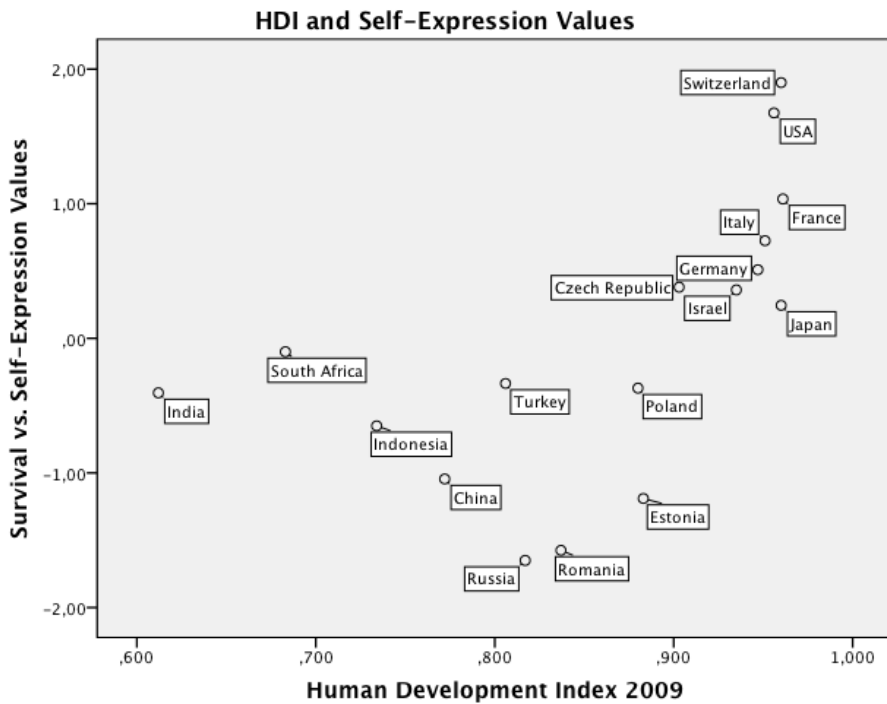
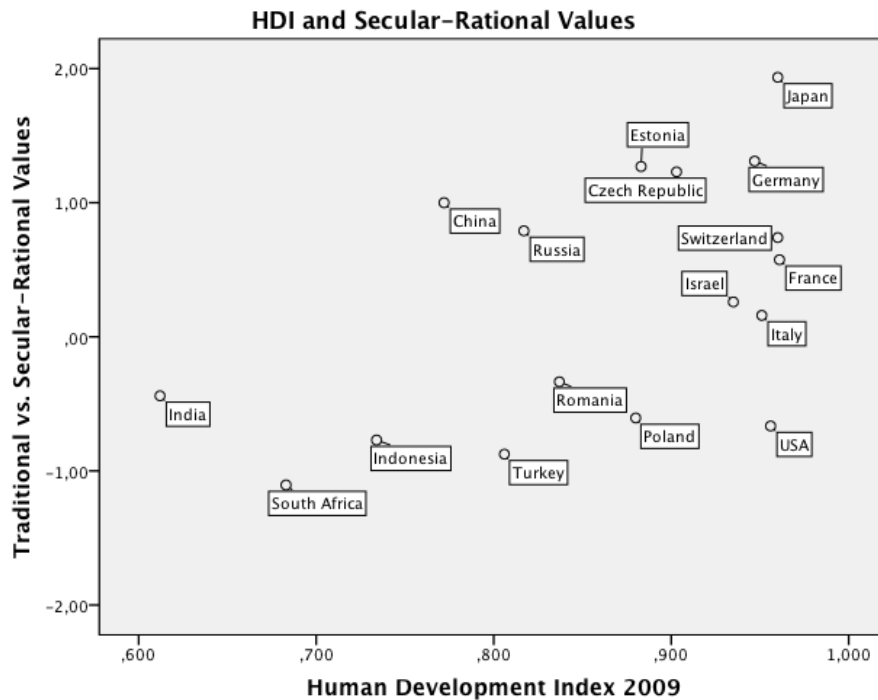


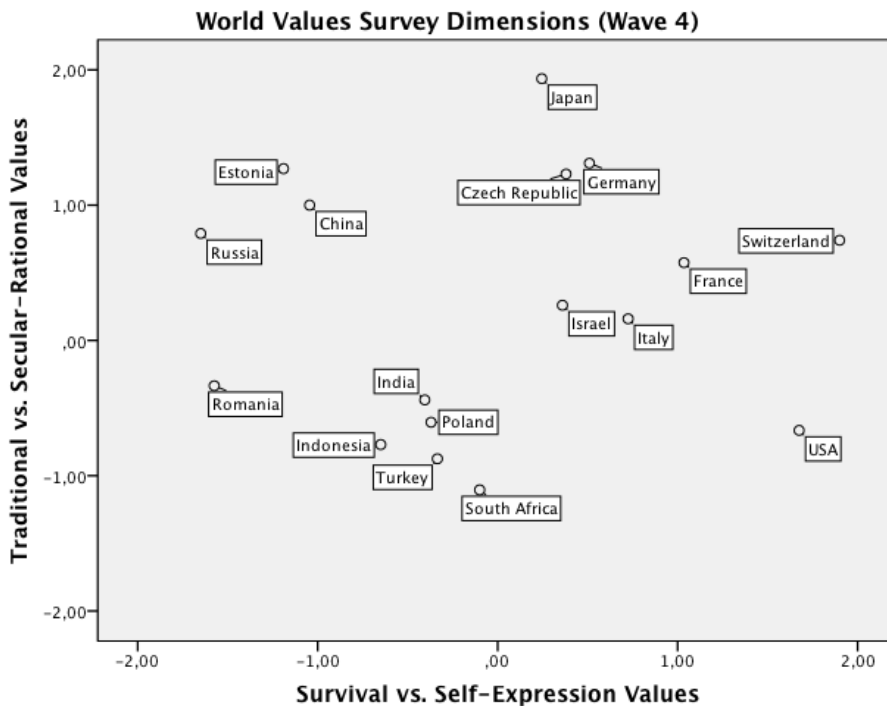
Figure 1b. Scatterplot of the Human Development Index (HDI; UNDP, 2009) and "Traditional-Religious vs. Secular-Rational Values" (World Values Survey Association, 2009) for the Nations in the Current Study ( $r = 0.53$ ,  $r_S = 0.49$ ).



While the substantial positive correlations between the HDI and each of the WVS indicators is related to the fact that the 'positive' poles of both *Traditional-Religious vs. Secular-Rational Values* and *Survival vs. Self-Expression Values* are linked to economic development (Inglehart & Welzel, 2005; Norris & Inglehart, 2011), the zero-correlation between the two WVS indicators seems to suggest that secularization and ('self-expressive') individualization represent two *different* processes of cultural change. While a

week relation between the two WVS indicators is reported by Inglehart and Welzel (2005), the *very* low correlation encountered here may be partly sample-specific: the sample includes a highly self-expressive cultural group that is at the same time relatively traditional-religious (United States); on the other hand, Estonia, Russia and China are three very secular-rational cultures that are at the same time low on self-expression.

Figure 1c. Scatterplot of World Values Survey Dimensions (WVS, 2009) "Survival vs. Self-Expression Values" and "Traditional-Religious vs. Secular-Rational Values" for the Nations in the Current Study ( $r = 0.07$ ,  $r_s = 0.05$ ).



For the following multi-item scales we used the coefficient omega (McDonald, 1999) as a measure of internal consistency/reliability. In contrast to the commonly used Cronbach's alpha coefficient, omega does not assume essentially tau-equivalent items (i.e., perfect correlations of item true scores) but assumes a congeneric model (one that allows different factor loadings of items on the common factor).

Dunn, Baguley, and Brunson (2014) argue that "few scales, particularly those in the personality domain, are ever truly unidimensional and instead nearly always possess some degree of multidimensionality" (p. 402), rendering the assumptions underlying Cronbach's alpha unrealistic.

*Different aspects of family orientation as dependent variables.*

First, traditional-conservative family values were assessed using a 5-item scale tapping a traditional view on family relationships based on Georgas' (1991) scale. The cross-cultural construct equivalence of this scale has been demonstrated (Mayer, Agache, & Trommsdorff, 2009). Overall, the internal consistencies (coefficient omega) were not satisfactory for the traditional-conservative family values scale (see Table 2). Of the 18 cultural groups only six had internal consistencies with values  $> .70$ , the usual cut-off for acceptable reliabilities (Nunnally & Bernstein, 1994), and four cultures had even omegas  $< .60$  (South Africa: .48; Czech Republic: .57; Germany and Romania: .59). The low reliabilities of the family-values scale in some cultures may be due to the combination of hierarchy-related items (e.g., "Children should obey their parents.") and of items emphasizing the general importance of good family relations (e.g., "One should maintain good relationships with one's relatives."). Since the cross-cultural construct equivalence was demonstrated earlier and since traditional family values are a central aspect of family orientation, we decided to keep the scale in spite of the relatively low internal consistencies in some cultural groups.

Second, two dimensions tapping the importance of reasons for having children (values of children, VOC) were assessed. With regard to the first dimension, *utilitarian-normative values of children* combine economic-

utilitarian and social-normative reasons for having children (Kağıtçıbaşı, 1982). Example items include “To have one more person to help your family economically” and “Because some of your older relatives feel that you should have more children.”

With the exceptions of Indian adolescents from the Pondicherry area (omega = .56) and Israeli adolescents (omega = .68) the internal consistencies for this 8-item scale were acceptable (> .70) or satisfactory (> .80) with coefficients omega between .75 and .86 (see Table 2).

*Table 2. Reliability Analysis: Internal Consistencies of Family Values, Utilitarian-Normative Value of Children, and Psychological Value of Children*

Culture	Family Values		Utilitarian-Normative Value of Children		Psychological Value of Children	
	Omega	95 % CI	Omega	95 % CI	Omega	95 % CI
China	.61	[.47, .68]	.83	[.80, .86]	.90	[.87, .92]
Czech Republic	.57	[.45, .66]	.77	[.71, .82]	.77	[.71, .82]
Estonia	.69	[.62, .75]	.86	[.83, .88]	.88	[.85, .90]
France	.71	[.64, .78]	.77	[.71, .83]	.72	[.63, .79]
Germany	.59	[.50, .66]	.80	[.76, .83]	.82	[.77, .86]
India (Pondicherry)	.75	[.66, .84]	.56	[.46, .63]	.73	[.66, .78]
India (Varanasi)	.81	[.75, .87]	.84	[.80, .87]	.85	[.80, .88]
Indonesia	.63	[.53, .70]	.76	[.71, .80]	.79	[.74, .83]
Israel	.60	[.48, .70]	.68	[.60, .75]	.75	[.66, .80]
Italy	.64	[.56, .69]	.86	[.84, .88]	.77	[.73, .82]
Japan	.62	[.53, .70]	.81	[.75, .85]	.89	[.85, .92]
Poland	.75	[.71, .80]	.86	[.83, .87]	.84	[.81, .86]
Romania	.59	[.41, .71]	.81	[.73, .86]	.69	[.58, .78]
Russia	.75	[.68, .80]	.75	[.69, .80]	.81	[.75, .85]
South Africa	.48	[.37, .59]	.77	[.73, .81]	.88	[.85, .91]
Switzerland	.78	[.72, .84]	.80	[.73, .87]	.78	[.66, .87]
Turkey	.69	[.61, .76]	.86	[.83, .88]	.83	[.78, .88]
USA	.66	[.58, .73]	.85	[.82, .88]	.87	[.83, .91]

*Note.* CIs are bias corrected and accelerated bootstrap confidence intervals (1000 bootstrap samples). The coefficient omega and the confidence intervals were obtained using the R-package MBESS (Kelley & Lai, 2012).

Secondly, *psychological values of children* represented psychological or



emotional reasons for having children. Sample items included “Because it is a joy to have a small baby” and “Because of the special feeling of love that develops between a parent and a child.” The scale was developed for the Value of Children Study (Trommsdorff et al., 2002). The cross-cultural construct equivalence of both value of children dimensions has been demonstrated (Mayer et al., 2009; Mayer & Trommsdorff, 2010). Coefficients omega of this 7-item scale were acceptable or satisfactory between .72 and .90 with the exception of Romanian adolescents (omega = .69, see Table 2).

Finally, we asked for the number of children adolescents would like to have in the future. First, we asked whether adolescents would like to have children in the future at all (categories: “yes/probably” / “I don’t know” / “no/probably not”). Those who answered “yes/probably” were subsequently asked to indicate the number of children they would like to have. To obtain a single continuous variable we combined the two questions by coding those who responded “no/probably not” to the first question with zero children in the second question. Participants responding “I don’t know” were coded with a missing value in this variable.

### **Statistical Analyses**

We applied random coefficient hierarchical linear modeling (Luke, 2004; Raudenbush & Bryk, 2002) to test the individual-level effects of *religiosity* (REL) and *socioeconomic status* (SES) as well as the culture-level effects of the *Human Development Index* (HDI), *Traditional-Religious vs. Secular-Rational Values* (TR-SR) and of *Survival vs. Self-Expression Values* (S-SE) on the four variables of adolescents’ family orientation (FO).

Culture is included as a random factor, and it is the aim of the model to explain the cultural and individual variation in adolescents’ family orientation by simultaneously considering culture-level and individual-level predictors. In a multilevel model two different kinds of regression equations are estimated. At the individual level (level-1), the respective outcome variable (FO) is

regressed on adolescents' religiosity (REL) and their socioeconomic status (SES) where  $j$  indicates the culture,  $i$  the adolescent within a culture,  $\beta$  the regression coefficients at the individual level, and  $\varepsilon$  the error term at the individual level:

$$FO_{ij} = \beta_{0j} + \beta_{1j}REL + \beta_{2j}SES + \varepsilon_{ij}$$

The random effects ( $v_{0j}$ ) of the intercept of this equation ( $\beta_{0j}$ ) represent the cross-cultural variation in the outcome variable. To explain this cross-cultural variation, we regressed  $\beta_{0j}$  on the three culture-level predictors HDI, TR-SR, and S-SE:

$$\beta_{0j} = \gamma_{00} + \gamma_{01}HDI + \gamma_{02}TR-SR + \gamma_{03}S-SE + v_{0j}$$

In this level-2 equation for the intercept,  $\gamma_{00}$  represents the intercept, and  $\gamma_{01}$ ,  $\gamma_{02}$ , and  $\gamma_{03}$  represent the regression coefficients for the respective level-2 predictors. Finally,  $v_{0j}$  represents the level-2 residual of the random intercept (i.e., culture  $j$ 's deviation from the overall intercept  $\gamma_{00}$ ). The level-1 regression coefficients of REL and SES were fixed, i.e. they were not conceptualized as random effects and were not predicted by level-2 predictors. Their level-2 equations therefore are

$$\beta_{1j} = \gamma_{10} \text{ and } \beta_{2j} = \gamma_{20}.$$

Inserting the three level-2 equations into the level-1 equation yields the overall multilevel model ('intercept-as-outcome model'):

$$FO_{ij} = \gamma_{00} + \gamma_{01}HDI + \gamma_{02}TR-SR + \gamma_{03}S-SE + \gamma_{10}REL + \gamma_{20}SES + \varepsilon_{ij} + v_{0j}$$

The question is thus to what degree the culture-level predictors can predict the variation of adolescents' family orientation across cultures (i.e., the intercept of the Level-1 equation) when the individual-level variables are held constant.

We additionally tested the effects of every single culture-level predictor in separate models (see Talhelm et al., 2014, for a similar approach). With regard to the direction of effects of the WVS-variables, a positive effect of TR-SR on

$\beta_{0j}$  means that higher secular-rational values are related to a higher family orientation (i.e., a negative effect of TR-SR means a positive effect of traditional-religious values, our culture-level predictor of primary interest). In the same way, a positive effect of S-SE on  $\beta_{0j}$  means that higher self-expression values are related to a higher family orientation. We proceeded in a stepwise fashion starting with the intercept-only model (Model 1) to determine whether the variance component of the intercept was significant, indicating cross-cultural differences in the outcome variable. Then we computed the proportion of the overall variance of the dependent variable due to cross-cultural differences (intra-class correlation, ICC<sup>2</sup>).

A significant intercept variance and substantial ICC are preconditions for using multilevel modeling since without cross-cultural differences in the dependent variable, there would be no need to explain those differences by culture-level variables. The second step was a level-1 only model including the two individual-level predictors *religiosity* (REL) and *socioeconomic status* (SES) (Model 2). Religiosity was entered group-centered per culture.

This allowed us to *only* model individual-level variation in religiosity at level-1 which was essential because of the strong culture-level correlation between the culture means of religiosity and the level-2 (culture-level) predictor TR-SR representing religiosity at the cultural level (see Footnote 1). SES, on the other hand, was included in its original metric since it represented the relative socioeconomic status of an individual vis-à-vis his/her cultural group.

The final model was the intercept-as-outcome model including the individual-level predictor's religiosity (REL) and socioeconomic status (SES) as well as the all three culture-level predictors for the intercept (Model 3). The three alternative intercept-as-outcome models with a single culture-level

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<sup>2</sup> Defined as the proportion of the Level-2 variance relative to the overall variance of the dependent variable (in the intercept-only model):

$$ICC = \sigma_{\nu 0}^2 / (\sigma_{\nu 0}^2 + \sigma_{\varepsilon}^2)$$

predictor each are represented by Models 4-6.

To estimate the proportion of individual-level variance explained by REL and SES we computed the proportional reduction of the individual-level residual variance in the level-1 model (Model 2) as compared to the intercept-only model (Model 1); to estimate the proportion of culture-level variance explained by HDI, TR-SR, and/or S-SE we computed the proportional reduction of the variance component of the intercept in the respective intercept-as-outcome model as compared to the intercept-only model. All multilevel analyses were conducted applying full maximum likelihood estimation (FML).

In addition to significance testing the information criteria Akaike Information Criterion (AIC) and the Schwarz-Bayesian Information Criterion based on the number of level-2 clusters  $m$  ( $BIC_m$ ) were applied (Vallejo, Tuero-Herrero, Núñez, & Rosário, 2013).

## Results

The results of this sequence of multilevel analyses will be reported separately for the four dependent variables in the following.

1. *Traditional family values.* The intercept-only model for *traditional family values* showed a significant intercept variance and an ICC of 0.26 (26% of the variance due to cross-cultural differences). In the level-1 model, the individual-level effect of REL ( $\gamma_{10} = 0.10$ ) was significant, indicating that a higher religiosity was related to a higher level of *traditional family values*, and the effect of SES ( $\gamma_{20} = 0.00$ ) was non-significant (see table 3, Model 2).

The explained variance at the individual level was 4%. In the intercept-as-outcome model with all three predictors (Model 3) the level-2 effects of the HDI ( $\gamma_{01} = -1.26$ ) and of TR-SR ( $\gamma_{02} = -0.18$ ) were significantly negative while the effect of S-SE ( $\gamma_{03} = -0.02$ ) was non-significant. The proportion of intercept variance explained by the three culture-level predictors was 74%. Models 4-6 confirmed the effects found in Model 3, which also had their lowest values for both the AIC and the  $BIC_m$ .

Table 3. Parameter Estimates of Different Multilevel Models for the Dependent Variable Traditional Family Values

DV: Traditional Family Values	Model 1		Model 2		Model 3	
	Coef.	T	Coef.	T	Coef.	T
Fixed Effects						
Level 1						
Intercept ( $\gamma_{00}$ )	4.24	56.29***	4.24	51.94***	5.34	13.01***
Religiosity ( $\gamma_{10}$ )			0.10	14.19***	0.10	14.20***
SES ( $\gamma_{20}$ )			0.00	0.15	0.00	0.17
Level 2						
Human Development Index ( $\gamma_{01}$ )					-1.26	-2.58*
Traditional/Secular-Rational ( $\gamma_{02}$ )					-0.18	-3.33**
Survival/Self-Expression ( $\gamma_{03}$ )					-0.02	-0.33
Variance Components						
Random Intercept ( $\sigma^2_{u0}$ )	.101		.102		.026	
Level-1 Residual ( $\sigma^2_e$ )	.281		.269		.264	
Information Criteria						
AIC	7295		7101		7083	
BIC <sub>m</sub>	7297		7106		7090	
	Model 4		Model 5		Model 6	
	Coef.	T	Coef.	T	Coef.	T
Fixed Effects						
Level 1						
Intercept ( $\gamma_{00}$ )	5.98	16.36***	4.30	71.42***	4.23	54.38***
Religiosity ( $\gamma_{10}$ )	0.10	14.19***	0.10	14.20***	0.10	14.19***
SES ( $\gamma_{20}$ )	0.00	0.21	0.00	0.11	0.00	0.17
Level 2						
Human Development Index ( $\gamma_{01}$ )	-2.07	-4.83***				
Traditional/Secular-Rational ( $\gamma_{02}$ )			-0.27	-4.77***		
Survival/Self-Expression ( $\gamma_{03}$ )					-0.11	-1.48
Variance Components						
Random Intercept ( $\sigma^2_{u0}$ )	.044		.044		.090	
Level-1 Residual ( $\sigma^2_e$ )	.269		.269		.269	
Information Criteria						
AIC	7088		7089		7101	
BIC <sub>m</sub>	7094		7094		7107	

+  $p < .10$ . \*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ . Note. Model 1: Intercept-only. Model 2: Level-1-only. Model 3: Intercept-as-Outcome (all three level-2 predictors). Model 4-6: Intercept-as-Outcome (single level-2 predictors). AIC: Akaike Information Criterion. BIC<sub>m</sub>: Schwarz-Bayesian Information Criterion (Level-2). All Variance Components were significant at least at the  $p < .05$ -level.

2. *Utilitarian-normative VOC*. The intercept-only model for the *utilitarian-normative VOC* showed a significant intercept variance with an ICC of 0.39.

The individual-level effect of REL ( $\gamma_{10} = 0.06$ ) was significant, indicating that a higher religiosity was related to a higher level of reported *utilitarian-normative VOC*. The effect of SES ( $\gamma_{20} = -0.04$ ) was also significant, indicating that a higher socioeconomic status was related to lower *utilitarian-normative VOC* (see Table 4, Model 2). The explained variance at the individual level was 1%. In the intercept-as-outcome model with all three predictors (Model 3) the level-2 effect of the HDI ( $\gamma_{01} = -3.97$ ) was significantly negative while the effect of TR-SR ( $\gamma_{02} = -0.15$ ) was marginally significant and that of S-SE ( $\gamma_{03} = -0.04$ ) was non-significant. The combined proportion of explained variance of the intercept was 87%. When looking separately at the three predictors, the effects of HDI (Model 4), TR-SR (Model 5), and S-SE (Model 6) were all significantly negative. The proportion of explained variance for Model 4 was 84%, indicating that the HDI alone explained almost as much of the intercept variance as all three culture-level predictors combined. Model 4 was also the best model according to  $BIC_m$  while the AIC was the same for Models 3 and 4.

3. *Psychological VOC*. The intercept-only model for the *psychological VOC* showed a significant intercept variance with an ICC of 0.09. The individual-level effect of REL ( $\gamma_{10} = 0.07$ ) was significant, indicating that a higher religiosity was related to a higher level of reported *psychological VOC*, while the effect of SES ( $\gamma_{20} = 0.02$ ) was non-significant (see Table 5, Model 2). The explained variance at the individual level was 1%. In the intercept-as-outcome model with all three predictors (Model 3) the level-2 effect of the HDI ( $\gamma_{01} = -0.26$ ) was non-significant while the effect of TR-SR ( $\gamma_{02} = -0.15$ ) was significantly negative. The effect of S-SE ( $\gamma_{03} = -0.01$ ) was non-significant. The combined proportion of explained variance of the intercept was 51%. When looking separately at the three predictors, the effects of HDI (Model 4) and TR-SR (Model 5) were negatively significant while the effect of S-SE (Model 6) was non-significant. The variable TR-SR alone explained almost as much of the intercept variance as all three culture-level predictors combined (49%), and Model 5 was also considered the best model according to both information criteria.

Table 4. Parameter Estimates of Different Multilevel Models for the Dependent Variable Utilitarian-normative VOC

<i>DV: Utilitarian-Normative VOC</i>	<i>Model 1</i>		<i>Model 2</i>		<i>Model 3</i>	
Fixed Effects	<i>Coef.</i>	<i>T</i>	<i>Coef.</i>	<i>T</i>	<i>Coef.</i>	<i>T</i>
Level 1						
Intercept ( $\gamma_{00}$ )	2.56	17.81***	2.67	17.91***	6.06	10.77***
Religiosity ( $\gamma_{10}$ )			0.06	6.43***	0.06	6.43***
SES ( $\gamma_{20}$ )			-0.04	-2.57*	-0.04	-2.63**
Level 2						
Human Development Index ( $\gamma_{01}$ )					-3.97	-5.91***
Traditional/Secular-Rational ( $\gamma_{02}$ )					-0.15	-2.01+
Survival/Self-Expression ( $\gamma_{03}$ )					-0.04	-0.52
Variance Components						
Random Intercept ( $\sigma^2_{u0}$ )	.369		.363		.048	
Residual ( $\sigma^2_e$ )	.567		.561		.561	
Information Criteria						
AIC	10515		10473		10443	
BIC <sub>m</sub>	10518		10477		10450	
	<i>Model 4</i>		<i>Model 5</i>		<i>Model 6</i>	
Fixed Effects	<i>Coef.</i>	<i>T</i>	<i>Coef.</i>	<i>T</i>	<i>Coef.</i>	<i>T</i>
Level 1						
Intercept ( $\gamma_{00}$ )	6.68	15.41***	2.77	23.81***	2.66	20.02***
Religiosity ( $\gamma_{10}$ )	0.06	6.43***	0.06	6.43***	0.06	6.43***
SES ( $\gamma_{20}$ )	-0.04	-2.59**	-0.04	-2.60**	-0.04	-2.55**
Level 2						
Human Development Index ( $\gamma_{01}$ )	-4.74	-9.34***				
Traditional/Secular-Rational ( $\gamma_{02}$ )			-0.43	-3.41**		
Survival/Self-Expression ( $\gamma_{03}$ )					-0.30	-2.33*
Variance Components						
Random Intercept ( $\sigma^2_{u0}$ )	.060		.220		.278	
Residual ( $\sigma^2_e$ )	.561		.561		.561	
Information Criteria						
AIC	10443		10466		10470	
BIC <sub>m</sub>	10448		10471		10475	

+  $p < .10$ . \*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ . Note. Model 1: Intercept-only. Model 2: Level-1-only. Model 3: Intercept-as-Outcome (all three level-2 predictors). Model 4-6: Intercept-as-Outcome (single level-2 predictors). AIC: Akaike Information Criterion. BIC<sub>m</sub>: Schwarz-Bayesian Information Criterion (Level-2). All Variance Components were significant at least at the  $p < .05$ -level.



Table 5. Parameter Estimates of Different Multilevel Models for the Dependent Variable Psychological VOC

<i>DV: Psychological VOC</i>	<i>Model 1</i>		<i>Model 2</i>		<i>Model 3</i>	
	<i>Coef.</i>	<i>T</i>	<i>Coef.</i>	<i>T</i>	<i>Coef.</i>	<i>T</i>
Fixed Effects						
Level 1						
Intercept ( $\gamma_{00}$ )	3.97	75.94***	3.91	58.51***	4.16	10.54***
Religiosity ( $\gamma_{10}$ )			0.07	7.57***	0.07	7.57***
SES ( $\gamma_{20}$ )			0.02	1.48	0.02	1.57
Level 2						
Human Development Index ( $\gamma_{01}$ )					-0.26	-0.56
Traditional/Secular-Rational ( $\gamma_{02}$ )					-0.15	-2.88*
Survival/Self-Expression ( $\gamma_{03}$ )					-0.01	-0.27
Variance Components						
Random Intercept ( $\sigma^2_{u0}$ )	.047		.047		.023	
Residual ( $\sigma^2_e$ )	.498		.492		.492	
Information Criteria						
AIC	9889		9833		9827	
BIC <sub>m</sub>	9892		9838		9834	
	<i>Model 4</i>		<i>Model 5</i>		<i>Model 6</i>	
Fixed Effects	<i>Coef.</i>	<i>T</i>	<i>Coef.</i>	<i>T</i>	<i>Coef.</i>	<i>T</i>
Level 1						
Intercept ( $\gamma_{00}$ )	4.69	14.02***	3.94	69.05***	3.90	58.84***
Religiosity ( $\gamma_{10}$ )	0.07	7.57***	0.07	7.57***	0.07	7.57***
SES ( $\gamma_{20}$ )	0.02	1.57	0.02	1.52	0.02	1.50
Level 2						
Human Development Index ( $\gamma_{01}$ )	-0.93	-2.37*				
Traditional/Secular-Rational ( $\gamma_{02}$ )			-0.17	-3.94**		
Survival/Self-Expression ( $\gamma_{03}$ )					-0.04	-0.75
Variance Components						
Random Intercept ( $\sigma^2_{u0}$ )	.035		.024		.046	
Residual ( $\sigma^2_e$ )	.492		.492		.492	
Information Criteria						
AIC	9830		9824		9835	
BIC <sub>m</sub>	9836		9829		9840	

+  $p < .10$ . \*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ . Note. Model 1: Intercept-only. Model 2: Level-1-only. Model 3: Intercept-as-Outcome (all three level-2 predictors). Model 4-6: Intercept-as-Outcome (single level-2 predictors). AIC: Akaike Information Criterion. BIC<sub>m</sub>: Schwarz-Bayesian Information Criterion (Level-2). All Variance Components were significant at least at the  $p < .05$ -level.

4. *Intended number of children.* The intercept-only model for the *intended number of children* showed a intercept variance with an ICC of 0.21 (Table, 6).

Table 6. Parameter Estimates of Different Multilevel Models for the Dependent Variable Intended Number of Children

<i>DV: Intended Number of Children</i>	<i>Model 1</i>		<i>Model 2</i>		<i>Model 3</i>	
Fixed Effects	<i>Coef.</i>	<i>T</i>	<i>Coef.</i>	<i>T</i>	<i>Coef.</i>	<i>T</i>
Level 1						
Intercept ( $\gamma_{00}$ )	2.12	17.32***	1.99	14.39***	0.09	0.08
Religiosity ( $\gamma_{10}$ )			0.15	9.86***	0.15	9.86***
SES ( $\gamma_{20}$ )			0.04	2.01*	0.04	1.94+
Level 2						
Human Development Index ( $\gamma_{01}$ )					2.34	1.87+
Traditional/Secular-Rational ( $\gamma_{02}$ )					-0.29	-2.12*
Survival/Self-Expression ( $\gamma_{03}$ )					0.07	0.56
Variance Components						
Random Intercept ( $\sigma^2_{u0}$ )	.265		.259		.170	
Residual ( $\sigma^2_e$ )	1.02		.991		.991	
Information Criteria						
AIC	10775		10677		10676	
BIC <sub>m</sub>	10777		10682		10683	
<i>Intended Number of Children</i>	<i>Model 4</i>		<i>Model 5</i>		<i>Model 6</i>	
Fixed Effects	<i>Coef.</i>	<i>T</i>	<i>Coef.</i>	<i>T</i>	<i>Coef.</i>	<i>T</i>
Level 1						
Intercept ( $\gamma_{00}$ )	0.74	0.88	2.02	14.53***	2.00	15.39
Religiosity ( $\gamma_{10}$ )	0.15	9.86***	0.15	9.86***	0.15	9.86***
SES ( $\gamma_{20}$ )	0.04	1.97*	0.04	2.01*	0.04	1.96*
Level 2						
Human Development Index ( $\gamma_{01}$ )	1.48	1.50				
Traditional/Secular-Rational ( $\gamma_{02}$ )			-0.13	-0.94		
Survival/Self-Expression ( $\gamma_{03}$ )					0.20	1.78+
Variance Components						
Random Intercept ( $\sigma^2_{u0}$ )	.230		.247		.219	
Residual ( $\sigma^2_e$ )	.991		.991		.991	
Information Criteria						
AIC	10676		10678		10676	
BIC <sub>m</sub>	10682		10684		10681	

+  $p < .10$ . \*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ . Note. Model 1: Intercept-only. Model 2: Level-1-only. Model 3: Intercept-as-Outcome (all three level-2 predictors). Model 4-6: Intercept-as-Outcome (single level-2 predictors). AIC: Akaike Information Criterion. BIC<sub>m</sub>: Schwarz-Bayesian Information Criterion (Level-2). All Variance Components were significant at least at the  $p < .05$ -level.

The individual-level effects of REL ( $\gamma_{10} = 0.15$ ) and of SES ( $\gamma_{20} = 0.04$ ) were both positively significant, indicating that a higher religiosity as well as a higher SES were related to a higher *intended number of children* (see Table 6, Model 2).

The explained variance at the individual level was 3%. In the intercept-as-outcome model with all three predictors (Model 3) the level-2 effect of the HDI ( $\gamma_{01} = 2.34$ ) was marginally significant while the effect of TR-SR ( $\gamma_{02} = -0.29$ ) was negatively significant.

The effect of S-SE ( $\gamma_{03} = 0.07$ ) was non-significant. The combined proportion of explained variance of the intercept was 36%. For the separate models, the effects of HDI (Model 4) and TR-SR (Model 5) were non-significant while the effect of S-SE (Model 6) was marginally significant. The best model according to the  $BIC_m$  was Model 6 including only S-SE while the AIC did not differentiate among Models 3, 4, and 6. A 'reciprocal suppression' seems to occur in Model 3: since HDI and TR-SR were positively correlated ( $r = .53$ ) but their effects on the dependent variable were in opposite directions, the discrepancy of their unique effects is accentuated in the model with all three predictors.

## Discussion

To summarize the results of the individual level analyses, adolescents' religiosity was positively related to all four aspects of family orientation, but the effects were quite weak. The strongest individual-level effect of religiosity resulted for traditional family values (about 4% explained variance), the second strongest for the intended number of children (about 3% explained variance). Overall, religious doctrines regarding the family may be mostly related to the traditional hierarchical aspects of family orientation, as well as to the importance of having children.

With the exception of a weak negative effect on utilitarian-normative VOC no significant effects were found for SES at the individual level. The variations in family orientations within cultures thus seem to be mostly independent of

SES. The results may not be generalizable beyond the mostly (respective) middle-class adolescents and their “relative” SES in our study. Since we did not have precise expectations with regard to SES as an individual-level predictor we will not further discuss this result.

With regard to the culture-level analyses, the strongest cross-cultural differences (ICCs) were found for the utilitarian-normative VOC (ICC = 0.39) and for the traditional family values (ICC = 0.26), both representing traditional aspects of family orientation. We expected that indicators representing a secular-rational orientation and economic development would be strongly related to these aspects based on secularization and modernization theoretical arguments. The results show that this was the case: For traditional family values as dependent variable, secular-rational values (TR-SR) and economic development (HDI) together explained about 74% of the culture-level variance (both predictors had similar predictive strength in the single predictor models with 56% and 57% explained variance, respectively). For utilitarian-normative VOC as dependent variable, economic development and secular-rational values even explained 87% of cross-cultural differences in the joint model (with secular-rational values being only marginally significant), and economic development alone explained 84%, showing that the level of utilitarian-normative VOC in a culture was strongly dependent on the level of affluence in this group, and very much less so to a low importance of religious values. When compared to the relatively weak individual-level effects reported above, the large proportions of explained variances in the culture-level analyses also exemplify the power of the cultural context in shaping relatively homogenous values syndromes.

While the effects of economic development (HDI) were very strong for the two traditional aspects of adolescents' family orientation (as just described), it was irrelevant for the two more general, personal, and future-oriented aspects of adolescents' family orientation (psychological VOC and the intended

number of children)<sup>3</sup>. Instead, the level of religiosity played the main role for these two variables. Though cross-cultural differences of psychological VOC were small ( $ICC = .08$ ), about half of this variation (51% in the joint model and 49% in the single-predictor model) was accounted for by the effect of secular-rational values. Thus, adolescents from secular-rational cultures valued psychological reasons for having children less than the adolescents from more religious cultures. The cross-cultural variation in the intended number of children was substantial ( $ICC = .21$ ), but the prediction of this variation through the three culture-level indicators was rather weak: in the joint model only a negative effect of secular-rational values was significant, indicating that adolescents from secular-rational cultures wanted somewhat fewer children than adolescents from more religious cultures. An important aspect here is that the substantial cross-cultural variation in this variable was mostly due to outliers reporting a very high (Israeli adolescents) or a very low (Chinese adolescents) intended number of children for reasons related to the special political and ideological situations of these countries. Adolescents from almost all remaining cultures reported that they want to have about two children on average (see also Mayer & Trommsdorff, 2010). Thus, the intended number of children has more or less converged globally to a norm close to replacement level, but people in highly industrialized cultures seem to want more children

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<sup>3</sup> Though there was no significant effect of HDI on psychological VOC in the joint model, there was a significant negative effect in the single predictor model, which needs explanation. The original Value of Children approach (e.g., Kağıtçıbaşı, 1982) suggested that the psychological VOC should be *higher* in cultures with higher affluence, since psychological/emotional reasons for having children should gain in salience when other reasons for having children (social-normative and utilitarian-economic) lose influence. However, as discussed by Mayer (2013) and Mayer and Trommsdorff (2010), the psychological VOC may be more *salient* in affluent cultures (because of a very low utilitarian-normative VOC), but may be nevertheless *higher* (in absolute terms) in less affluent cultures where an overall higher family orientation may be observed. Our results confirm this hypothesis with the limitation that the significant effect of affluence disappears when partialling out the co-variation with secular-rationality in the joint predictor model.

than they actually get later, whereas people in less industrialized cultures still get more children than they actually want (although fertility has decreased tremendously in these cultures as well over the last decades). This is not in contradiction to the relevance of future-oriented family orientation for individual behavior. Behavioral intentions regarding a future family are ideational elements that can have substantial effects on future behavior in addition to and independent of structural factors (Barber, 2001; Jayakody, Thornton, & Axinn, 2008).

Overall, thus, culture-level secular-rational values were negatively related to *all* aspects of family orientation but the level of socioeconomic development (HDI) of a culture was negatively related *only* to adolescents' traditional family values and to their utilitarian–normative VOC, both of which represent what we have termed *traditional hierarchical aspects of adolescents' family orientation*. Thus, adolescents from more religious cultures were more family-oriented with regard to both traditional and non-traditional aspects than were adolescents from less religious cultures, but adolescents from richer cultures reported a lower importance of the family only for the traditional aspects related to hierarchy/patriarchy and to material/economic interdependencies in the family. Self-expression values were the weakest culture-level predictor of adolescents' family orientation; it did not reach significance when included with the other two predictors.

Though we have to be cautious with regard to the extrapolation of these cross-sectional results to cultural change over time, our results seem to provide new insights with regard to relations among secularization, modernization, postmodernization, and family change. In Inglehart's approach, both the decline of religion/increase of secular-rational orientations (Norris & Inglehart, 2011) as well as the increase of self-expression orientations (Inglehart & Welzel, 2005) are caused to a significant extent by economic development. However, it is difficult to explain why secular-rational and self-expression orientations are hardly correlated. It is possible that secularization and psychological modernization/postmodernization are relatively independent processes (Beck, 2010). The current study provides evidence with regard to the

joint contribution of all three pertinent indicators to family change, which constitutes another hot topic in the modernization debate. The result that the autonomy-individualism syndrome (in terms of self-expression values) was unrelated to all aspects of adolescents' family orientation and that economic development per se had no impact on the general and future-oriented aspects of adolescents' family orientation suggests that modernization does not lead to a general decline of the family. These results are in line with theoretical approaches questioning a general decline of the family when societies modernize (e.g., Bengtson, 2001; Kağıtçıbaşı, 2007). This is in line with other studies showing that traditional (hierarchical and patriarchal) aspects of the family seem to be more affected by modernization and economic development than psychological relational aspects as well as the importance of the family in general (Georgas et al., 2006; Mayer, Trommsdorff, Kağıtçıbaşı, & Mishra, 2012; see also Mayer, 2013). What these alternative accounts of family change do not include, however, is the religious factor. Our results suggest that when economic affluence is accompanied by a low importance of religion, then *all* aspects of adolescent family orientation that were considered here will be negatively affected, though the more general and personal ones not to a large extent.

### **Limitations and Conclusions**

Limitations of the present study include the sole reliance on adolescents' reported importance of religion, not distinguishing between religious denominations. Also, our results from cross-sectional studies cannot indicate cultural change (Thornton, 2005). Furthermore, we only analyzed fixed effects of religiosity and socioeconomic status at the individual level, and therefore could not explore possible cross-cultural variation of individual-level effects (but see Mayer & Trommsdorff, 2012, for an analysis of the cross-level interaction effect of culture-level aggregated religiosity on the strength of the individual-level effect of religiosity on adolescents family orientation).

Therefore, future research has to look deeper into the culture-specific aspects of religiosity and its role in adolescent development (Belzen, 2010). Nevertheless, religions share features of spirituality and normativity, rendering religiosity a unique aspect of the adolescent experience across cultures. A further limitation is that we solely look at adolescents' value orientations and future-oriented plans, but not at actual behavior, nor at other generations. Therefore, notions of family decline in the context of the results of the present study can only be understood with regard to adolescents' *ideas* about families.

The family as a potential source of social and cultural capital, as a safe haven, and as the central place to satisfy basic human dependency needs represents an important mediating link in the relation between religiosity and well-being. The results presented here indicate that living in a religious culture and personally being religious are both related to a higher family orientation for adolescents. In this sense, individual religiosity may act as a buffer for a decreasing significance of the family at the individual level. However, the effects of individual religiosity on family orientation were rather weak when compared to the culture-level effects of religiosity. The results also showed that economic development and secularization in a culture have to be considered independently for predicting adolescents' family orientation: Economic development is clearly linked to processes that release or disconnect adolescents from traditional, hierarchical, and obedience-related views on the family, but it does not contribute to a loss of significance of the family per se.

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## References

- Arnold, F., Bulatao, R. A., Buripakdi, C., Chung, B. J., Fawcett, J. T., Iritani, T., Lee, S. J., & Wu, T.-S. (1975). *The value of children. A cross-national study* (Vol. 1). Honolulu: East-West Population Institute.
- Barber, J. S. (2000). Ideational influences on the entry into parenthood: Mothers' preferences for family and nonfamily behaviors. *Social Forces*, *79*, 319-348.
- Barber, J. S. (2001). Ideational influences on the transition to parenthood: Attitudes towards childbearing and competing alternatives. *Social Psychology Quarterly*, *64*, 101-127.
- Beck, U. (2010). *A god of one's own*. Cambridge, England: Polity.
- Belzen, J. A. (2010). Psychology of religion: Perspectives from cultural psychology. *Mental Health, Religion & Culture*, *13*, 329-347.
- Bengtson, V. L. (2001). Beyond the nuclear family: The increasing importance of multigenerational bonds. *Journal of Marriage and the Family*, *63*, 1-16.
- Bengtson, V. L., Copen, C. E., Putney, N. M., & Silverstein, M. (2009). A longitudinal study of the intergenerational transmission of religion. *International Sociology*, *24*, 325-345.
- Benson, P. L., Donahue, M. J., & Erickson, J. A. (1989). Adolescence and religion: A review of the literature from 1970 to 1986. *Research in the Social Scientific Study of Religion*, *1*, 153-181
- Boyatzis, C. J., Dollahite, D. C., & Marks, L. D. (2006). The family as a context for religious and spiritual development in children and youth. In E. C. Roehlkepartain, P. E. King, L. Wagener, & P. L. Benson (Eds.), *The handbook of spiritual development in childhood and adolescence* (pp. 297-309). Thousand Oaks, CA: Sage.
- Chatters, L. M., & Taylor, R. J. (2005). Religion and families. In V. L. Bengtson, A. C. Acock, K. R. Allen, P. Dilworth-Anderson, & D. M. Klein (Eds.), *Sourcebook of family theory & research* (pp. 517-541). Thousand Oaks, CA: Sage.
- Dunn, T. J., Baguley, T., & Brunsden, V. (2014). From alpha to omega: A practical solution to the pervasive problem of internal consistency estimation. *British Journal of Psychology*, *105*, 399-412.
- Eberstadt, M. (2013). *How the West really lost god: A new theory of secularization*. West Conshohocken, PA: Templeton Foundation Press.
- Eisenstadt, S. N. (Ed.). (1973). *Post-traditional societies*. New York: Norton.
- Elkind, D. (1964). Age-changes in the meaning of religious identity. *Review of Religious Research*, *6*, 36-40.
- Erikson, E. H. (1968). *Identity, youth, and crisis*. New York: Norton.
- Georgas, J. (1991). Intrafamily acculturation of values in Greece. *Journal of Cross-Cultural Psychology*, *22*, 445-457.

- Georgas, J. (2006). Families and family change. In J. Georgas, J. W. Berry, F. J. R. van de Vijver, C. Kağıtçıbaşı, & Y. H. Poortinga (Eds.), *Families across cultures* (pp. 3-50). Cambridge, England: Cambridge University Press.
- Georgas, J., Berry, J. W., van de Vijver, F. J. R., Kağıtçıbaşı, C., & Poortinga, Y. H. (Eds.). (2006). *Families across cultures*. Cambridge, England: Cambridge University Press.
- George, L. K., Ellison, C. G., & Larson, D. B. (2002). Explaining the relationships between religious involvement and health. *Psychological Inquiry, 13*, 190-200.
- Good, M., & Willoughby, T. (2008). Adolescence as a sensitive period for spiritual development. *Child Development Perspectives, 2*, 32-37.
- Goode, W. J. (1963). *World revolution and family patterns*. Glencoe, IL: Free Press.
- Halman, L. C. J. M., & Pettersson, T. (2006). A decline of religious values? In P. Ester, M. Braun, & P. Mohler (Eds.), *Globalization, value change, and generations* (pp. 31-59). Leiden, The Netherlands: Brill Academic Publishers.
- Henrich, J., Heine, S. J., & Norenzayan, A. (2010). The weirdest people in the world? *Behavioral and Brain Sciences, 33*, 61-135.
- Hoffmann, L. W., & Hoffmann, M. L. (1973). The value of children to parents. In J. T. Fawcett (Ed.), *Psychological perspectives on population* (pp. 19-77). New York: Basic Books.
- Höllinger, F., & Haller, M. (2009). Decline or persistence of religion? Trends in religiosity among Christian societies around the world. In M. Haller, R. Jowell, & T. W. Smith (Eds.), *The International Social Survey Programme 1984-2009: Charting the globe* (pp. 281-301). London, England: Routledge.
- Inglehart, R., & Baker, W. E. (2000). Modernization, cultural change, and the persistence of traditional values. *American Sociological Review, 65*, 19-51.
- Inglehart, R., & Oyserman, D. (2004). Individualism, autonomy, self-expression. The human development sequence. In H. Vinken, J. Soeters & P. Ester (Eds.), *Comparing cultures: Dimensions of culture in a comparative perspective* (pp. 74-96). Leiden, The Netherlands: Brill Academic Publishers.
- Inglehart, R., & Welzel, C. (2005). *Modernization, cultural change, and democracy: The human development sequence*. Cambridge, England: Cambridge University Press.
- Inkeles, A. (1998). *One world emerging. Convergence and divergence in industrial societies*. Boulder, CO: Westview Press.
- Jayakody, R., Thornton, A., & Axinn, W. G. (2008). Perspectives on international family change. In R. Jayakody, A. Thornton & W. G. Axinn (Eds.), *International family change. Ideational perspectives* (pp. 1-18). New York: Erlbaum.
- Kağıtçıbaşı, C. (1982). Old-age security value of children: Cross-national socioeconomic evidence. *Journal of Cross-Cultural Psychology, 13*, 29-42.
- Kağıtçıbaşı, C. (2007). *Family, self, and human development across cultures: Theory and applications* (2nd ed.). Hillsdale, NJ: Erlbaum.

- Kelley, K., & Lai, K. (2012). *MBESS: MBESS. R package version 3.3.3*. Retrieved from <http://CRAN.R-project.org/package=MBESS>
- King, P. E., & Furrow, J. L. (2004). Religion as a resource for positive youth development: Religion, social capital, and moral outcomes. *Developmental Psychology, 40*, 703-713.
- Lesthaeghe, R. & Surkyn, J. (1988). Cultural dynamics and economic theories of fertility change. *Population and Development Review, 14*, 1-45.
- Lopez, A. B., Huynh, V. W., & Fuligni, A. J. (2011). A longitudinal study of religious identity and participation during adolescence. *Child Development, 82*, 1297-1309.
- Luke, D. A. (2004). *Multilevel modeling*. Thousand Oaks, CA: Sage.
- Mayer, B. (2009). *Adolescents' family models: A cross-cultural study*. Konstanz: KOPS. Available online: <http://nbn-resolving.de/urn:nbn:de:bsz:352-opus-86612>
- Mayer, B. (2013). Family change theory: A preliminary evaluation on the basis of recent cross-cultural studies. In I. Albert & D. Ferring (Eds.), *Intergenerational relations. European perspectives on family and society* (pp. 167-187). Cambridge, England: Policy Press.
- Mayer, B., & Trommsdorff, G. (2010). Adolescents' value of children and their intentions to have children: A cross-cultural and multilevel analysis. *Journal of Cross-Cultural Psychology, 41*, 671-689.
- Mayer, B., & Trommsdorff, G. (2012). Cross-cultural perspectives on adolescents' religiosity and family orientation. In G. Trommsdorff & X. Chen (Eds.), *Values, religion, and culture in adolescent development* (pp. 341-369). New York: Cambridge University Press.
- Mayer, B., Agache, A., & Trommsdorff, G. (2009). *Report on the cross-cultural construct equivalence of the core constructs in the Value of Children study*. Unpublished manuscript, University of Konstanz, Konstanz, Germany.
- Mayer, B., Trommsdorff, G., Kağıtçıbaşı, C., & Mishra, R. C. (2012). Family models of independence/interdependence and their intergenerational similarity in Germany, Turkey, and India. *Family Science, 3*, 64-74.
- McDonald, R. P. (1999). *Test theory: A unified treatment*. Mahwah, NJ: Lawrence Erlbaum.
- Norris, P., & Inglehart, R. (2011). *Sacred and secular. Religion and politics worldwide* (2nd ed.). New York: Cambridge University Press.
- Nunnally, B. H., & Bernstein, J.C. (1994). *Psychometric theory* (3rd ed.). London, UK: McGraw-Hill.
- Oser, F. K., Scarlett, W. G., & Bucher, A. (2006). Religious and spiritual development throughout the lifespan. In R. M. Lerner (Ed.), *Handbook of child psychology: Vol. 1. Theoretical models of human development* (6th ed., pp. 942-998). Hoboken, NJ: Wiley.
- Pankhurst, J. G., & Houseknecht, S. K. (2000). Introduction: The religion-family linkage and social change - a neglected area of study. In S. K. Houseknecht & J. G. Pankhurst (Eds.), *Family, religion, and social change in diverse societies* (pp. 1-40). Oxford, England: Oxford University Press.

- Parsons, T. (1949). The social structure of the family. In R. N. Anshen (Ed.), *The family: Its functions and destiny* (pp. 33-58). New York: Harper.
- Pearce, L. D. (2002). The influence of early life course religious exposure on young adults' dispositions toward childbearing. *Journal for the Scientific Study of Religion*, 41, 325-340.
- Pearce, L. D., & Thornton, A. (2007). Religious identity and family ideologies in the transition to adulthood. *Journal of Marriage and the Family*, 69, 1227-1243.
- Popenoe, D. (1988). *Disturbing the nest: Family change and decline in modern societies*. Chicago: Aldine.
- Raudenbush, S. W., & Bryk, A. S. (2002). *Hierarchical linear models. Applications and data analysis methods* (2nd ed.). Thousand Oaks, CA: Sage.
- Regnerus, M. D., & Burdette, A. (2006). Religious change and adolescent family dynamics. *Sociological Quarterly*, 47, 175-194.
- Regnerus, M. D., Smith, C., & Smith, B. (2004). Social context in the development of adolescent religiosity. *Applied Developmental Science*, 8, 27-38.
- Rokeach, M. (1969). Value systems and religion. *Review of Religious Research*, 11, 2-23.
- Sabatier, C., Mayer, B., Friedlmeier, M., Lubiewska, K., & Trommsdorff, G. (2011). Religiosity, family orientation, and life satisfaction of adolescents in four countries. *Journal of Cross-Cultural Psychology*, 42, 1375-1393.
- Sam, D. L., Peltzer, K., & Mayer, B. (2005). The changing values of children and preferences regarding family size in South Africa. *Applied Psychology: An International Review*, 54, 355-377.
- Saroglou, V. (2012). Adolescents' social development and the role of religion: Coherence at the detriment of openness. In G. Trommsdorff & X. Chen (Eds.), *Values, religion, and culture in adolescent development* (pp. 391-423). New York: Cambridge University Press.
- Saroglou, V., Delpierre, V., & Dernelle, R. (2004). Values and religiosity: A meta-analysis of studies using Schwartz's model. *Personality and Individual Differences*, 37, 721-734.
- Schwartz, S. H., & Huisman, S. (1995). Value priorities and religiosity in four Western religions. *Social Psychology Quarterly*, 58, 88-107.
- Schwartz, S. H. (2012). Values and religion in adolescent development: Cross-national and comparative evidence. In G. Trommsdorff & X. Chen (Eds.), *Values, religion, and culture in adolescent development* (pp. 3-45). New York: Cambridge University Press.
- Talhelm, T., Zhang, X., Oishi, S., Shimin, C., Duan, D., Lan, X., & Kitayama, S. (2014). Large-scale psychological differences within China explained by rice versus wheat agriculture. *Science*, 344, 603-608.
- Thornton, A. (2005). *Reading history sideways. The fallacy and enduring impact of the developmental paradigm on family life*. Chicago: University of Chicago Press.
- Trommsdorff, G. (2009). Intergenerational relations and cultural transmission. In U. Schönplflug (Ed.), *Cultural transmission: Psychological, developmental, social, and methodological aspects* (pp. 126-160). Cambridge, England: Cambridge University Press.

- Trommsdorff, G. (2012). Cultural perspectives on values and religion in adolescent development: A conceptual overview and synthesis. In G. Trommsdorff & X. Chen (Eds.), *Values, religion, and culture in adolescent development* (pp. 97-122). New York: Cambridge University Press.
- Trommsdorff, G., & Chen, X. (Eds.). (2012). *Values, religion, and culture in adolescent development*. New York: Cambridge University Press.
- Trommsdorff, G., & Nauck, B. (Eds.). (2005). *The value of children in cross-cultural perspective: Case studies from eight societies*. Lengerich, Germany: Pabst.
- Trommsdorff, G., Nauck, B., Schwarz, B., Chakkarath, P., & Schwenk, O. (2002). *The Value of Children Questionnaire*. Unpublished questionnaire, University of Konstanz.
- United Nations Development Programme. (2010). *Human Development Report 2010 - 20th anniversary edition. The real wealth of nations: Pathways to human development*. New York: Palgrave Macmillan.
- Vallejo, G., Tuero-Herrero, E., Núñez, J. C., & Rosário, P. (2013). Performance evaluation of recent information criteria for selecting multilevel models in Behavioral and Social Sciences. *International Journal of Clinical and Health Psychology, 14*, 48-57.
- Weber, M. ([1904] 1958). *The Protestant ethic and the spirit of capitalism*. Translated by T. Parsons. New York: Charles Scribner's Sons.
- World Values Survey Association. (2009). World Value Survey 1981-2008 official aggregate v.20090901. Retrieved February 20, 2010: [www.worldvaluessurvey.org](http://www.worldvaluessurvey.org)
- Youniss, J., & Smollar, J. (1985). *Adolescent relations with mothers, fathers, and friends*. Chicago: The University of Chicago Press.
- Routledge.