



Developmental Trajectories of Parental Self-Efficacy as Children Transition to Adolescence in Nine Countries: Latent Growth Curve Analyses

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Received: 15 June 2023 / Accepted: 24 October 2023

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Abstract

Little is known about the developmental trajectories of parental self-efficacy as children transition into adolescence. This study examined parental self-efficacy among mothers and fathers over 3 1/2 years representing this transition, and whether the level and developmental trajectory of parental self-efficacy varied by cultural group. Data were drawn from three waves of the Parenting Across Cultures (PAC) project, a large-scale longitudinal, cross-cultural study, and included 1178 mothers and 1041 fathers of children who averaged 9.72 years of age at T1 (51.2% girls). Parents were from nine countries (12 ethnic/cultural groups), which were categorized into those with a predominant collectivistic (i.e., China, Kenya, Philippines, Thailand, Colombia, and Jordan) or individualistic (i.e., Italy, Sweden, and USA) cultural orientation based on Hofstede's Individualism Index (Hofstede Insights, 2021). Latent growth curve analyses supported the hypothesis that parental self-efficacy would decline as children transition into adolescence only for parents from more individualistic countries; parental self-efficacy increased over the same years among parents from more collectivistic countries. Secondary exploratory analyses showed that some demographic characteristics predicted the level and trajectory of parental self-efficacy differently for parents in more individualistic and more collectivistic countries. Results suggest that declines in parental self-efficacy documented in previous research are culturally influenced.

Keywords Adolescence · Parental self-efficacy · Culture · Individualism · Collectivism

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Introduction

Existing research suggests that parental self-efficacy declines as children move into adolescence (Glatz & Buchanan, 2015a), but research examining development trajectories is limited and restricted to parents in the U.S. The level and trajectory of parental self-efficacy is important because parents who have higher parental self-efficacy have greater confidence that their actions can make a positive difference in their children's behavior and well-being. Higher confidence about making a positive difference predicts greater motivation, effort, and persistence toward that end (Bandura, 2002; Schuengel & Oosterman, 2019). Indeed, longitudinal studies show that parental self-efficacy predicts more promotive parenting practices (Glatz et al., 2023), and subsequently, enhanced adolescent behavior and well-being (e.g., Glatz & Buchanan, 2015b; Walters, 2020). The current study fills a gap in understanding of the development of this important belief with longitudinal, cross-cultural data. Specifically, developmental trajectories of parental self-efficacy were examined among mothers and fathers over three and a half years in which they had a child making the transition from late childhood into and across the early adolescent years. The primary aim was to investigate whether the level or trajectory of parental self-efficacy over this time varied by residence in a more individualistic or more collectivistic country. Secondarily, it was of interest to examine whether children's gender or parents' age or education predicted the level or developmental trajectories of parental self-efficacy for mothers or fathers in more individualistic or collectivistic countries.

The Developmental Trajectory of Parental Self-Efficacy as Children Transition into Adolescence

The challenges faced by parents change at every phase of a child's development, and at each phase parents must adjust their parenting practices to promote important socialization goals. Some aspects of adolescent development—especially in cultural contexts that tend to prioritize and emphasize individual needs, interests, and autonomy—might present special challenges to parents' confidence in being able to influence positive outcomes in their child. These changes include increases in time spent outside the home and away from parental supervision (including with peers), and increasingly frequent bids for personal autonomy and decision-making. Yet other changes, such as improved capacity to reason and communicate at adolescence, could plausibly help bolster parental self-efficacy.

Very little empirical data exist to illuminate the development of parental self-efficacy as children transition into adolescence. Only one study has directly tested developmental changes in parental self-efficacy longitudinally over

a portion of adolescence. This study (Glatz & Buchanan, 2015a) followed parents in the U.S. (66% European American, 33% African American) from the time their children were young adolescents (11–12 years of age, middle school) to the time they were middle adolescents (14–15 years of age, high school). Two different measures of parental self-efficacy showed small but statistically significant decreases in parental self-efficacy. These results are consistent with those from an older study that has been widely cited as evidence for adolescence as a time of low parental self-efficacy. This study, a cross-sectional comparison of U.S. mothers of children of different ages from infancy through adolescence (13–18 year olds) recruited through a private pediatric practice, found that parental self-efficacy for adolescent children was lower than parental self-efficacy for younger children (Ballenski & Cook, 1982). The study has great limitations, however; it provided no information on the demographics of its participants, included only 15 mothers of adolescents, and is now significantly dated, especially considering possible historical changes in parental self-efficacy with changing demands and opportunities over the past 40 years (Glatz & Buchanan, 2023). Together, these two studies are often cited as evidence for a dip in parental self-efficacy as children move from childhood into adolescence.

Recent cross-sectional studies reporting the association between parental self-efficacy and age provide mixed findings. Negative correlations between children's age and parental self-efficacy among parents of 6–12th graders in the U.S. (Glatz & Trifan, 2019) support the idea of a drop in parental self-efficacy over adolescence. One additional study of parents in Belgium reported lower perceived competence among fathers (but not mothers) of youth (aged 14–15) who were older (Egberts et al., 2015). In several other studies, children's age and parental self-efficacy are not significantly associated (Fang et al., 2021). These studies include parents of adolescents in Australia (Carless et al., 2015) and Hong Kong (Wong & Lee, 2017), as well as immigrant parents of adolescents living in the United States (Kiang et al., 2017).

Parental self-efficacy in the studies cited above was assessed as either domain-general (i.e., measuring a global competency in parenting without reference to specific tasks) or domain-specific (i.e., averaging efficacy across a range of specific tasks; Coleman & Karraker, 2003). Another approach to parental self-efficacy is task-specific, which measures parents' efficacy beliefs on specific tasks and does not average across tasks. Using a task-specific approach, two additional cross-sectional studies of U.S. parents report findings consistent with the possibility of a decline in specific aspects of parental self-efficacy as children age through adolescence, and the presence of stability in other aspects. In samples of youth ranging from early to late adolescence,

negative correlations of age with self-efficacy were reported for internet-specific parental self-efficacy (Glatz et al., 2018) and for alcohol consumption (Babskie et al., 2017). Null associations were reported in the latter study (Babskie et al.) for efficacy around cyber activities, eating, and problem peer associations. Given the existence of only one longitudinal study and the mixed cross-sectional findings, extending data on typical changes in parental self-efficacy as children become adolescents could help illuminate developmental patterns of parental self-efficacy that have implications for developmental changes in parental effort and motivation over this important period.

Culture and Parental Self-Efficacy as Children Transition to Adolescence

Development is influenced by the multiple contexts, or systems, in which it occurs (Bronfenbrenner, 2005), and research on a variety of parental beliefs demonstrates that the cultural context plays an important role in parents' belief about parenting (e.g., Miller, 2020). Thus, it was anticipated that trajectories of parental self-efficacy across the transition to adolescence might differ by culture. One aspect of culture that might be especially relevant to parental self-efficacy as children transition to adolescence is the extent to which a country or cultural group emphasizes individualism and collectivism. Contexts in which there is more emphasis on individualism value and encourage the development of personal decision-making, identity, and autonomy. Contexts in which there is more emphasis on collectivism tend to prioritize relationships and connectedness, and responsibility, loyalty—even obligation—to the group (e.g., Triandis, 2018). The extent of collectivism/individualism is only one of many ways in which cultural groups differ, and people in all countries demonstrate some aspects of a collectivist orientation and some aspects of an individualist orientation (Kagitcibasi & Yalin, 2015). Nevertheless, as a heuristic, describing cultural groups as more collectivistic or individualistic has value in its parsimony in characterizing many differences that distinguish them (Oyserman et al., 2002; Park & Lau, 2016). Furthermore, and importantly for this paper, the differences captured by this aspect of culture might be especially relevant to the development of parental self-efficacy across the adolescent transition.

According to social cognitive theory (Bandura, 2002), personal agency, including parental self-efficacy, is universally important as a motivator of behavior, regardless of culture. From this perspective, the concept of efficacy is independent of individualism, and can be exercised for ends that serve the collective as well as the individual. Consequently, parental self-efficacy ought to predict parenting behavior similarly regardless of cultural individualism or collectivism. Yet, the extent to which a context is

individualistic or collectivistic might influence the level of parental self-efficacy or how parental self-efficacy develops as children enter adolescence. There are at least three major reasons this might be the case.

First, members of more collectivist cultural groups, compared to more individualistic cultural groups, tend to prioritize group interests and responsibility and loyalty to the group. Because of this, they are also more likely to prioritize responsibility and obligation to, and interdependence with, the extended family (Hofstede et al., 2010). As a result, parents in more collectivist societies typically enjoy greater support of extended family in parenting tasks (Daganzo et al., 2014). Although involvement of others in parenting could conceivably dilute parental self-efficacy for individual parents because responsibility is shared, research from more individualistic countries suggests that greater support for parents in their parenting role benefits parental self-efficacy (Fang et al., 2021; van Eldik et al. (2017). Consistent with the possibility that more collectivist parents embrace their own influence despite shared responsibility, Filipino parents “regard their child’s behavior, whether positive or negative, as a reflection of the quality of their parenting” (Alampay & Jocson, 2011; as cited in Daganzo et al., 2014, p. 11). This set of findings lends support to the expectation that in contexts where social support for parenting is more common and pervasive, parental self-efficacy will be higher, and potentially less likely to decrease in the face of new developmental challenges such as those that arise in the transition to adolescence.

A second relevant feature of cultural contexts that might affect parental self-efficacy has to do with parenting goals and practices. Parents from more collectivist groups tend to have higher expectations for respect, obedience, and family responsibility on the part of their children and adolescents than do parents from more individualistic groups (Su & Hynie, 2011). To promote these goals, parents from more collectivistic contexts emphasize parental supervision and even control over their children’s behaviors and developmental outcomes. For example, the Chinese belief in “guan” emphasizes parents’ role in – even their responsibility for—training children toward the behavioral and achievement outcomes valued by the culture (Chen-Bouck et al., 2019). In general, parenting practices reflecting higher levels of behavioral control are more common in cultural settings that tend to be higher in collectivism (Alampay, 2014; Padma-widjaja & Chao, 2010). In contrast, parents in more individualistic contexts are likely to emphasize supporting the growth of personal autonomy, especially during adolescence, and thus allowing their adolescent children to make their own decisions about how to spend their time and with whom (Marbell-Pierre et al., 2019). Adolescent children’s expectations for individual freedoms and views of the

legitimacy of parental authority mirror these differences (Alampay, 2014; Smetana & Rote, 2019). Emphasis on growing personal autonomy and individuation at adolescence is one conceivable reason for the possibility that parental self-efficacy in U.S. parents appears to be at a low point during adolescence. Thus, different socialization goals and resulting approaches to parenting in more individualistic vs. more collectivist contexts suggest that parental self-efficacy might be less likely to decline at the transition into adolescence in more collectivist than in more individualistic contexts.

A third reason one might expect the levels or developmental trajectories of parental self-efficacy to differ based on individualistic vs. collectivistic orientations has to do with parents' views of adolescence. One documented predictor of parental self-efficacy trajectories as U.S. children enter adolescence is the extent to which parents embrace expectations that adolescence is a time characterized by risk-taking and rebellion, emotional difficulty, and parent-child conflict (Glatz & Buchanan, 2015a). A characterization of adolescence as difficult arose and has been promulgated in cultures characterized by a heavy emphasis on individualism where the achievement of personal autonomy during adolescence is paramount (Buchanan et al., 2023). Although there are few data to bring to bear directly on cultural differences in parents' stereotypes and expectations about adolescence, there is reason to believe that characterizations of adolescence as a time of difficulty hold less sway in more collectivistic contexts. For example, Chinese adolescents are less likely to view adolescence as a time of increasing individuation and decreasing family responsibility than are U.S. adolescents (Qu et al., 2016); this is especially true of Chinese youth in more rural, less Westernized, locales (Qu et al., 2020). In another example, in some Arab societies, parents' expectations for adolescents include growing family obligation and responsibility rather than growing personal autonomy (Booth, 2002). On this basis, one might expect that the decline in parental self-efficacy at or across adolescence that has been hinted at among U.S. parents is a characteristic of more individualistic contexts that will not be replicated among parents in more collectivist contexts.

A recent review of research on parental self-efficacy called for work addressing parental self-efficacy in culturally heterogeneous samples (Albanese et al., 2019); the current study answers this call. It is unknown whether the developmental trajectories of parental self-efficacy as children move into adolescence are similar across cultural contexts. The considerations outlined above lead us to hypothesize different levels and developmental trajectories for parents from more collectivistic groups compared to more individualistic groups, with higher and more stable—rather than declining—parental self-efficacy as children

move into and across adolescence among parents from more collectivistic groups.

Demographic Factors

The primary aim of this study was to examine developmental trajectories of parental self-efficacy as children transition to adolescence among parents, and whether they differ by cultural contexts. A secondary aim was to examine whether levels or changes in parental self-efficacy over this time are predicted by children's gender, or parents' age or education, and whether these predictors differ in importance as a function of cultural context. There is little theoretical or empirical basis for the role of these demographic characteristics in trajectories of parental self-efficacy, but it seemed important to explore the possibility that they matter.

Children's gender

Given gender differences in socialization and in physical and psychological development during adolescence, a child's gender might affect the level and trajectory of parental self-efficacy at the adolescent transition. Yet, most studies report no differences in parental self-efficacy among parents of adolescent boys and girls. In the one existing longitudinal study of parental self-efficacy at adolescence (Glatz & Buchanan, 2015a), child gender differences in parental self-efficacy emerged for only one of two parental self-efficacy measures; on this measure, parental self-efficacy among parents of boys was initially higher but declined more from early to middle adolescence than did parental self-efficacy among parents of girls. Parental self-efficacy did not vary by child gender for rural U.S. parents of young adolescents (Lippold et al., 2018), U.S. White mothers and fathers of adolescents 12–18 years of age (Babskie et al., 2017), or a representative sample of parents of adolescents in Australia (Walters, 2020). Some studies, however, report higher parental self-efficacy for same-gender parent-adolescent dyads. For example, among Chinese immigrant parents in Canada, mothers of daughters (aged 10–14) reported higher parental self-efficacy than did mothers of sons (Costigan & Koryzma, 2011). In an older study of White parents of 8–12th graders (Bogenschneider et al., 1997), fathers of sons expressed higher perceived parenting competence than did fathers of daughters. Perhaps parental self-efficacy sometimes receives a boost from a shared gender identity with one's child due to greater perceived familiarity of, and expectations for, shared experiences. If so, parents of same-gender children might be expected to have higher parental self-efficacy, and a developmental trajectory of parental self-efficacy at the transition to adolescence that is more likely to remain stable and less likely to decline, than parents of opposite-gender children.

Most studies reporting on the association of child gender with parental self-efficacy are based on White parents from more individualistic countries (the U.S. and Australia). The current study thus extends existing research on child gender as a predictor of developmental changes in parental self-efficacy across cultural contexts.

Parents' age

Because parents gain experience, including the possibility of parenting experience with other children, as they age, it might be expected that older parents have more confidence in parenting an adolescent child than do younger parents. Alternatively, a greater generation gap that can emerge with a greater age difference between parents and children might result in lower parental self-efficacy among older parents, especially over a developmental period in which children become more active in exploring and investing in the culture of the younger generation. Relevant data are scant. In one study of Australian parents of adolescents (aged 12–17 years), older parents had higher parental self-efficacy than did younger parents (Carless et al., 2015). Yet, two other studies, one of Chinese immigrant parents in Canada (Costigan & Koryzma, 2011) and one of White parents of adolescents (middle and high school aged) from the U.S. (Bogenschneider et al., 1997) found no association between parents' age and parental self-efficacy. This study allows further examination of any potential role for parents' age as a predictor of parental self-efficacy over the adolescent transition.

Parents' education

Social learning theory predicts, and some data support, that parents of higher education and socio-economic status have higher parental self-efficacy specifically for promoting academic achievement (Bi et al., 2021; Schuengel & Oosterman, 2019). This would result from their own greater familiarity and success with the educational context, as well as access to more resources to support their children's education. It is less clear what implication education specifically, or as an indicator of socioeconomic status (SES), might have for parental self-efficacy over the adolescent period more generally. In general, it seems that higher education enables knowledge and resources that would benefit levels of parental self-efficacy, but this would not necessarily change the trajectory of parental self-efficacy over adolescence.

To the extent that associations between parents' education or SES and parental self-efficacy for matters other than education have been reported, the constructs have mostly been unrelated (de Haan et al., 2009, among Flemish parents in Belgium; Dumka et al., 2010, among Mexican-American parents; Wong & Lee, 2017, among parents from

Hong Kong). A recent review (Fang et al., 2021) found that higher household income predicted higher parental self-efficacy for mothers but was unrelated to parental self-efficacy for fathers; these conclusions were based on a small number of studies of parents of young children, some of which were quite old. Including parents' education in the analyses can reveal whether these mostly null effects replicate across additional cultural groups and across developmental time.

Current Study

Little is known about the developmental trajectories of parental self-efficacy as children transition into adolescence. The current study addresses levels and changes in parental self-efficacy over three and a half years in which a child is moving from late childhood into adolescence among mothers and fathers from different cultural contexts, some more individualistic and some more collectivistic. It was hypothesized that levels of parental self-efficacy would differ such that they will be lower among parents from more individualistic contexts than among parents from more collectivistic contexts, at least once children have transitioned into adolescence (Hypothesis 1). It was also hypothesized that the trajectories of parental self-efficacy would differ such that in more individualistic contexts, parental self-efficacy would decline significantly as children move into adolescence, whereas in more collectivistic contexts, parental self-efficacy would decline less or perhaps even remain stable (Hypothesis 2). Secondarily, associations between children's gender, parents' age, and parents' education on the one hand and levels or changes in parental self-efficacy on the other were explored, as was the question of whether these associations differed for parents from more collectivistic and individualistic contexts. Given the lack of theory and the data available, no predictions about these latter associations were made.

Method

Procedures and Participants

Data for this study were drawn from the Parenting Across Cultures (PAC) project, a large-scale longitudinal and cross-national study. Data from three waves in which parents' reports of their parental self-efficacy were available were used; these waves correspond to Time 1 (T1), Time 2 (T2), and Time 3 (T3) for the purposes of this study. One child per family also participated in the larger study. The mean ages for these children were 9.72 at T1 ($SD = 0.59$), 10.72 at T2 ($SD = 0.62$), and 13.20 at T3 ($SD = 0.87$). As is

evident, there was about a 1-year interval between T1 and T2, and about 2 years between T2 and T3; altogether the approximate time span was about 3 and a half years. Participants were recruited from nine countries (12 ethnic/cultural groups) including China (Shanghai, $n = 104$), Colombia (Medellín, $n = 98$), Italy (Naples, $n = 99$, and Rome, $n = 95$), Jordan (Zarqa, $n = 114$), Kenya (Kisumu, $n = 84$), Philippines (Manila, $n = 106$), Thailand (Chiang Mai, $n = 110$), Sweden (Trollhättan/Vänersborg, $n = 98$), and the United States (Durham, NC, African Americans $n = 90$, European Americans $n = 99$, and Latinx $n = 86$).

The study was approved by local institutional review boards of collaborating universities in each country. Informed consent was obtained from adult participants and assent from youth participants. Families were recruited from public or private schools located in urban and socio-economically diverse communities in each country. Questionnaires were translated and back-translated using a rigorous procedure (Maxwell, 1996) and administered in the predominant language of each country. Mothers and fathers completed the questionnaires separately at a location of their choice and responded orally or in writing.

The nine countries were categorized based on Hofstede's Individualism Index (Hofstede et al., 2010; Hofstede Insights, 2021), in which scores that are closer to zero represent more collectivistic countries and scores that are closer 100 represent more individualistic countries. Thus, countries with scores that were higher than 50 were coded as more individualistic [i.e., Italy (76), Sweden (71), and the United States (91)] and those with scores that were lower than 50 were coded as more collectivistic [i.e., China (20), Colombia (13), Jordan (30), Kenya (25), Philippines (32), Thailand (20)].

Participants were 1178 mothers and 1026 fathers at T1 (51.2% girls). Of the mothers, 612 (51%) were from more collectivistic countries and 566 (48%) were from more individualistic countries. Of the fathers, 582 (57%) came from collectivistic countries and 444 (43%) came from more individualistic countries. Children from more collectivistic countries were on average significantly younger at T1 ($M = 9.60$) than were children from more individualistic countries ($M = 9.85$), $t(1181) = 7.51$, $p < 0.001$. There was a significant difference in mothers' and fathers' age between the two groups, $t(1062) = 3.76$, $p < 0.001$, and $t(952) = 2.30$, $p = 0.022$, for mothers and fathers age, respectively. Mothers and fathers from more collectivistic countries were younger ($M_{\text{mothers}} = 37.53$ and $M_{\text{fathers}} = 40.88$) than were mothers and fathers from more individualistic countries ($M_{\text{mothers}} = 38.98$ and $M_{\text{fathers}} = 41.85$) at T1. Mothers' average years of education, assessed in the first wave of the larger study, also differed significantly between the two groups, $t(1163) = 2.86$, $p = 0.004$. Mothers from more collectivistic countries had on average

fewer years of education ($M = 12.44$) than did mothers from more individualistic countries ($M = 13.13$).

Measures

Parental self-efficacy

Parents' perceptions of parental self-efficacy were measured with six questions, answered separately by mothers and fathers, and rated on a 5-point Likert scale ranging from 1 (*nothing*) to 5 (*a great deal*; Bandura, 2006; Pastorelli & Gerbino, 2001). An example item is "How much can you do to get your children to do things you want at home." Other items assessed efficacy about behavior out of the home, and school outcomes. Items were averaged, making the current approach domain-specific (Coleman & Karraker, 2003), in which parents report perceived efficacy in specific areas of parenting and responses are averaged across areas. Cronbach's alphas for T1, T2, and T3 were 0.76, 0.83, and 0.83 for mothers from more collectivistic countries and 0.77, 0.85, and 0.83 for fathers from more collectivistic countries. Corresponding values were 0.79, 0.81, and 0.82 for mothers from more individualistic countries and 0.83, 0.97, and 0.82 for fathers from more individualistic countries. Analyses demonstrated measurement invariance across the two groups of countries (see Supplementary Material).

Demographic variables

Parents—usually mothers—completed a form that included demographic questions regarding the birth date of the child, child gender, parent education, and parent age. Child age was computed based on the child's date of birth and the date of T1 interview with the child.

Statistical Analyses

A series of Latent Growth Curve Analyses (LGCA) was performed separately for mothers and fathers using Mplus 8.0 (Muthén & Muthén, 1998–2017) with maximum likelihood (ML) estimator. To evaluate model fit, the Comparative Fit Index (CFI), the Tucker-Lewis Index (TLI), and the Root Mean Square Error of Approximation (RMSEA) were used. CFI and TLI values between 0.90 and 0.95, and RMSEA and SRMR values below 0.08 are considered indicators of an acceptable fit (Byrne, 2012).

Procedures described by Grimm et al., (2017) were used to examine growth models, adding on a multi-group approach and a time-invariant covariate approach. Unconditional LGCA were fitted, in which initial levels and slopes over time in parental self-efficacy were examined. Factor loadings for the intercept were fixed at 1 at all three times. First, a no-change model was run, specifying that

Table 1 Means, standard deviations, and correlations for study variables separately for fathers from more individualistic and more collectivistic countries

	1	2	3	4	5	6	7	<i>M</i> (SD)	<i>t</i> (<i>df</i>)	<i>p</i>	Cohen's <i>d</i>
1. Parental self-efficacy T1	.	0.53***	0.50***	-0.02	-0.03	0.10*	0.03	3.88 (0.74)	2.08 (942)	0.019	0.14
2. Parental self-efficacy T2	0.65***	.	0.39***	-0.09*	-0.09*	0.04	0.03	3.84 (0.78)	2.98 (917)	0.002	0.20
3. Parental self-efficacy T3	0.65***	0.57***	.	0.05	0.11*	0.15**	0.01	3.96 (0.70)	2.04 (800)	0.021	0.15
4. Child gender	-0.08	-0.02	-0.05	.	-0.04	-0.03	-0.02	-	-	-	-
5. Child age (T1)	0.10*	0.04	0.00	-0.02	.	0.17***	0.04	9.61 (0.52)	-	-	-
6. Fathers' age (T1)	-0.11*	-0.09	-0.15**	-0.05	-0.06	.	-0.04	40.83 (6.34)	-	-	-
7. Fathers' education	-0.06	-0.08	-0.15**	-0.02	0.07	0.29***	.	12.70 (4.09)	-	-	-
<i>M</i> (SD)	3.97 (0.60)	3.98 (0.59)	3.86 (0.63)	-	9.85 (0.63)	41.96 (6.68)	13.20 (4.36)	.	-	-	-

Statistics above the diagonal are for fathers from more collectivistic countries and below the diagonal are for fathers from more individualistic countries. Child gender: 1 = boy, 2 = girl. Fathers' education is measured as years of education. *t*-values, *p*-values, and Cohen's *d* are reported from independent sample *t*-tests comparing fathers from more collectivistic and fathers from more individualistic countries on parental self-efficacy at T1, T2, and T3, respectively. *N* = 1026.

p* < 0.05; *p* < 0.01; ****p* < 0.001.

there was no change over time in parental self-efficacy. Second, linear growth was tested by fixing the factor loadings for the slope at 0, 1, and 3 (representing one year between T1 and T2, and about two years between T2 and T3). These models were first tested separately for parents from more collectivistic and individualistic countries. Model fits were compared to find the best-fitting model for parents in the two groups. Once the growth was fitted for parents from more collectivistic and more individualistic countries separately, a multi-group approach was used to examine differences in intercept and slope. The multiple-group comparisons were done by placing equality constraints on a path and testing if that changed the chi-square significantly. After the group comparisons, and to obtain the most parsimonious models, all paths that did not significantly differ between the groups were set to be equal between the groups. Because latent growth curve models addressed differences in levels of parental self-efficacy only at T1, independent *t*-tests were also run to examine differences in the level of parental self-efficacy between more individualistic and more collectivistic countries at T2 and T3.

Next, to examine the associations regarding predictors of parental self-efficacy, conditional latent curve models were run. In these models, child gender and T1 parents' age and parents' education were used to predict initial levels at T1 (i.e., intercept) and change over time (i.e., slope) in parental self-efficacy. Although all children were pre-adolescent at T1, to control for the small amount of variation in starting age, children's age at T1 was also included as a predictor. The same multi-group approach described above was used to test differences between parents from more collectivistic and more individualistic countries in the conditional latent curve models.

Missing Data

Most mothers (83%) reported parental self-efficacy at all three times, 14% reported at only two times, and 3% only one time. For fathers, 69% reported parental self-efficacy at all three times, 21% only two times, and 10% at only one time. Two logistic regression analyses (separately for mothers and fathers) were performed to examine whether parents with data on the parental self-efficacy measures at all three times (973 mothers and 717 fathers) differed from parents with some missing data (205 mothers and 324 fathers). All demographic variables (T1 age and gender of the child, T1 age of the parent, and parents' education) were used as predictors of missing data. One variable was significant in predicting whether parents had missing data among both mothers and fathers: younger mothers and fathers were more likely to have missing data than were older mothers (OR = 1.03, *p* = 0.018) and fathers (OR = 1.04, *p* = 0.007). In all further analyses, full information maximum likelihood (FIML) was used to handle missing data. FIML uses all existing information to estimate the parameters and has been identified as the least biased method of estimating missing information (e.g., Little & Rubin, 2002; Schafer & Graham, 2002).

Results

Descriptive Statistics

Tables 1 and 2 report means, standard deviations, and correlations for all study variables separately for mothers and fathers in more individualistic and more collectivistic countries. Mothers' and fathers' parental self-efficacy

Table 2 Means, standard deviations, and correlations for study variables separately for mothers from more individualistic and more collectivistic countries

	1	2	3	4	5	6	7	<i>M</i> (<i>SD</i>)	<i>t</i> (<i>df</i>)	<i>p</i>	Cohen's <i>d</i>
1. Parental self-efficacy T1	.	0.61**	0.51**	-0.06	-0.08*	0.20**	0.09*	3.98 (0.71)	3.32 (1167)	<0.001	0.20
2. Parental self-efficacy T2	0.62**	.	0.49**	0.02	-0.09*	0.11*	0.11*	3.99 (0.70)	2.19 (1112)	0.014	0.13
3. Parental self-efficacy T3	0.59**	0.61**	.	0.06	0.05	0.03	-0.04	4.05 (0.69)	1.67 (998)	0.047	0.11
4. Child gender	0.00	0.06	-0.01	.	-0.04	-0.05	-0.02	-	-	-	-
5. Child age (T1)	0.08*	0.11*	0.08	-0.02	.	0.01	-0.05	9.59 (0.52)	-	-	-
6. Mothers' age (T1)	-0.19**	-0.15**	-0.20**	-0.05	0.06	.	0.18**	37.53 (6.00)	-	-	-
7. Mothers' education	-0.05	-0.02	-0.04	-0.04	0.02	0.28**	.	12.43 (4.15)	-	-	-
<i>M</i> (<i>SD</i>)	4.11 (0.55)	4.07 (0.57)	3.98 (0.62)	-	9.85 (0.63)	38.98 (6.50)	13.13 (4.19)	.	-	-	-

Statistics above the diagonal are for mothers from more collectivistic countries and below the diagonal are for mothers from more individualistic countries. Child gender: 1 = boy, 2 = girl. Mothers' education is measured as years of education. *t*-values, *p*-values, and Cohen's *d* are reported from independent sample *t*-tests comparing mothers from more collectivistic and mothers from more individualistic countries on parental self-efficacy at T1, T2, and T3, respectively. *N* = 1178.

p* < 0.01; *p* < 0.001.

Table 3 Model fit indices for growth models

	χ^2 (<i>df</i>)	<i>p</i>	CFI	TLI	RMSEA (CI RMSEA)	SRMR	Δ <i>model</i>	$\Delta\chi^2$ (<i>df</i>)	<i>p</i>
Fathers									
1a) No change model—fathers individualistic	28.87 (6)	0.001	0.94	0.97	0.09 (0.06–0.13)	0.13	-	-	-
1b) LGCA (linear)—fathers individualistic	10.99 (3)	0.012	0.98	0.98	0.08 (0.03–0.13)	0.07	w/1a	17.88 (3)	<0.001
2a) No change model—fathers collectivistic	27.65 (6)	<0.001	0.93	0.97	0.08 (0.05–0.11)	0.17	-	-	-
2b) LGCA (linear)—fathers collectivistic	2.67 (3)	0.446	1.00	1.00	0.00 (0.00–0.07)	0.06	w/2a	24.98 (3)	<0.001
3) LGCA (linear)—multi group fathers	13.65 (6)	0.034	0.99	0.99	0.05 (0.01–0.09)	0.07	-	-	-
Mothers									
4a) No change model—mothers individualistic	46.43 (6)	< 0.001	0.93	0.96	0.11 (0.08–0.14)	0.25	-	-	-
4b) LGCA (linear)—mothers individualistic	1.83 (3)	0.609	1.00	1.00	0.00 (0.00–0.06)	0.03	w/4a	44.60 (3)	<0.001
5a) No change model—mothers collectivistic	17.79 (6)	0.007	0.97	0.99	0.06 (0.03–0.09)	0.06	-	-	-
5b) LGCA (linear)—mothers collectivistic	5.91 (3)	0.116	0.99	0.99	0.04 (0.00–0.09)	0.04	w/5a	11.88 (3)	0.008
6) LGCA (linear)—multi group mothers	7.74 (6)	0.258	1.00	1.00	0.02 (0.00–0.06)	0.04	-	-	-

correlated positively over time. Regarding correlations between potential predictors and parental self-efficacy, patterns differed between more individualistic and more collectivistic countries, and between mothers and fathers. Interpretation of the patterns is done within the context of latent curve models that incorporate all predictors.

Unconditional Latent Curve Model for Fathers

To test hypotheses about cultural differences in initial levels and trajectories in parental self-efficacy for fathers, unconditional latent curve models were used, first separately by cultural group and then in a multi-group model. Recommended steps for latent curve models (Grimm et al., 2017) were followed. Model fit indices are reported in Table 3.

For fathers from more individualistic countries, the no-change model fit poorly, $\chi^2(6) = 28.87$, *p* = 0.001, CFI = 0.94; TLI = 0.97; RMSEA = 0.09 (CI RMSEA = 0.06–0.13);

SRMR = 0.13 (Model 1a in Table 3). Both RMSEA and the SRMR were higher than preferred. A linear slope model showed a better fit of the data, $\chi^2(3) = 10.99$, *p* = 0.012, CFI = 0.98; TLI = 0.98; RMSEA = 0.08 (CI RMSEA = 0.03–0.13); SRMR = 0.07 (Model 1b in Table 3), and fit significantly better than the no-change model, $\Delta\chi^2(3) = 17.88$, *p* < 0.001. Means indicated that for fathers from more individualistic countries, parental self-efficacy was stable between T1 and T2 and decreased from T2 to T3. Follow-up repeated measures ANOVAs confirmed that there was a significant linear change in fathers' parental self-efficacy from T1 to T3 ($F[1, 293] = 17.03$; *p* < 0.001), as well as between T2 and T3 ($F[1, 311] = 9.54$; *p* = 0.002).

For fathers from more collectivistic countries, the no-change model also fit data poorly, $\chi^2(6) = 27.65$, *p* < 0.001, CFI = 0.93; TLI = 0.97; RMSEA = 0.08 (CI RMSEA = 0.05–0.11); SRMR = 0.17 (Model 2a in Table 3). Specifically, the SRMR was higher than preferred. The model fitting a linear change produced a good

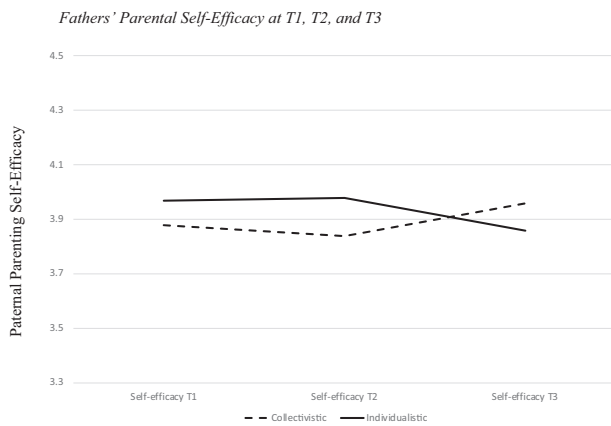


Fig. 1 Fathers' parental self-efficacy at T1, T2, and T3

fit to the data, $\chi^2(3) = 2.67$, $p = 0.446$, CFI = 1.00; TLI = 1.00; RMSEA = 0.00 (CI RMSEA = 0.00–0.07); SRMR = 0.06 (Model 2b in Table 3). This model had a lower SRMR, and showed a significantly better fit than the no-change model, $\Delta\chi^2(3) = 24.98$, $p < 0.001$. Examining the means for fathers from more collectivistic countries, parental self-efficacy showed a slight decrease between T1 and T2, but a larger increase from T2 to T3. Like the corresponding results for fathers from more individualistic countries, follow-up repeated measures ANOVA supported a linear change between T1 and T3 ($F[1, 293] = 5.90$; $p = 0.016$), and between T2 and T3 ($F[1, 433] = 8.59$; $p = 0.004$).

In the multi-group model, linear slopes were fitted for both groups, and the model showed good fit to the data, $\chi^2(6) = 13.65$, $p = 0.034$, CFI = 0.99; TLI = 0.99; RMSEA = 0.05 (CI RMSEA = 0.01–0.09); SRMR = 0.07 (Model 3 in Table 3). Figure 1 illustrates the means for fathers' parental self-efficacy at T1, T2, and T3. The *means of the slopes* were significantly different from zero for both groups ($Est. = -0.04$, $p < 0.001$ and $Est. = 0.02$, $p = 0.002$, for the more individualistic and more collectivistic fathers, respectively). This shows that fathers from more individualistic countries had a significant decrease in parental self-efficacy from T1 to T3, whereas fathers from more collectivistic countries had a significant increase in parental self-efficacy from T1 to T3. Furthermore, the slope of the individualistic group and the slope of the collectivistic group differed significantly from one other, $\Delta\chi^2(1) = 27.44$, $p < 0.001$.

The intercept was also significantly different between fathers in the two groups, $\Delta\chi^2(1) = 6.94$, $p = 0.008$. Initial parental self-efficacy for fathers from more individualistic countries was higher than that of fathers from more collectivistic countries. Furthermore, the *variances of the intercepts* were significantly different from zero for both groups ($Est. = 0.23$, $p < 0.001$ and $Est. = 0.28$, $p < 0.001$, for the more individualistic and more collectivistic groups,

respectively). The *slope variances* were significantly different from zero for fathers from more collectivistic countries ($Est. = 0.01$, $p = 0.003$), but not for fathers from more individualistic countries ($Est. = 0.00$, $p = 0.759$). Hence, there was significant individual variability in the starting level and in change for fathers in the more collectivistic group, whereas fathers in the more individualistic group varied significantly in starting parental self-efficacy but had the same rate of change over time. Finally, the *correlation between the intercept and slope* was significant for fathers from more collectivistic countries ($Est. = -0.01$, $p = 0.035$); thus, the increase in parental self-efficacy was more pronounced for fathers who started lower in parental self-efficacy than for fathers who started higher in parental self-efficacy. The correlation was not significant for fathers from more individualistic countries ($Est. = 0.00$, $p = 0.968$).

Independent samples *t*-tests showed that means of parental self-efficacy for fathers from more individualistic countries and fathers from more collectivistic countries differed significantly at all three time points. Fathers from more individualistic countries reported higher parental self-efficacy at T1 and T2, but lower parental self-efficacy at T3, compared to fathers from more collectivistic countries.

Unconditional Latent Curve Model for Mothers

To test the hypotheses about cultural differences in initial levels and slopes over time in parental self-efficacy for mothers, unconditional latent curve models were similarly used, first separately by cultural group and then in a multi-group model. Model fit indices are reported in Table 3.

For mothers from more individualistic countries, the no-change models fit poorly, $\chi^2(6) = 46.43$, $p < 0.001$, CFI = 0.93; TLI = 0.96; RMSEA = 0.11 (CI RMSEA = 0.08–0.14); SRMR = 0.25 (Model 4a in Table 3). The model examining linear growth, in contrast, showed a good model fit, $\chi^2(3) = 1.83$, $p = 0.609$, CFI = 1.00; TLI = 1.00; RMSEA = 0.00 (CI RMSEA = 0.00–0.06); SRMR = 0.03 (Model 4b in Table 3), significantly better than the no-change model, $\Delta\chi^2(3) = 44.60$, $p < 0.001$. Means indicated that mothers from more individualistic countries showed a decrease in parental self-efficacy over time, with slightly more change between T2 and T3 than between T1 and T2. Results from repeated measures ANOVAs showed a significant linear change in mothers' self-efficacy between T1 and T3 ($F[1, 471] = 26.08$; $p < 0.001$) and between T2 and T3 ($F[1, 475] = 17.30$; $p < 0.001$). The change between T1 and T2 approached significance ($F[1, 534] = 3.74$; $p = 0.054$), but was weaker in strength than the changes over the whole time and between T2 and T3.

For mothers from more collectivistic countries, the no-change model showed a good fit to the data, $\chi^2(6) = 17.79$,

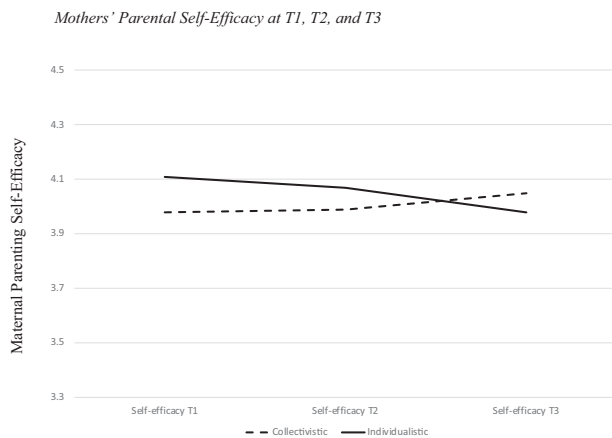


Fig. 2 Mothers' parental self-efficacy at T1, T2, and T3

$p < 0.007$, CFI = 0.97; TLI = 0.99; RMSEA = 0.06 (CI RMSEA = 0.03–0.09); SRMR = 0.06 (Model 5a in Table 3). However, the LGCA modeling linear growth showed a significant better fit to the data, $\Delta\chi^2(3) = 11.88$, $p = 0.008$ (Model 5b in Table 3). Because this linear model had a good fit to the data, $\chi^2(6) = 5.91$, $p = 0.116$, CFI = 0.99; TLI = 0.99; RMSEA = 0.04 (CI RMSEA = 0.00–0.09); SRMR = 0.04, and because it produced a significantly better fit to the data (including a lower and non-significant χ^2 , and lower RMSEA and SRMR), this model was used. The means for mothers from more collectivistic countries showed similar increases in parental self-efficacy from T1 to T2 and from T2 to T3. Repeated measures ANOVAs indicated a linear change in parental self-efficacy between T1 and T3 ($F[1, 494] = 5.29$; $p = 0.022$) and a marginally significant linear change between T2 and T3 ($F[1, 497] = 3.76$; $p = 0.053$). The change from T1 to T2 was not significant ($F[1, 569] = 0.06$; $p = 0.815$).

The multi-group model also showed a good fit to the data, $\chi^2(6) = 7.74$, $p = 0.258$, CFI = 1.00; TLI = 1.00; RMSEA = 0.02 (CI RMSEA = 0.00–0.06); SRMR = 0.04 (Model 6 in Table 3). Figure 2 illustrates the means for mothers' parental self-efficacy at T1, T2, and T3. The means of the slopes were significantly different from zero for both groups ($Est. = -0.04$, $p < 0.001$ and $Est. = 0.02$, $p = 0.034$, for the more individualistic and more collectivistic mothers, respectively). This shows that mothers from more individualistic countries had a significant decrease in parental self-efficacy from T1 to T3, whereas mothers from more collectivistic countries had a significant increase in parental self-efficacy from T1 to T3. Furthermore, the slopes differed significantly between the two groups, $\Delta\chi^2(1) = 25.60$, $p < 0.001$, suggesting that mothers experienced different changes in parental self-efficacy depending on the cultural context.

The intercept was also significantly different between mothers in the two groups, $\Delta\chi^2(1) = 15.49$, $p < 0.001$. Initial

parental self-efficacy for mothers from more individualistic countries was higher than that of mothers from more collectivistic countries. Furthermore, the variances of the intercepts were significantly different from zero for both groups ($Est. = 0.19$, $p < 0.001$ and $Est. = 0.33$, $p < 0.001$, for mothers from more individualistic countries and collectivistic countries, respectively). The slope variances were significantly different from zero for mothers from more individualistic countries ($Est. = 0.01$, $p = 0.027$) and mothers from more collectivistic countries ($Est. = 0.01$, $p = 0.036$). Hence, there was individual variability in the starting level and in the growth rate over time for both groups. Finally, the correlation between the intercept and slope was significant for mothers from more collectivistic countries ($Est. = -0.02$, $p = 0.012$); thus, the increase in parental self-efficacy was more pronounced for mothers who started lower in parental self-efficacy than for mothers who started higher in parental self-efficacy. The correlation was not significant for mothers from more individualistic countries ($Est. = 0.00$, $p = 0.481$).

Independent samples t -tests showed that means of parental self-efficacy for mothers from more collectivistic countries and mothers from more individualistic countries differed significantly at all three time points. Mothers from more individualistic countries reported higher self-efficacy at T1 and T2, but lower self-efficacy at T3, compared to mothers from more collectivistic countries (see Table 2).

Conditional Latent Curve Model for Fathers

To explore whether demographic variables predicted the level or trajectory of parental self-efficacy for fathers, a conditional latent curve model was run. Demographic variables were used to predict the intercept in both groups, and the slope for fathers from collectivistic countries, because the slope variance was significant only for fathers from collectivistic countries. In the conditional model, predictors were children's gender, and fathers' age (at T1) and education. Although all children were pre-adolescent at T1, to control for the small amount of variation in starting age, children's age at T1 was also included as a predictor. Results are reported in Table 4.

One path predicting the intercept was significantly different in strength between the two groups: fathers' age at T1. When this path was free to vary and the other paths constrained to be equal between the two groups, the model fit the data well, $\chi^2(21) = 25.74$, $p = 0.217$, CFI = 0.99; TLI = 0.99; RMSEA = 0.02 (CI RMSEA = 0.00–0.04); SRMR = 0.04. Older fathers from more individualistic countries reported lower levels of parental self-efficacy at T1 than did younger fathers ($\beta = -0.13$, $p = 0.013$). The opposite was found for fathers from more collectivistic countries, for whom older fathers reported higher levels of

Table 4 Results of analyses predicting intercept and slope of parental self-efficacy

Predictors	Fathers from More Collectivistic Countries (<i>n</i> = 582)				Fathers from More Individualistic Countries (<i>n</i> = 459)			
	I β	I p	S β	S p	I β	I p	S β	S p
Child gender	-0.04	0.194	0.26	0.006	-0.05	0.195	-	-
Child age (T1)	0.00	0.973	0.31	0.002	0.00	0.973	-	-
Fathers' age (T1)	0.11	0.028	0.15	0.150	-0.14	0.013	-	-
Fathers' education	-0.01	0.777	-0.02	0.872	-0.01	0.777	-	-
Predictors	Mothers from More Collectivistic Countries (<i>n</i> = 612)				Mothers from More Individualistic Countries (<i>n</i> = 566)			
	I β	I p	S β	S p	I β	I p	S β	S p
Child gender	-0.01	0.834	0.25	0.037	-0.01	0.834	-0.06	0.567
Child age (T1)	-0.14	0.003	0.37	0.009	0.12	0.015	0.02	0.844
Mothers' age (T1)	0.18	<0.001	-0.23	0.018	-0.20	<0.001	-0.28	0.005
Mothers' education	0.04	0.164	-0.25	0.037	0.06	0.162	0.04	0.729

Child gender: 1 = boy, 2 = girl. Parents' education is measured as years of education.

parental self-efficacy at T1 ($\beta = 0.11$, $p = 0.028$). These estimates differed significantly between the groups, $\Delta\chi^2(1) = 9.67$, $p = 0.002$.

Two variables were significant predictors of change in parental self-efficacy among fathers from more collectivistic countries. Fathers of girls ($\beta = 0.26$, $p = 0.006$) and fathers of older children at T1 ($\beta = 0.31$, $p = 0.002$) reported a significantly steeper increase over time in comparison to fathers of boys and fathers of younger children at T1, respectively.

Conditional Latent Curve Model for Mothers

To explore whether demographic variables predicted the level or trajectory of parental self-efficacy for mothers, a conditional latent curve model was run with variables predicting the intercept and slope of parental self-efficacy for both groups. In the conditional model, predictors were children's gender, and mothers' age (at T1) and education. Although all children were pre-adolescent at T1, to control for the small amount of variation in starting age, children's age at T1 was also included as a predictor. Results are reported in Table 4.

Five of the estimates differed significantly in strength between mothers from more individualistic and mothers from more collectivistic countries: The associations including mothers' age and children's age on the intercept of parental self-efficacy, and the associations among children's age, children's gender, and mothers' education on the one hand and the slope of mothers' parental self-efficacy over time. A model having these estimates free to vary between the groups, and the remaining two paths constrained to be equal, produced a good fit to the data, $\chi^2(17) = 58.64$, $p = 0.056$, CFI = 0.99; TLI = 0.98; RMSEA = 0.03 (CI RMSEA = 0.00–0.05); SRMR = 0.02.

As reported above, the association between parental self-efficacy at T1 and both mothers' age and children's age (both at T1) differed significantly in strength between the two cultural groups, $\Delta\chi^2(1) = 29.87$, $p < 0.001$ and $\Delta\chi^2(1) = 14.25$, $p = 0.001$. Older mothers from more individualistic countries reported lower levels of parental self-efficacy at T1 in comparison to younger mothers ($\beta = -0.20$, $p < 0.001$), whereas older mothers from more collectivistic countries reported higher parental self-efficacy at T1 ($\beta = 0.18$, $p < 0.001$). Furthermore, children's age at T1 was also a significant predictor of the intercept in both groups, but the direction of association was different for mothers from more collectivistic vs. more individualistic countries. Mothers of older children at T1 from more individualistic countries reported higher levels of parental self-efficacy ($\beta = 0.12$, $p = 0.015$) than did mothers of younger children at T1 from more individualistic countries. Mothers of older children at T1 from more collectivistic countries reported lower levels of parental self-efficacy at T1 ($\beta = -0.14$, $p = 0.003$) than did mothers of younger children at T1 from more collectivistic countries.

For the associations between predictors and the slope, all variables were significant predictors of change in parental self-efficacy among mothers from more collectivistic countries, whereas only mothers' age was a significant predictor of change in parental self-efficacy among mothers from more individualistic countries. As reported above, three of the estimates were significantly different in strength between mothers from more individualistic countries and mothers from more collectivist countries: children's gender ($\Delta\chi^2(1) = 6.26$, $p = 0.012$) and age ($\Delta\chi^2(1) = 7.21$, $p = 0.007$), and mothers' education ($\Delta\chi^2(1) = 4.47$, $p = 0.035$). Among mothers from more collectivistic countries, those who had girls ($\beta = 0.25$, $p = 0.037$) and

those who had older children ($\beta = 0.37, p = 0.009$) reported a significantly steeper increase in parental self-efficacy over time than did mothers who had boys and mothers who had younger children, respectively. Furthermore, mothers from more collectivistic countries who had more years of education reported a less steep increase in parental self-efficacy over time compared to mothers with fewer years of education ($\beta = -0.25, p = 0.037$). Finally, mothers' age was a significant predictor of change in parental self-efficacy over time for both groups; for both groups, there was less change over time for older mothers. Specifically, among mothers from more individualistic countries, where parental self-efficacy decreased over time, older mothers showed a less steep decrease in comparison to younger mothers ($\beta = -0.28, p = 0.005$). Among mothers from more collectivistic countries, where parental self-efficacy increased over time, older mothers showed a less steep increase in parental self-efficacy in comparison to younger mothers ($\beta = -0.23, p = 0.018$).

Discussion

Existing research suggests that parental self-efficacy might decline as children become adolescents, but this conclusion is based on a very small number of studies. Most of these studies consist of parents from the U.S. and other Western countries, and only one of them is longitudinal. At their best, data represent parents from a cultural context generally characterized by more individualistic values. To address the gap in knowledge about trajectories of parental self-efficacy longitudinally and cross-culturally, the current study examined the development of parental self-efficacy as children transitioned into adolescence among mothers and fathers from different countries, some more individualistic and some more collectivistic. Findings supported hypotheses that parenting within a more individualistic context might make parents more prone to declines in parental self-efficacy as children move into and through adolescence—and to generally lower levels of parental self-efficacy for adolescent children—than would parenting within a more collectivistic context (Hypotheses 1 and 2).

Culture and the Development of Parental Self-Efficacy at Adolescence

Consistent with results from the one existing longitudinal study of parental self-efficacy over the transition to adolescence (Glatz & Buchanan, 2015a), which was conducted with parents from the United States, parental self-efficacy among mothers and fathers from more individualistic countries (Italy, Sweden, United States) declined significantly over a period in which they had a child

transitioning from late childhood into and across early adolescence. However, the trajectory of development of parenting-self-efficacy among parents from more collectivistic countries (China, Colombia, Jordan, Kenya, Philippines, Thailand) was different: parental self-efficacy increased over the same time. For both groups, the largest change took place between T2 and T3, suggesting that parental self-efficacy changes more as children move through the earliest years of adolescence, on average, than at the transition from late childhood into early adolescence. However, consistent with Hypothesis 2, the extent and even direction of change was different depending on cultural context. It should be acknowledged that the effect sizes for changes in parental self-efficacy over time were small for both cultural groups, likely masking important variability within each cultural group based on unmeasured factors. Nonetheless, the differences in trajectories were consistent with what was predicted based on broad cultural differences.

Given the trajectories, and consistent with Hypothesis 1, by the time children were firmly into adolescence, absolute levels of parental self-efficacy were significantly lower among parents from more individualistic countries than they were among parents from more collectivistic countries. This was not true when children were in late childhood or the earliest stages of the adolescent transition. In fact, at Times 1 and 2, parental self-efficacy was significantly higher among parents in the more individualistic countries. Thus, prior to adolescence and in the very early days of the transition to adolescence, when children spend more time under the supervision of parents and are more easily monitored, parenting in a context where care of children is less likely to be shared with others might promote especially strong confidence in parents' personal capacity to influence their own children. Alternatively, or in addition, parents from the more individualistic countries in this study might have, on average, access to more resources, and fewer hardships and challenges in their daily lives, giving them a greater sense of control over their children's lives prior to adolescence (Dumka et al., 2010). For example, the three more individualistic countries—Sweden, the U.S., and Italy—are all classified by the World Bank (2021) as high-income countries and by the United Nations (2020) as being very high on the Human Development Index, a composite that reflects life expectancy, education, and gross national income. The six more collectivistic countries—China, Colombia, Jordan, Kenya, the Philippines, and Thailand—are classified by the World Bank (2021) as being either lower-middle- or upper-middle-income countries and by the United Nations (2020) as being medium or high on the Human Development Index. So, although parental education at an individual level was not an important predictor of individual differences in parental self-efficacy at T1,

country-level contributors to inequalities for children (e.g., pre-school education; see Tran et al., 2017) or parents (e.g., Lansford & Bornstein, 2020) might influence differences in parental self-efficacy when children are preadolescents.

Still, by the time children were solidly into adolescence, the differences in confidence favoring parents in more individualistic countries had reversed, as confidence decreased for parents in more individualistic countries between T2 and T3 and increased for parents in more collectivistic countries during the same period. Although more difficult life circumstances might, in general, increase parents' sense of helplessness to influence positive outcomes for their children, there is some evidence that resilience or hardiness develops from facing hardships and increases self-efficacy, including parental self-efficacy (Bandura, 1997; Dumka et al., 2010). Thus, by the time children were adolescents, the parental self-efficacy of parents from the more collectivistic countries might have benefitted from this resilience as well as from other aspects of their cultural setting, such as more family support for parenting (Daganzo et al., 2014), an emphasis on family interdependence over personal autonomy (Marbell-Pierre et al., 2019), or more positive expectations for adolescent behavior (Qu et al., 2016). The increase was especially strong among parents from more collectivistic countries whose parental self-efficacy was lower at the start, perhaps indicating more room for growth in response to the positive characteristics of the more collectivist parenting context.

On average, participants in all countries had a child who was preadolescent at T1, although the difference in T1 age between the country groups was significant. Findings that emerged in examining this variation were unpredicted but might be relevant to the impact of culture on the development of parental self-efficacy. In more individualistic countries, mothers of older pre-adolescent children expressed higher parental self-efficacy than did mothers of younger pre-adolescent children, whereas in more collectivistic countries, the opposite was true (mothers of older pre-adolescent children expressed lower parental self-efficacy than did mothers of younger pre-adolescent children). Perhaps when children are still preadolescents, the higher parental self-efficacy of mothers in individualistic countries is especially pronounced for older children due to their somewhat better social and cognitive abilities. Why would this not be true for mothers in more collectivistic countries? One possibility might be that social support for these primary caregivers from spouses and extended family declines some—relative to what it has been—as children approach adolescence. However, research supporting a decline in social support for parents as preadolescent children age (Kalmijn, 2012; Lippold et al., 2018) has been conducted mainly in more individualistic countries, so this conjecture is speculative. Furthermore, as noted earlier, mothers'

parental self-efficacy does not decline further as children move through adolescence; in fact, there are increases that might result from increased maturity of adolescent children in a context where family is emphasized over individual autonomy. The result concerning variation in child age while they are preadolescent was not anticipated and the proposed explanation is clearly speculative. More research is needed to examine whether such developmental nuances can be replicated, or whether this is a chance result.

Demographic Factors in the Development of Parental Self-Efficacy

A secondary and exploratory aim of the current study was to examine associations between children's gender, parents' age, or parents' education and the initial level or trajectory of parental self-efficacy—and whether these associations differed by cultural group. Children's gender was related to parental self-efficacy only among parents in more collectivistic countries, where parents of girls were more likely to demonstrate increased parental self-efficacy over the years studied than were parents of boys. Research hints at the possibility that parental self-efficacy might be especially likely to increase (or less likely to decrease) among same-gender parent-child pairs (e.g., Costigan & Koryzma, 2011). The current results are consistent with this possibility for mothers and daughters in more collectivist countries, but the finding that fathers' parental self-efficacy also increased more for daughters than for sons calls that interpretation into question. Perhaps the findings reflect greater adherence to traditional gender roles in more collectivist contexts; where traditional gender roles are in play, boys might be allowed more independence than girls, and parents' authority over – and therefore perceived efficacy regarding – girls' choices might increase as the girls take on more adult roles.

The association of parents' age with initial levels of parental self-efficacy differed for parents from more individualistic and more collectivistic countries. In more individualistic countries, younger parents expressed higher parental self-efficacy than did older parents. In more collectivistic countries, the opposite was true: older parents expressed higher parental self-efficacy than did younger parents. The interdependence, loyalty, and intergenerational extended family relationships, as well as respect for elders more characteristic of collectivist countries (Lieber et al., 2004) might contribute to greater confidence in the wisdom that comes with age and life experience. In contrast, in more individualistic settings, there might be more emphasis on and normalization of a "generation gap" as the young person seeks out their own personal autonomy with less regard for family ties and values (Dasen, 2000). Overall, however, older mothers appeared to be less susceptible to the dominant cultural trends in parental self-efficacy trajectories:

compared to younger mothers, older mothers from more individualistic countries exhibited a smaller decrease in parental self-efficacy over time and older mothers from more collectivistic countries exhibited a smaller increase. As this is another unpredicted finding, and fathers' age did not predict their trajectories of parental self-efficacy, the result is simply noted as potentially worth future research attention.

Individual differences in parents' education did not predict the initial level of parental self-efficacy, a finding that is consistent with the few other studies that have reported data on parents' education and parental self-efficacy for domains other than education (e.g., Wong & Lee, 2017). Furthermore, parents' education affected the trajectory of parental self-efficacy only for mothers in more collectivist countries, with more educated mothers from collectivistic countries reporting a smaller increase in parental self-efficacy compared to less educated mothers. A cautious interpretation of this lone and unpredicted finding is that more highly educated mothers in more collectivist countries have greater exposure to individualistic values and ideas about adolescence, which might dampen the collectivistic cultural influences leading to a more positive view of adolescence. Relatedly, these mothers might be challenged to reconcile or negotiate cultural values concerning parenting within their cultural setting with these more individualistic values, leading them to question their parenting and their efficacy as a parent more so than less educated mothers.

Parental education is an indicator of SES, and there are competing theoretical propositions about the role of SES in parental self-efficacy (Bandura, 1997). Although the greater resources of higher SES might generally give parents confidence concerning their ability to influence children, the resilience it takes to overcome hardships might sharpen such confidence in lower-SES parents. Altogether, it appears that levels of individual education or SES do not capture well the life experiences that might affect parental self-efficacy.

Implications of Cultural Differences in Levels and Trajectories of Parental Self-Efficacy

If culture influences the levels and trajectories of parental self-efficacy, this might have implications for cultural differences in parenting as children transition into adolescence. Parents in more individualistic contexts might be less likely to exert or sustain efforts to influence behaviors they view as inevitable aspects of growing personal autonomy and individuation, such as being disrespectful to parents or breaking rules, and this might hold true even when those behaviors are extreme or disadvantageous to the child in their cultural context (e.g., early drinking; Mattick et al., 2018). Parents in more collectivistic contexts might be, on average, more likely to sustain their efforts and involvement

during adolescence. Although any specific implications should be drawn cautiously due to the variability that certainly exists within countries and cultural groups, the findings point to potential cultural and age influences on parental self-efficacy that are important for understanding parenting and might have relevance for practitioners aiming to help parents to understand that they continue to be influential, whether by their actions or lack thereof. Parents in more individualistic contexts, especially if they are older, might especially benefit from information that supports their continuing influence, as well as encouragement to sustain healthy involvement. Helping parents living in more collectivistic contexts recognize their cultural assets could likewise serve to help them sustain parental self-efficacy, and this might be especially helpful for younger parents in such contexts. In general, this work points to the potential value in identifying cultural assets that promote parental self-efficacy over time, to provide tools for interventions to support parents who are anticipating or actively parenting adolescent offspring.

Strengths, Limitations, and Future Research

This study contributes to knowledge about the development of parental self-efficacy, as it is only the second longitudinal investigation of parental self-efficacy over a period where children are moving from late childhood into and across early adolescence. The availability of data from many mothers and fathers in nine different countries is also an important strength, because so little is known about the ways in which culture is associated with parental self-efficacy (Albanese et al., 2019), and about fathers' parental self-efficacy. The large sample size of parents within each country group is a strength in that it provided good power to test the hypotheses. A corresponding limitation of the sample size is that effect sizes, although statistically significant and consistent with the hypotheses, are small. Small effect sizes can be important but likely mask important variability within more individualistic and more collectivistic contexts. As has been noted, the broad grouping of countries as more individualistic or more collectivistic oversimplifies cultural differences within and across the countries included. Unfortunately, analyses of the data separately for the individual countries was not possible because the model was too complex for the relatively low sample size in individual countries. However, the confirmation of hypotheses with the groupings across more individualistic and more collectivistic suggests that this distinction has value for insight into how culture might influence the development of parental self-efficacy. The cultural differences documented at minimum serve to demonstrate that previous findings about low or declining parental self-efficacy as children become adolescents might

not generalize to all cultural contexts. Given the limitations of the data, future research replicating and examining possible moderators of any cultural differences is encouraged.

Related to the issue of variability within country groups, one might question the decision to include parents of different ethnic groups, especially Latino parents, in the “more individualistic” U.S. sample. Latino families have been shown, on average to be collectivistic in cultural orientation (e.g., Mahrer et al., 2019). These parents were included in the “more individualistic” group because they were living in a larger cultural context that is more individualistic, and the analyses were focused on the country level. As part of the variability within each country that has already been mentioned, there are groups within all the countries represented in the current study that might not adhere closely to the average levels or trajectories of parental self-efficacy. Further research on within-country differences is warranted. Another limitation of the data that restricts, rather than masks, variability is that parents were recruited predominantly from urban areas, so the views of parents from more rural contexts are generally not represented.

Although having three points of data is a strength compared to most studies, the data herein span a limited time frame (late childhood through early adolescence). Future research that examines a longer timespan across childhood and adolescence would be valuable. Although some potentially important predictors of parental self-efficacy were examined, there are others (e.g., birth order, number of children) that might be important universally or within some cultural contexts. A fruitful avenue for future research would be to measure aspects of culture and country that have been hypothesized as mediators of culture and parental self-efficacy (e.g., income, gender roles, extended family involvement). It might also be worthwhile to assess individualism and collectivism at the individual parent level. The phenomenon of “helicopter parenting” in the United States indicates that some parents in this more individualistic country try very hard to exert influence on adolescents and young adults (Padilla-Walker & Nelson (2012). How such behaviors are related to individualism/collectivism, or to parental self-efficacy, is a question of interest.

The results apply only to domain-specific measures of parental self-efficacy. Given that social cognitive theory predicts that task-specific parental self-efficacy should best predict parenting behavior (Bandura, 1997), and that efficacy for specific tasks might have important cultural variability, examining task-specific efficacy could be an exciting avenue for further research.

Finally, because data were collected from mothers and fathers in the same family, data were nested. The analytical strategy did not allow for testing mothers and fathers in the same models, and, thus, differences as a function of parent’s gender could not be examined. The discussion of differences between mothers and fathers should be interpreted with this in mind.

Conclusion

Existing research suggests that parental self-efficacy declines as children become adolescents, but this conclusion is based on a very small number of studies, only one of which is longitudinal, whose participants are primarily from the U.S. The current study reports on the development of parental self-efficacy among mothers and fathers of children who are making the transition from late childhood into adolescents across nine countries, some more individualistic and some more collectivistic. The findings are consistent with the limited existing evidence that, for parents living in cultural contexts that emphasize the development of personal autonomy as a task of adolescence (e.g., the U.S., some European countries), parental self-efficacy declines as children enter adolescence. Yet, among parents living in cultural contexts that put less emphasis on the development of personal autonomy and more emphasis on family interconnectedness and respect (e.g., some African, Asian, Middle Eastern countries), parental self-efficacy does not appear to decline over the same developmental period; in fact, it might increase. Results also suggest that parental self-efficacy might vary with parents’ age, and do so differently in different cultural contexts, with older parents having more parental self-efficacy in more collectivistic contexts and younger parents having more parental self-efficacy in more individualistic contexts.

Data Sharing and Declaration

The datasets generated and/or analyzed during the current study are not publicly available but are available from J.L. on reasonable request.

Supplementary information The online version contains supplementary material available at <https://doi.org/10.1007/s10964-023-01899-z>.

Acknowledgements We are grateful to the parents who participated in this study, and the research teams that assisted in recruitment and data collection.

Authors’ Contributions C.M.B. conceptualized this paper, drafted the Introduction and Discussion, and contributed to the writing of the Method and Results; T.G. performed statistical analyses, drafted the Method and Results, and contributed to the writing of the Introduction and Discussion; Ş.S. performed statistical analyses, drafted the Method and Results, and contributed to the writing of the Introduction and Discussion; A.T.S. participated in the design and coordination of the study and provided critical feedback on the manuscript; J.E.L. participated in the design and coordination of the study and provided critical feedback on the manuscript; S.M.A. participated in the design and coordination of the study and provided critical feedback on the manuscript; D.B. participated in the design and coordination of the study and provided critical feedback on the manuscript; M.H.B. participated in the design and coordination of the study and provided critical feedback on the manuscript; L.C. participated in the design and coordination of the study and provided critical feedback on the

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Funding This research was funded by the Eunice Kennedy Shriver National Institute of Child Health and Human Development grant RO1-HD054805 and Fogarty International Center grant RO3-TW008141. This research also was supported by National Institute on Drug Abuse (NIDA) Grant P30 DA023026, the Intramural Research Program of the NIH/NICHD, USA, and an International Research Fellowship at the Institute for Fiscal Studies, London, UK, funded by the European Research Council under the Horizon 2020 research and innovation programme (grant agreement No 695300-HKADeC-ERC-2015-AdG).

Compliance with Ethical Standards

Conflict of interest The authors declare no competing interests.

Ethical approval Each site adhered to local research with human subjects regulations; the protocol was approved by the Duke University IRB (protocol number 2017-1191; *Parent Behavior and Child Adjustment Across Cultures*), as well as by ethics review boards at the other cooperating universities.

Informed consent Informed consent was obtained from all individual participants included in the study.

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