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Gender equality and maternal burnout: a 40-country study

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Conflict of Interest Statement

M.M. and I.R. founded the Training Institute for Parental Burnout (TIPB) which delivers training on PB to professionals. The TIPB was founded after the completion of the study. The institute did not participate in the funding of this study, nor did it influence the process or the results in any way.

Gender equality and maternal burnout: a 40-country study

Abstract

In Western countries, recent decades have witnessed a revolution towards gender equality. Inequalities have been greatly reduced in areas such as education or employment. Because inequalities lead to distress, this development has largely benefited women. One notable exception is the realm of parenting, which has remained rife with inequalities even in the most egalitarian countries. We hypothesized that experiencing inequality in parenting when one holds egalitarian values and raising a child in a country characterized by a high level of gender equality in other areas, increases mothers' psychological distress in the specific area of parenting. Multilevel modeling analyses computed among 11,538 mothers from 40 countries confirmed this prediction: high egalitarian values at the individual level and high gender equality at the societal level are associated with higher burnout levels in mothers. The associations hold beyond differences in sociodemographic characteristics at the individual level and beyond economic disparities at the societal level. These findings show the importance of egalitarian values and gender equality and their paradoxical effect when inequalities are still present in specific areas as parenting. This study reveals the crucial need to act not only at the micro level but also at the macro level to promote gender equality in parenting and prevent parental burnout.

Keywords: egalitarian values, gender equality paradox, culture, parental burnout, family policies

Public Significance Statements

This study shows that mothers suffer more from parental burnout when they experience inequality but hold egalitarian values and raise their children in a country

characterized by a high level of gender equality. The results suggest that gender equality backfires on mothers when equality is achieved in many areas such as education, employment, health and political empowerment, while inequality still prevails in parenthood. The results point to the need to implement social policies to achieve the same degree of gender equality in parenthood as in other areas.

The 1960s marked the beginning of a revolution towards more egalitarian conditions in Western countries (Inglehart & Norris, 2003). Women have joined men in the labor market, are entering male professions, and are increasingly being elected to political office (Cotter et al., 2008). By 1979, more than 150 United Nations member states had adopted laws for gender equality in political and public life, and in the specific fields of education, health and work (Committee on the Elimination of All Forms of Discrimination against Women, 1979). These societal changes parallel changes in individual mentalities towards more egalitarian values, i.e., beliefs that men and women should attain a certain degree of equality within both public and private realms of society (McDaniel, 2008). Women now want a career, and men want to play an active role as fathers (Amato et al., 2003). This progress towards gender equality is beneficial because social inequalities (e.g., income inequalities) have detrimental consequences on health and cause psychological distress (Wilkinson & Pickett, 2006).

While there is no doubt that progress has been made towards gender equality in public areas such as education, employment, and even sport (England et al., 2020; Katsarova, 2019), gender equality may not have spread to the private sphere to the same extent (Hopcroft & McLaughlin, 2012). And there is still one area of particular inequality: parenting (Renk et al., 2003). Even in countries that have achieved higher levels of gender equality regarding women's and men's economic participation, educational attainment, health and political empowerment, women still have the majority of duties related to childcare and education (Bianchi et al., 2012; Coltrane, 2000; Fleischmann & de Haas, 2016; Hagqvist et al., 2017; Musick et al., 2016; Ory, 2016). These inequalities are reinforced by family policies that continue to designate mothers as the main caregiver, with for example, longer paid parental leave for mothers than for fathers (Ray et al., 2010).

On the grounds of previous evidence that parental burnout is more prevalent in countries scoring high on cultural individualism (Roskam et al., 2021), and that having more

children was associated with higher depression for women, but not for men, in high gender equality countries (Hopcroft & McLaughlin, 2012), we formulated the following hypothesis. Experiencing inequality in parenting when one holds egalitarian values or raising a child in a country characterized by a high level of gender equality in most areas except parenting, *increases* mothers' psychological distress in the parental role. What is the rationale for this assumption? Here, we put forward three explanations which are not mutually exclusive: unfulfilled expectations, social comparison processes across cultures, and the cost-value ratio of the child, to support our claim.

First, in countries where gender equality in the labor market is most supported by policies and laws, expectations that women and men will share equally in the tasks associated with family life are higher than in countries where work and family are perceived to be associated with more gender-specific roles (Hagqvist et al., 2017). But despite achievements in gender equality in work, women in these egalitarian countries are still expected to take responsibility for the home and children. And the norm of good motherhood still includes being the primary caregiver for children (Hagqvist et al., 2017; Hays, 1996). Women who experience inequality in parenting but hold egalitarian values or raise a child in a country characterized by a high level of gender equality in most areas except parenting, therefore experience a gap between their economic participation, educational attainment and personal opportunities, where they feel increasingly similar to their male counterparts, and the specific area of parenthood, where inequality is the rule rather than the exception. Such a gap contributes to unfulfilled expectations in mothers, a notion conceptualized as a chronic stressor by Wheaton (1999) and defined as ongoing frustration with structural constraints and a feeling of social role captivity as the goal (i.e. gender quality in the parental role) remains unreachable. A large longitudinal study in the US showed that unfulfilled expectations in areas such as education, employment, or parenthood are risk factors for depression even after

controlling for sociodemographic characteristics, family background, and prior mental health indicators (Mossakowski, 2011).

A second complementary avenue to explain why experiencing inequality in parenting when one holds egalitarian values or raising a child in a country characterized by a high level of gender equality in most areas except parenting may paradoxically increase mothers' psychological distress in the parental role, is based on social comparison processes across cultures. In particular, cultures differ in their use of gender-related social comparisons (Yuki, 2003). While between-gender social comparisons are mostly used in Western societies (i.e. those scoring high on gender equality), within-gender comparisons more frequently occur in non-Western societies (i.e. those scoring low on gender equality) (Guimond et al., 2007). As a result, mothers belonging to more egalitarian societies are more likely to compare themselves to fathers, and therefore suffer more from gender inequality in parenting than mothers from less egalitarian societies, who by contrast compare themselves more readily to other mothers, and will therefore be less at risk of parental burnout.

The value of the child in traditional versus developed societies is a third possible explanation for our hypothesis. The value attached to children has evolved throughout history and also differs from one culture to another. This value can be economic (e.g., children provide security for parents in old age), psychological (e.g., children are companions for their parents and a source of affection), or social (e.g., having children gives an identity and valuable social roles) (Kagitcibasi & Ataca, 2005). While in traditional societies, the economic, psychological, and social value associated with children are still important, it has decreased in developed societies – a phenomenon that has been related to declining fertility (Caldwell, 1982; Kagitçibasi, 2007; Kagitcibasi & Ataca, 2005).

It could even be argued that children are a burden for some parents in developed Western societies (Hopcroft & McLaughlin, 2012). According to some scholars, Western countries have entered the era of what Hays called “intensive parenting”, a child-centered, expert-guided, emotionally absorbing, labor-intensive, and financially expensive approach to parenting (Hays, 1996). In countries where parenting is subject to high norms and standards and multiple recommendations about food, sleep, play, communication, and so on, children can be a real source of economic stress, because providing them with quality food, enrolling them in the best schools, and offering them stimulating and varied extracurricular activities are all expensive.

Beyond the economic cost, intensive parenting also has a psychological cost. It is for example strongly recommended that parents control their emotions in the presence of the child. They are strongly encouraged to display positive emotions such as showing pride to the child, but also to control negative emotions such as anger. The control of emotions by the parent has been shown to have very positive effects on child development (e.g. Chen et al., 2019), but it has a significant psychological cost for the parent (Karnilowicz et al., 2019; Le & Impett, 2016). This cost linked to emotional labor is well known in organizational psychology (e.g., Grandey et al., 2013) and has also been highlighted recently in the field of parenthood by Lin et al. (2021). Parents are conscious of emotional display rules and therefore attempt to control their emotions, and these efforts are in turn associated with a risk of parental burnout.

Lastly, the social value of the child can also be diminished for women holding egalitarian values, and in countries characterized by a high level of gender equality. In a society where women have more similar opportunities as men for education, professional positions, and leisure activities, being a mother is less necessary to have a social identity. The parental identity is one possible identity among others. And it can even become a burden if

balancing different identities, for example professional and parental identities, proves difficult and stressful (Hopcroft & McLaughlin, 2012).

In order to test our main hypothesis, the ranking of 40 countries on gender equality was obtained. In these 40 countries, data were collected from 11,538 mothers to assess their egalitarian values and one particular form of psychological distress related to parenting: parental burnout, a condition characterized by a feeling of exhaustion in parenting, an emotional distancing from one's children, a loss of pleasure and efficacy in one's parental role, and a contrast between previous and current parental self (Mikolajczak et al., 2019; Roskam et al., 2021). The aim of this study was to test the relation with parental burnout of mothers' egalitarian values and countries' level of gender equality.

Method

Participants

A sample of 11,538 mothers (M_{age} = 38.09, SD_{age} = 8.08, range: 18-88) from 40 countries was drawn from a larger database (including both genders) collected by the International Investigation of Parental Burnout (IIPB) Consortium between December 2017 and December 2019 (see Procedure below). Mothers were eligible to participate if they met the inclusion criterion of still having at least one child living at home. The sociodemographic characteristics of the pooled sample and of the sample in each country (sample size, age, educational level, working status, family types, number of children in the household, age of youngest child, age of oldest child, number of women and men living in household and caring for the children every day, years spent in the country, hours spent with children every day, and neighborhood profiles) are detailed in Table 1.

Insert Table 1 about here

Procedure

The data were collected through the International Investigation of Parental Burnout (IIPB) Consortium. The IIPB Consortium was set up by the first and last authors of the current study in 2017. They aimed to include in the consortium the widest possible range of countries in terms of geographical location, cultural values and socio-economic level. The countries involved in the IIPB used a common protocol which was translated using translation/back-translation procedures led by the consortium members and coordinated by the first author (for more information about the IIPB Consortium, see Roskam et al., 2021). The study was approved by the Institutional Review Board both at UCLouvain and in each country. Ethics approvals in each country are presented in Table S1.

Data were collected from January 2018 to March 2020. To avoid (self-)selection bias, mothers were not aware that the study focused on parental burnout. The survey was presented as a study designed to improve understanding of parental satisfaction and exhaustion around the world. After giving their informed consent, participants were invited to complete the questionnaire anonymously, but had the option of discontinuing their participation at any stage without justifying their withdrawal. The presentation of the survey (i.e., paper and pencil, or online) and the data collection procedure (newspaper advertisement, word of mouth, social networks, door-to-door, etc.) varied from country to country according to local practices. For a summary of the data collection procedure in each country, see Table S2.

Measures

In addition to demographic measures, the common IIPB protocol included several measures addressing different research questions and goals (e.g., comparing the prevalence of parental burnout across countries; investigating the relations between parental burnout and perceived/ideal parental self-discrepancies; examining the contribution of different parental duties to parental burnout). Because these questions are too different to be addressed in the same article, only the measures used in the current paper are described below.

Individual Level

Sociodemographic characteristics. Participants were first asked about: their age; their educational level [number of successfully completed school years from the age of 6]; working status [in paid work or not]; family types [two-parent family; single parent family, step-family; others (e.g. polygamous family, two same-sex parents, multigenerational family)]; the number of children living in the household; the age of the youngest and the oldest child; the number of women (e.g. co-wife, grandmother, nanny, helper, etc.) living in the household/direct entourage and caring for the children on a daily basis (including the participant herself); the number of men (e.g. grandfather, uncle, etc.) living in the household/direct entourage and caring for the children on a daily basis; the number of hours they spent with the children per day (excluding nighttime hours), and neighborhood profile [disadvantaged; average; prosperous].

Parental burnout. Parental burnout was assessed with the Parental Burnout Assessment (PBA, Roskam et al., 2018), a 23-item questionnaire assessing the four core symptoms of parental burnout: emotional exhaustion (9 items) (e.g., *I feel completely run down by my role as a parent*), contrast with previous parental self (6 items) (e.g., *I tell myself I'm no longer the parent I used to be*), loss of pleasure in one's parental role (5 items) (e.g., *I don't enjoy being with my children*) and emotional distancing from one's children (3 items) (e.g., *I am no longer able to show my children that I love them*) using a 7-point frequency scale (never, a few times a year, once a month or less, a few times a month, once a week, a few times a week, every day).

Egalitarian values. Egalitarian values toward gender roles at the individual level were measured by four androgynist items selected by Constantin and Voicu (2015) from two large-scale surveys used in cross-cultural research: the International Social Survey Programme (ISSP) 2002 and the World Values Survey (WVS) 2005. The items (i.e., *Men ought to do a*

larger share of childcare than they do now; Having a job is the best for a woman to be an independent person; Both the man and woman should contribute to the household income; Men ought to do a larger share of household work than they do now) were scored using a 7-point frequency scale ranging from strongly disagree to strongly agree.

Societal Level

Gender equality. Gender equality was measured by referring to *The Global Gender Gap Report 2018* (World Economic Forum, 2018) which scores 144 countries from zero (imparity) to one (parity) according to their gender equality situation on four dimensions: economic participation and opportunity, educational attainment, health and survival, and political empowerment. This index thus captures gender equality in all the most important areas, except for parenting, and is therefore unbiased by inequalities in parenting. For the 40 countries involved in the current study, gender equality ranged from .546 (Pakistan) to .823 (Finland). Gender equality indices in each country can be found in Table 2 for the 40 countries.

Gross Domestic Product per capita. The Gross Domestic Product per capita (GDP per capita) (current US$) was measured as the Gross Domestic Product (GDP) divided by midyear population. GDP is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products (The World Bank, 2018). For the 40 countries, values ranged from 271.75 (Burundi) to 86,429.5 (Switzerland). They are displayed in Table 2 for the 40 countries.

Insert Table 2 about here

Statistical Analyses

Using the IIPB database containing data from 42 countries worldwide (N = 17,409, Roskam et al., 2021), participants meeting the inclusion criteria were selected for the present study: (i) mothers with at least one child still living in the family home (ii) who had

completed the measures of interest, namely the sociodemographic variables, the parental burnout questionnaire, and the egalitarian values questionnaire (iii) from countries for which the variables at the societal level could be retrieved ($n_{mothers}$ = 11,538 ; $n_{countries}$ = 40).

The measurement invariance of the PBA had been tested and demonstrated in the IIPB seminal paper (Roskam et al., 2021) and this analysis was therefore not repeated here. However, the validity of the model of interest, i.e. 23 observed variables, 4 first-order factors, (Emotional Exhaustion, Emotional Distancing, Feelings of Being Fed Up, and Contrast), and one second-order factor (Parental Burnout), was tested in our sample. A confirmatory factorial analysis (CFA) was computed using maximum likelihood (ML) estimation and the Satorra-Bentler correction, i.e. Stata option vce(sbentler) (Satorra & Bentler, 1991; Satorra & Bentler, 1994) in Stata (StataCorp, 2019) to account for deviations from normality (Kline, 2015). The validity of the scale measuring egalitarian values (Constantin & Voicu, 2015) was then tested on the pooled sample. A CFA using ML as the method of estimation and the vce(sbentler) Stata option was run. The model of interest contained four observed variables and one latent variable, i.e. Egalitarian Values. The measurement invariance was tested across the 21 languages. As with PBA in Roskam et al. (2021), this strategy was chosen so as not to exclude from the research countries with small sample sizes in which it was not possible to test the model. We wanted to avoid the risk of excluding countries in which data collection is more demanding and which are by definition less represented in the scientific literature. Gathering the subsamples according to the versions of the questionnaire, i.e. by language, allowed us to include a large number of countries in the analysis and research. First, the model of interest was estimated in each language separately. Second, configural invariance, implying the same pattern of latent constructs and observed items, with all parameters allowed to vary across groups, was tested. Next, metric equivalence where the factor loadings were constrained to be equal across groups was tested. This level of invariance corresponded

to the minimum level to be reached in this study, in which the main multilevel analysis was interested in the regression coefficients between variables and not in the comparisons of the average levels of these variables between groups, which would require scalar invariance. Several goodness-of-fit indices were used to determine the acceptability of the models: chi-square statistics, the root mean square error of approximation (RMSEA), the standardized root mean square residual (SRMR), the comparative fit index (CFI), and the Tucker-Lewis index (TLI). For CFI and TLI, values close to 0.90 or greater are acceptable to good. RMSEA and SRMR should preferably be less than or equal to 0.08 (Hu & Bentler, 1999). For measurement invariance across a large number of groups (> 20), change in $\chi 2$ was reported and a criterion of a change in CFI of -.02 , paired with a change in RMSEA of .02, was used (Cheung & Rensvold, 2002; Rutkowski & Svetina, 2014).

Regarding the main analyses, the bivariate associations between egalitarian values and parental burnout at the individual level, and between gender equality and parental burnout at the societal level, were first examined, as well as the cross-level bivariate correlation between egalitarian values and gender equality. At both levels, we checked for the presence of outliers. For the second main analysis, the multilevel random coefficient modeling analysis in Stata 16 was used to take the nested structure of the data into account. This analysis examined whether egalitarian values and gender equality continued to be related to mothers' parental burnout over and above their sociodemographic characteristics.

Next, the unconditional model was run. The individual- and societal-level variables were then entered in three steps. Conditional Model 1 controlled for sociodemographic variables. The egalitarian values measured at the individual level were entered in Conditional Model 2. Conditional Model 3 controlled for economic inequalities across countries. Gender equality obtained at the societal level as well as the interaction term between egalitarian values and gender equality were entered in Conditional Model 3.

For the readability of the multilevel modeling results, the estimates of the standard deviation between ($\sqrt{\psi}$) and within countries ($\sqrt{\theta}$) were translated into R^2 as the percentage of variance explained by the covariates considered in each of the three conditional models. Following the recommendation of Raudenbush and Bryk (2002), the proportional reduction in each of the variance components was considered separately. R_2^2, referring to the percentage of explained variance between countries, was computed with the formula $R_2^2 = \frac{\psi_0 - \psi_1}{\psi_0}$, where Ψ_0 is the between-countries variance estimated under the unconditional model and Ψ_1 is the between-countries variance estimated under the model of interest (i.e. Conditional Models 1 to 3). R_1^2, referring to the percentage of explained variance within countries, was computed with the formula $R_1^2 = \frac{\theta_0 - \theta_1}{\theta_0}$ where θ_0 is the within-countries variance estimated under the unconditional model and θ_1 is the within-countries variance estimated under the model of interest (i.e. Conditional Models 1 to 3).

All syntax is available at https://osf.io/g5k7q/?view_only=bea4a7854a314b399cbfbb483237f75d .

Results

Preliminary Analyses

The CFA performed on the PBA in the pooled sample (N = 11,538) displayed a good fit to the data, SB-$\chi^2(223) = 7978.94$, $p < .001$, CFI_SB= .93, TLI = 92, RMSEA_SB = .055, SRMR = .042. The standardized factor loadings ranged from .66 to .84. The model of the egalitarian values in the pooled sample could not be estimated in the pooled sample (N = 11,538). The computation of the model in each language group showed that the model did not converge for the Basque version. The Basque group (n = 121) was removed and the CFAs were run successfully. The sample of 11,417 mothers was considered for the subsequent analyses. The CFA performed on the egalitarian values questionnaire in the pooled sample

displayed a good fit to the data, SB-$\chi^2(1) = 2.97$, $p = .085$, CFI_SB = 1.00, TLI = .99, RMSEA_SB = .013, SRMR = .002. The standardized factor loadings ranged from .46 to .63. The model fit indices for the models of the egalitarian values in each language are displayed in Table S3. They demonstrated a very good fit to the data except for the Urdu version, for which the CFI and the SRMR were good whereas the TLI and the RMSEA were outside the acceptable parameters. Again with a view to including as many subsamples as possible in the study, and given that two fit indices were good, the data collected with the Urdu version were kept in the further analyses.

With regard to measurement invariance across languages, the model fit indices for the configural model were good $\chi^2(20) = 32.23$, $p = .041$, CFI = .99, TLI = .99, RMSEA = .03, SRMR = .01. The model fit indices for the metric model were also good, $\chi^2(77) = 177.06$, $p < .001$, CFI = .99, TLI = 99, RMSEA = .05, SRMR = .06, and the expected metric invariance was reached, Δ S-B$\chi^2(57) = 144.83$, ΔRMSEA = .016, ΔCFI = .008. The model fit indices for the scalar model were outside the acceptable parameters, $\chi^2(153) = 2652.91$, $p < .001$, CFI = .79, TLI = 84, RMSEA = .17 SRMR = .34. However, as indicated above, this level of invariance was not needed for the questions/analyses of interest in this paper.

Main Analyses

Spearman's rank correlation between the study variables at the individual level are presented in Table 3. At the individual level, correlation analyses indicated a significant positive association between egalitarian values and parental burnout in the pooled sampled ($r = .17$, $p < .001$). The partial correlations between egalitarian values and parental burnout at the individual level accounting for sociodemographic characteristics for each country are displayed in Table 4. As shown, the pattern of correlations is not homogeneous. Positive low to moderate associations ranging from .10 to .33 were observed in most of the countries ($n = 27$). However, we found very low associations (<.10) for 5 other countries, i.e., Burundi,

China, Spain, Turkey, and Vietnam. Seven other countries displayed correlations close to zero, i.e. Algeria, Argentina, Cuba, Iran, Peru, Thailand, and Uruguay. Pakistan was identified as an outlier with r = -.27, and was therefore excluded from the multilevel analyses.

Insert Tables 3 and 4 about here

At the societal level, we found a significant association between gender equality and parental burnout (r = .34, p < .001). The mean level of parental burnout in each country is shown in Table 2. The associations between parental burnout and both egalitarian values and gender equality, were plotted for illustration purposes. As shown in Figure 1 (a), mothers with higher egalitarian values displayed a higher level of parental burnout than mothers with lower individual egalitarian values. As shown in Figure 1 (b), the country mean level of mothers' parental burnout was higher in countries displaying higher gender equality.

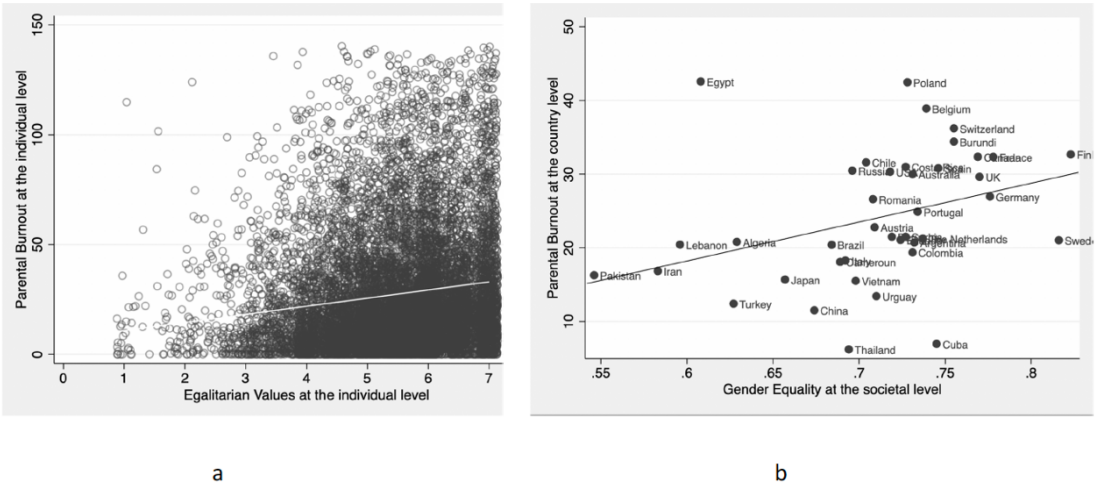

Fig. 1. Scatter plots of the bivariate association between egalitarian values and parental burnout at the individual level (a) and gender equality and parental burnout at the country level (b).

The examination of the graph at the societal level suggests the presence of outliers. In order to identify them, we estimated the standardized residuals. Four countries, i.e. Egypt, Cuba, Poland, Thailand, had residuals >2 and were therefore excluded from the multilevel analyses.

Finally, the cross-level bivariate correlation between egalitarian values and gender equality was also found to be significant (r = .11 $p < .001$).

Multilevel Analyses

We first explored how much parental burnout varied at Level 1 (within countries, i.e., between mothers) and at Level 2 (between countries). The mean level of parental burnout estimated in 10,502 mothers nested in 35 countries was 27.50, and varied more within countries (i.e., between mothers), sd = 25.96, than between countries, sd = 7.23. The findings of the multilevel random coefficient model (Table 5) showed that both egalitarian values at the individual level and gender equality at the societal level were significantly predictive of parental burnout beyond sociodemographic variables at the individual level, and beyond economic inequalities across countries at the societal level. In terms of sociodemographic predictors, a significant effect of working status was found: being in paid work was a protective factor with regard to parental burnout. Also, the number of children was positively related to the level of parental burnout. Parents having children at younger age displayed a significantly higher level of parental burnout. The number of men involved in childcare was a protective factor against mothers' burnout, as was living in a more prosperous neighborhood. The sociodemographic variables accounted for 2.06% of the variance within countries, which is in line with previous results of independent studies using large samples of participants originating from different cultures around the globe (e.g. Arikan et al., 2020; Gannagé et al., 2020; Matias et al., 2020; Mikolajczak et al., 2018; Mousavi et al., 2020; Stănculescu et al., 2020; Szczygieł et al., 2020). All of these report that sociodemographic characteristics account for a small proportion of explained variance in interindividual differences in parental burnout. However, since the sociodemographic characteristics vary not only within countries but also between countries, our main analysis showed that the sociodemographic variables accounted for 10.86% of the variance in parental burnout between countries.

Over and above these sociodemographic predictors, a significant effect of mothers' egalitarian values was found. The higher their egalitarian values, the higher their level of parental burnout. While taking this predictor into account only explains 3.96% of the variability between mothers within countries (including the variance explained by the covariates), the addition of this predictor in the second model increased the percentage of variance explained to 14.88% of the differences between countries. In the third model, the introduction of the two variables measured at the country level (i.e. GDP per capita and gender equality) and the cross-level interaction between egalitarian values and gender equality further increased the percentage of variance explained between countries, bringing it to 50.31%. The effect of our variable of interest, i.e. gender equality, was significant after controlling for economic inequalities between countries. The cross-level interaction shows that higher egalitarian values at the individual level increases the risk of parental burnout slightly more for mothers raising their children in a country characterized by a higher level of gender equality.

Insert Table 5 about here

Discussion

The aim of this research was to investigate the impact of mothers' egalitarian values and societal level of gender equality as risk factors for parental burnout across 40 countries. The hypothesis we posed may seem counter-intuitive at first sight. It did not seem logical that mothers who are a priori the least confined in their (traditional) role as mothers and who raise their children in societies where they are considered the most equal to fathers, are in fact the most at risk of suffering from parental burnout. However, the result, namely that higher levels of maternal burnout are associated to higher egalitarian values and found in more egalitarian countries, was not unexpected. It is consistent with previous evidence that parental burnout is more prevalent in Western culture and that having more children is associated with higher

depression for women in countries characterized by a high level of gender equality (Hopcroft & McLaughlin, 2012; Roskam et al., 2021). Based on the current study, we cannot rule out the possibility that the higher level of maternal burnout in more egalitarian countries may be part of a larger pattern of findings showing a tendency to report more symptoms and negative states in more egalitarian countries and in more individualistic cultures (Li et al., 2021; Roskam et al., 2021). This tendency could be driven by lower levels of stigma and moralization associated with mental health issues, in particular depression, in Western countries (Krendl & Pescosolido, 2020).

The current results suggest that the issue of gender equality may be a specific risk factor for parental burnout in mothers. However, identifying the process at work in the relationship between gender equality and maternal burnout is particularly challenging. Gender equality is a very broad phenomenon that cannot be summarized in a single indicator such as the Global Gender Gap index (World Economic Forum, 2018). Given the difficulty of collecting comparable information across countries on gender equality in the economic, political, educational, sport, and parental areas, this type of indicator provides the opportunity to conduct studies on a large number of countries and compare them with each other, but a comparison based on this indicator alone is de facto limited. Nor does it allow us to understand the mechanisms at play in the relationships observed. Understanding these mechanisms is a matter for the researcher's interpretation, based on relevant concepts and theories.

Here, we used several complementary theoretical arguments regarding the specific effect of egalitarian values and gender equality on maternal burnout to provide solid grounding for the study hypothesis. These arguments included unfulfilled expectations, social comparison processes across culture, and change in the cost-value ratio of the child. Consistently with our theoretically-based assumption, the results mainly confirmed that

experiencing inequality when one holds egalitarian values and raising a child in a country characterized by a high level of gender equality in most areas except parenting, contribute to parental burnout in mothers. Moreover, the results revealed an interaction effect between egalitarian values at the individual level and gender equality at the societal level. This cross-level interaction suggests that in countries characterized by a high level of gender equality, holding egalitarian values correlate slightly more strongly with parental burnout.

The theoretical arguments on which we have relied seem convincing, and we believe that unfulfilled expectations, social comparison processes across culture, and the cost-value ratio of the child, are good candidates as mediators between both gender equality and egalitarian values on the one hand, and parental burnout on the other. Although none of these potential mediators were measured in the present study, they are interesting topics for future research.

The conclusion that experiencing inequality when one holds egalitarian values and raising a child in a country countries characterized by a high level of gender equality are risk factors for maternal burnout, cannot be considered universal. Indeed, we have identified, among the 40 countries participating in this research, one outlier at the within-country level and four outliers at the between-country level. We also identified correlation coefficients close to zero between egalitarian values and parental burnout in seven countries. This suggests that having more egalitarian values as a mother is not a risk factor in all cultures and that raising children in a country characterized by a high level of gender equality is not systematically a risk factor for maternal burnout.

In particular, Egypt was the most significant outlier in the societal level analyses. Mothers reported a very high level of parental burnout while raising their children in a country with low gender equality. This result reflects the particular situation in this country,

which is characterized by a large increase in the percentage of women in the labor force. According to official statistics (Central Agency for Public Mobilization and Statistics, 2021), a high percentage (16%) of Egyptian women are breadwinners. Among them are many widows and divorcees. The pressure to work is high and women are under even more pressure because they have to balance work-related responsibilities with those of caring for and raising children, which almost exclusively rely on women even when they raise their children in a two-parent family. In addition, the gender inequality that prevails in this society, especially in economic participation and political empowerment, means that women's professional role is severely limited. They are restricted in the kind of work they can do. They are also subject to discrimination when it comes to promotions or the choice of higher positions, for example.

Poland is another country with a significantly higher level of parental burnout than other countries with the same level of gender equality. In line with previous evidence that the social context, in particular the public policies designed to reduce the burden of having children, plays an essential role in predicting parental well-being (e.g., Pollmann-Schult, 2018; Stier & Kaplan, 2020), Szczygieł et al. (2020) suggested that the low formal support offered to Polish parents explains the high level of parental burnout. A very telling example is that Poland stands out from many other European countries as regards the availability of early childhood education and care (ECEC). In 2017, only 11.6% of children under the age of 3 benefited from ECEC, while the average percentage was 34.2% across European countries (Commission/EACEA/Eurydice., 2019). As mothers are still the primary caregivers in Poland (Plomien, 2009), they are likely to be particularly affected by the lack of formal support. In addition, the rapid growth of individualistic values in Poland (Brycz et al., 2015) has led to a decrease in the informal support that mothers of previous generations could rely on in a more collectivist society. For example, there has been a decline in the number of grandparents involved in caring for their grandchildren in Poland in recent years (Kotowska et al., 2016).

Cuba contrasts very strongly with Poland in our results at the societal level: the level of parental burnout is extremely low, while the level of gender equality is comparable to that of Poland. In contrast to Poland, the formal and informal social support that mothers receive in Cuba is very high. On the formal side, the country provides parents with free ECEC and cultural and sports activities for their children. All Cuban mothers, regardless of their social or economic status, can therefore offer their children a good education and opportunities for development through the services and facilities available to them. Maternity leave is also offered to mothers for one year, but women have the choice to shorten it if they wish to return to work. On the informal side, parents can rely on the help of grandparents and members of the community or neighborhood. The role of the mother is highly respected in Cuban society, which recognizes that mothers play an essential role in the development of the child. Mothers have a very special place in this society. They are venerated in such a way that children have a great social and psychological value (Caram León, 2005; Díaz Cuellar et al., 2017).

As for Thailand, its position on the regression line shown in Figure 1b might suggest that the situation there is comparable to that of Cuba. The two countries do indeed common points, but there are also important differences. Of the 40 countries that participated in the study, these two countries have the highest rate of intergenerational families, at over 25% (see the "other" category in Table 1). And according to Thai official statistics (UNFPA, 2015), the proportion of three-generation families increased to 33.6% whereas that of two-parent families decreased to 26.6% from 1987 to 2013. Cuba and Thailand thus have in common the high rate of support that parents find in their family, which may explain the near-to-zero level of parental burnout in these two countries. However, Cuba and Thailand greatly differ on gender equality issues. Whereas Cuba can be considered a country where gender equality is progressing quite homogeneously, the lower (but average) level of gender equality displayed by Thailand may hide a heterogenous situation and represent a compromise between opposing

trends. Whereas gender equality can be considered as high in educational attainment, health and survival and to a slightly lesser extent, economic participation, inequality in political empowerment remains extremely prevalent (World Economic Forum, 2018). To illustrate this, there are currently only 76 female MPs in Thailand out of a total of 500, i.e. 14%, only one female minister (the education minister), and only one female governor. This situation may be specific to Thailand compared to other Asian countries. The attitude towards gender equality is more homogeneous there: in China or Japan, for example, gender equality is, depending on the index used (World Economic Forum, 2018), weaker, and these values are progressing slowly but more consistently across domains. The Thai heterogeneity may explain why the indicator we used here is not a good predictor of the level of maternal burnout and why Thailand was found to be an outlier.

Strengths and Limitations

The strengths of this study are its topic of universal interest to a broad readership including psychologists, psychiatrists, historians, anthropologists, sociologists, health economists and policy makers, the large sample from 40 countries, the participation of countries not usually represented in the scientific literature, the complementary use of data from international databases independent of the data collected from the participants, and the fact that the nested model controls for differences in socio-demographic, economic and cultural background both at the individual and societal levels. Despite its interesting results, this study is not exempt from limitations. First, it cannot be asserted that the samples from which the data were collected in the different countries were fully representative of the populations. In most countries, the samples were convenient and snowball. As is often the case with questionnaire studies, the participants were relatively highly educated. In addition, the samples collected in the different countries are probably not equivalent in their non-representativeness. The interpretation of the results must therefore take this limit on generality

into account. Second, the study found that mothers suffer more from parental burnout when they hold egalitarian values and are raising their children in a country where gender equality is high in areas such as education, employment, health and political empowerment, yet inequality still prevails in parenthood. However, inequalities in parenting have not been effectively measured. In the absence of such a measure, the hypothesis and the interpretation of the findings were based on international surveys and empirical research showing a strong gender imbalance in duties related to childcare and parenting, even in egalitarian countries (Bianchi et al., 2012; Coltrane, 2000; Fleischmann & de Haas, 2016; Musick et al., 2016; Ory, 2016). Third, the study would have benefited from the inclusion of a measure of task-sharing between mother and father, since if mothers suffer from parental burnout when they hold egalitarian values but inequalities prevail in parenting, this effect will be explained and/or amplified by low task-sharing with fathers.

Conclusion

Despite increasingly egalitarian ideologies and huge progress towards higher gender equality in areas such as education, employment, healthcare and political empowerment, parenting has remained a strongly gendered area. Burnout seems to be the price to pay for inequality in the specific area of parenting. Given the deleterious consequences of parental burnout for both parents and their children, our findings suggest that social changes are needed to boost gender equality in parenthood. The exhaustion of egalitarian mothers is regrettable, because in essence, gender equality is truly beneficial for both women and men. Social policies must be implemented to achieve higher degree of gender equality in parenthood as in other areas such as education, employment, health and political empowerment. If not, mothers' parental burnout lurks around the corner.

Author Contributions

I.R. and M. M. designed the study. I.R. coordinated the IIPB consortium, undertook data collection, and merged the data sets. L.G. collected the Belgian data, computed preliminary analyses, and drafted a preliminary version of the paper. I.R. computed the analyses and wrote the original draft of the paper. M.M. reviewed and edited the paper. All authors have approved the final version of the manuscript for submission.

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Open Practices

The study reported in this paper was not preregistered. The anonymized data, materials and the SPSS syntax are publicly available: https://osf.io/g5k7q/?view_only=bea4a7854a314b399cbfbb483237f75d.

Supplemental Material

Additional information can be found online at XXX.

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Table 1. Sociodemographic Characteristics: Sample Size and Mean Age, Educational Level, Working Status, Family Types, Number of Children in the Household, Age of the Youngest Child, Age of the Oldest Child, Number of Women Caring for Children, Number of Men Caring for Children, Hours Spent With Children per Day, Neighborhood Profiles (Standard Deviations are in Parentheses)

					Family types										Neighborhood profiles		
	Sample size	Age	Educational level	Working status (% paid work)	Two parent family	Single parent family	Step-family	Other	Number of children in the household	Age of the youngest child	Age of the oldest child	Number of women caring for children	Number of men caring for children	Hours with children	% disadvantaged	% average	% prosperous
Algeria	189	38.94 (9.99)	13.86 (4.74)	56.6	64.0	1.6	0	34.4	2.57 (1.50)	6.48 (7.07)	11.77 (9.92)	1.67 (1.10)	1.47 (1.02)	10.62 (6.74)	4.2	84.1	11.6
Argentina	96	40.04 (9.55)	17.10 (3.83)	83.3	65.7	17.7	8.3	8.3	2.18 (1.10)	10.49 (8.38)	13.78 (9.81)	1.66 (0.99)	1.08 (0.74)	11.05 (5.35)	2.1	72.9	25.0
Australia	109	44.95 (8.28)	13.13 (2.78)	50.5	64.2	24.8	7.3	3.7	1.80 (0.95)	8.15 (6.99)	11.87 (7.44)	1.06 (0.54)	0.87 (0.68)	7.25 (3.73)	4.6	77.1	18.3
Austria	165	33.19 (5.71)	13.16 (2.90)	69.1	84.9	7.3	4.2	3.6	1.58 (0.82)	2.39 (3.82)	4.23 (4.93)	1.07 (0.36)	0.96 (0.40)	11.02 (4.91)	1.8	70.9	27.3
Belgium	1358	38.12 (7.10)	16.60 (2.61	90.5	78.7	11.3	7.9	2.2	2.10 (0.94)	5.25 (5.45)	8.78 (6.83)	1.20 (0.66)	0.97 (0.55)	5.73 (3.35)	2.9	47.8	49.3
Brazil	175	41.12 (8.41)	16.26 (3.66)	69.6	87.3	4.6	5.2	2.9	1.52 (0.72)	8.68 (7.37)	10.85 (7.81)	1.21 (0.53)	1.01 (0.50)	6.73 (5.05)	16.1	66.7	17.2
Burundi	93	36.75 (9.51)	11.04 (4.85)	54.8	82.8	17.2	0.0	0.0	3.66 (2.01)	5.22 (5.38)	13.13 (8.32)	1.68 (1.22)	1.29 (0.98)	7.38 (4.88)	23.2	51.2	25.6
Cameroun	99	37.10 (8.89)	14.11 (3.03)	67.7	73.5	17.4	2.0	7.1	3.70 (2.54)	5.64 (6.25)	14.13 (8.79)	1.68 (1.26)	1.07 (0.89)	9.90 (5.55)	18.2	72.7	9.1
Canada	230	34.14 (6.73)	16.01 (2.73)	85.2	82.6	8.3	8.3	0.9	2.15 (0.87)	3.83 (4.42)	7.31 (6.08)	1.03 (0.45)	0.97 (0.41)	9.11 (6.72)	7.4	61.3	31.3
Chile	369	35.85 (5.70)	17.80 (3.32)	73.4	71.0	12.7	7.1	9.2	1.83 (1.41)	4.18 (3.39)	7.78 (6.46)	1.54 (0.81)	0.96 (0.58)	11.00 (7.48)	2.4	59.3	38.2
China	400	37.95 (3.97)	10.20 (2.93)	87.3	83.8	4.3	1.5	10.5	1.48 (0.60)	10.86 (4.05)	14.05 (3.57)	1.72 (0.87)	1.50 (0.79)	4.24 (2.70)	4.0	91.0	5.0
Colombia	63	-	-	81.0	57.1	27.0	4.8	11.1	1.54 (0.78)	7.97 (7.13)	12.13 (8.27)	1.51 (0.78)	0.86 (0.80)	7.83 (6.28)	4.8	63.5	31.7
Costa Rica	146	35.72 (6.73)	17.01 (4.35)	78.8	71.2	8.9	6.8	13.1	1.51 (0.71)	6.70 (6.74)	8.00 (7.45)	1.54 (0.81)	1.07 (0.65)	10.90 (6.66)	3.4	67.8	28.8

Cuba	138	40.04 (10.32)	13.86 (3.12)	78.2 6	47.1	12.3	15.2	25.4	1.48 (.60)	11.06 (8.14)	14.82 (9.46)	1.67 (0.80)	1.15 (0.73)	11.82 (4.68)	10.9	60.1	29.0
Ecuador	90	31.87 (6.95)	16.83 (2.92)	81.1	61.1	15.6	6.7	16.7	1.62 (0.71)	6.49 (4.41)	8.29 (6.52)	2.04 (1.13)	1.42 (0.97)	8.48 (5.40)	1.1	73.3	25.6
Egypt	150	46.83 (5.57)	10.81 (3.43)	1.33	73.3	18.0	0.7	8.0	3.05 (1.37)	14.74 (6.38)	25.06 (5.43)	1.39 (1.06)	1.25 (1.02)	8.93 (4.06)	6.7	68.7	24.7
Finland	1567	36.36 (6.41)	17.72 (3.32)	73.9	78.4	9.4	9.2	3.0	2.24 (1.26)	4.17 (4.21)	7.59 (5.34)	0.91 (0.37)	0.87 (0.44)	7.91 (3.76)	0.0	99.9	0.1
France	908	37.28 (7.66)	15.13 (2.71)	80.6	75.4	13.6	9.0	1.2	1.86 (0.83)	5.67 (5.44)	9.07 (6.94)	1.40 (1.10)	0.95 (0.65)	8.60 (5.34)	3.2	58.3	38.5
Germany	135	34.96 (7.61)	13.62 (4.44)	69.6	72.6	15.6	6.7	5.2	1.78 (0.93)	4.67 (4.81)	7.83 (6.93)	1.03 (0.46)	0.84 (0.52)	8.43 (4.18)	4.4	76.3	19.3
Iran	223	38.28 (7.89)	13.60 (3.35)	40.4	86.6	9.4	2.2	1.8	1.72 (0.71)	9.44 (7.63)	13.99 (9.12)	1.13 (0.44)	0.98 (0.37)	7.68 (3.48)	11.7	56.6	31.7
Italy	250	42.14 (8.26)	15.26 (3.94)	83.2	86.4	5.6	4.0	4.0	1.77 (0.72)	8.48 (6.66)	11.85 (8.54)	1.14 (0.56)	1.02 (0.42)	8.23 (5.51)	2.0	76.0	22.0
Japan	250	53.25 (15.68)	13.58 (2.38)	40.8	71.6	13.6	2.0	12.8	1.51 (0.71)	13.64 (11.71)	23.38 (15.45)	1.10 (0.35)	0.74 (0.52)	6.36 (4.84)	1.2	86.0	12.8
Lebanon	135	36.33 (8.58)	16.27 (3.69)	52.6	92.6	5.9	0.7	0.7	2.19 (1.01)	8.14 (6.26)	10.90 (8.03)	1.21 (0.51)	1.00 (0.35)	8.21 (3.28)	4.4	71.9	23.7
Netherlands	135	36.75 (7.11)	16.74 (2.39)	93.3	88.1	5.2	3.7	3.0	1.74 (0.71)	4.07 (4.80)	6.29 (6.30)	1.55 (1.09)	1.09 (0.58)	6.87 (3.00)	3.0	50.4	46.6
Pakistan	100	48.44 (10.47)	11.95 (3.98)	40.4	71.9	12.4	2.3	13.5	4.73 (2.89)	12.81 (8.16)	20.38 (10.61)	2.54 (1.48)	2.21 (1.38)	8.31 (6.38)	25.8	61.3	12.9
Peru	198	39.00 (9.53)	15.05 (4.93)	79.8	62.6	19.2	6.1	12.1	1.96 (1.10)	7.98 (7.25)	12.28 (8.74)	1.97 (1.21)	1.35 (1.15)	9.45 (5.80)	6.1	65.2	28.8
Poland	325	32.97 (5.31)	17.84 (3.35)	66.5	86.2	6.5	3.1	4.3	1.66 (0.98)	3.50 (4.05)	4.87 (4.70)	1.21 (0.89)	0.93 (0.61)	9.38 (4.91)	3.1	76.3	20.6
Portugal	204	39.50 (7.12)	15.86 (3.09)	89.1	88.1	3.5	5.9	2.5	1.71 (0.76)	6.01 (5.36)	9.00 (7.43)	1.01 (0.48)	0.88 (0.37)	5.44 (3.23)	1.0	63.9	35.1
Romania	195	35.90 (4.94)	17.21 (2.57)	85.1	88.7	4.6	3.1	3.6	1.59 (0.62)	3.45 (3.90)	6.27 (4.93)	1.39 (0.76)	1.07 (0.63)	9.14 (7.26)	1.5	21.5	76.9
Russia	263	33.68 (6.51)	14.35 (4.39)	77.9	75.3	9.1	8.4	7.2	1.68 (0.79)	4.02 (3.94)	7.94 (6.16)	1.27 (0.64)	1.02 (0.59)	9.04 (5.43)	0.4	60.5	39.2
Serbia	153	37.72 (5.48)	14.92 (5.22)	83.7	92.2	3.9	0	3.9	1.59 (0.65)	4.02 (4.30)	6.56 (5.58)	1.19 (0.63)	1.00 (0.53)	8.56 (5.08)	2.0	47.1	51.0
Spain	337	40.14 (8.11)	14.87 (4.28)	73.4	78.1	9.9	6.0	6.0	1.75 (0.83)	6.88 (6.93)	9.80 (8.28)	1.37 (1.11)	1.00 (0.60)	11.52 (7.14)	5.8	79.3	14.9
Sweden	662	40.36 (4.68)	15.60 (3.07)	86.7	75.2	10.3	8.8	5.7	2.14 (0.95)	6.32 (4.66)	11.88 (6.07)	1.02 (0.53)	1.02 (0.56)	6.48 (3.16)	4.8	74.2	20.9
Switzerland	271	39.80 (6.41)	16.29 (3.48)	98.6	79.0	14.0	6.3	0.7	2.00 (0.83)	6.46 (4.85)	9.00 (5.84)	1.12 (0.58)	0.93 (0.53)	6.91 (4.36)	0.4	49.8	49.8
Thailand	202	42.07 (5.27)	3.29 (1.03)	96.0	70.9	2.5	1.0	25.6	1.83 (0.69)	9.18 (3.79)	12.55 (5.00)	1.81 (1.00)	1.43 (0.79)	6.32 (3.69)	1.0	50.2	48.8
Turkey	269	36.68 (6.52)	13.75 (3.62)	79.2	87.3	6.3	0.4	6.0	1.65 (0.62)	4.03 (3.04)	7.46 (5.63)	1.15 (0.53)	1.03 (0.41)	6.07 (2.97)	5.2	75.1	19.7
UK	163	37.55 (7.04)	16.00 (3.22)	77.3	89.6	8.0	1.8	0.6	1.78 (0.75)	5.23 (5.30)	7.44 (6.39)	1.04 (0.27)	0.94 (0.48)	7.79 (4.18)	4.9	47.2	47.9

Uruguay	188	34.32 (5.81)	13.23 (4.76)	86.7	73.3	15.5	4.3	6.9	1.59 (0.73)	2.79 (1.71)	6.15 (4.77)	1.49 (0.79)	1.03 (0.62)	12.64 (5.51)	3.2	71.8	25.0
USA	272	36.92 (8.28)	15.77 (3.55)	72.1	70.2	18.4	6.3	5.2	1.93 (1.01)	6.13 (5.39)	10.18 (7.12)	1.15 (0.68)	0.90 (0.71)	7.84 (4.92)	7.4	71.3	21.3
Vietnam	143	35.77 (6.28)	14.01 (4.21)	93.6	78.3	2.9	0.7	18.1	1.72 (1.05)	5.01 (5.79)	7.94 (.86)	1.40 (0.86)	1.18 (0.72)	5.26 (3.148	3.5	40.4	56.0
Pooled Sample	11,538	38.09 (8.08)	15.32 (4.18)	76.8	77.7	10.3	6.1	1.5	1.96 (1.10)	6.24 (6.60)	9.79 (7.89)	1.27 (0.80)	1.02 (0.65)	7.90 (5.07)	3.9	68.7	78.4

Table 2. Country Mean Level of Parental Burnout**,** Gender Equality, GDP per capita for Each Country.

	Parental Burnout	Gender Equality	GDP per capita
Algeria	20.81	.629	4153.96
Argentina	20.73	.732	11633.50
Australia	30.00	.730	57354.96
Austria	22.79	.718	51453.15
Belgium	38.91	.739	47554.75
Brazil	20.41	.681	9151.45
Burundi	34.41	.755	271.75
Cameroon	18.09	.689	1534.49
Canada	32.35	.769	46454.74
Chile	31.59	.704	15888.14
China	11.51	.674	9976.68
Colombia	19.38	.729	6729.58
Costa Rica	30.99	.727	12468.58
Cuba	6.95	.745	8824.19
Ecuador	21.08	.724	6295.93
Egypt	42.58	.608	2537.13
Finland	32.67	.823	50013.29
France	32.34	.778	41526.41
Germany	26.96	.776	47787.16
Iran	16.84	.583	3598.48
Italy	18.28	.692	34608.68
Japan	15.69	.657	39159.42
Lebanon	20.44	.596	8012.54
Pakistan	16.27	.546	1482.21
Peru	21.5	.719	6957.79
Poland	42.47	.728	15468.41
Portugal	24.90	.732	23551.05
Romania	26.61	.708	12398.98
Russia	30.47	.696	11287.36
Serbia	21.50	.730	7252.4
Spain	30.80	.746	30374.52
Sweden	21.03	.822	54589.06
Switzerland	36.21	.755	86429.50
Thailand	6.20	.694	7296.88
The Netherlands	21.24	.737	53018.63
Turkey	12.41	.627	9453.20
UK	29.63	.770	42992.80
Uruguay	13.43	.710	18703.86
USA	30.33	.718	63064.42
Vietnam	15.51	.698	2566.45

Table 3. Partial Correlations between Egalitarian Values and Parental Burnout at the Individual Level Accounting for Sociodemographic Characteristics for Each Country.

Country	*r*	R^2	*p*
Algeria	-.05	.48	.00
Argentina	-.05	.00	.66
Australia	.19	.04	.06
Austria	.10	.01	.24
Belgium	.18	.03	<.001
Brazil	.30	.09	.09
Burundi	.02	.00	.88
Cameroon	.13	.02	.21
Canada	.18	.03	.01
Chile	.09	.01	.07
China	.03	.00	.61
Colombia	.11	.01	.19
Costa Rica	.11	.01	.19
Cuba	-.03	.00	.77
Ecuador	.19	.04	.09
Egypt	.28	.08	.001
Finland	.14	.02	<.001
France	.14	.02	<.001
Germany	.22	.05	.02
Iran	-.01	.00	.89
Italy	.14	.02	.03
Japan	.17	.03	.01
Lebanon	.33	.11	<.001
Netherlands	.13	.02	.18
Pakistan	-.27	.07	.20
Peru	-.01	.00	.89
Poland	.21	.04	<.001
Portugal	.18	.03	.02
Romania	.23	.05	.001
Russia	.25	.06	<.001
Serbia	.20	.04	.02
Spain	.03	.00	.59
Sweden	.18	.03	<.001
Switzerland	.17	.03	.01
Thailand	-.01	.00	.94
Turkey	.06	.00	.34
UK	.24	.06	.002
Uruguay	-.03	.00	.70
USA	.11	.01	.08
Vietnam	.04	.00	.70
Pooled sample	.15	.02	<.001

Note. The *r* coefficient estimates the correlation that would be observed between parental burnout and egalitarian values if the sociodemographic characteristics did not vary. The R^2 is the decrease in the model's R^2 value that results from removing egalitarian values from the full model.

Table 4. Spearman's Rank Correlation between the Study Variables at the Individual Level.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
(1) Parental burnout	-										
(2) Age	-.11	-									
(3) Educational level	.15	-.02	-								
(4) Neighborhood	-.01	.05	.12	-							
(5) Working status	.05	-.08	-.18	-.10	-						
(6) Number of children in the household	.14	.19	.01	.01	.05	-					
(7) Family types	.01	.08	-.08	-.06	.00	.01	-				
(8) Age of the youngest child	-.19	.66	-.19	-.02	-.06	.00	.19	-			
(9) Number of women caring for children	-.08	-.07	-.07	.05	-.07	-.02	.15	.00	-		
(10) Number of men caring for children	-.09	-.11	-.07	.03	-.03	.05	-.18	-.08	.45	-	
(11) Hours with children	.04	-.27	-.02	-.07	.35	.03	-.04	-.34	-.01	-.00	-
(12) Egalitarian values	.17	.05	.17	.06	-.17	-.03	.08	.00	.02	-.08	-.06

Table 5. Results of Multilevel Random Coefficient Model Predicting Parental Burnout among Mothers

	Unconditional Model		Conditional Model 1		Conditional Model 2		Conditional Model 3	
	Estimate	SE	Estimate	SE	Estimate	SE	Estimate	SE
Fixed Part								
Intercept	24.41	1.22	26.01	2.85	6.44	3.15	-28.91	14.11
Individual Level								
Age			-.07	.05	-.10	.05	-.11	.05
Educational Level			.04	.08	-.05	.08	-.05	.08
Working Status			4.76***	.71	5.83***	.71	5.90***	.71
Number of Children			2.08 ***	.27	2.25***	.27	2.26 ***	.27
Age Youngest Child			-.42***	.07	-.40***	.07	-.39***	.07
Number of Hours With Children			.00	.06	.02	.06	.02	.06
Number of Women In Household			-.01	.41	-.06	.40	-.01	.40
Number of Men In Household			-2.39***	.49	-2.02***	.49	-2.00***	.49
Family Type			.42	.19	.34	.19	.32	.19
Neighborhood			-2.15***	.55	-2.01***	.55	-.1.96***	.55
Egalitarian Values					3.67 ***	.26	3.69***	.26
Societal Level								
GDP per capita							.000*	.000
Gender Equality							44.52*	20.30
Egalitarian Values *Gender Equality							.55*	.27
Random Part								
$\sqrt{\psi}$ (between countries)	6.98		6.59		6.44		4.92	
$\sqrt{\theta}$ (within countries)	26.00		25.73		25.48		25.48	
Derived estimates								
R_2^2 (between countries)			10.86%		14.88%		50.31%	
R_1^2 (within countries)			2.06%		3.96%		3.96%	
ρ	.07		.06		.06		.04	

Note. * $p < .05$ ** $p < .01$ *** $p < .001$. The first model is the unconditional model with no predictor. This baseline model is useful to estimate the reduction in prediction error variance comparing the model without covariates (unconditional model) with the model of interest (i.e. Conditional Models 1 to 3). The percentage of variance explained between countries (R_2^2) and within countries (R_1^2) at each step is indicated in the second part of Table 1. Greater values indicate greater explanatory power. R_2^2 refers to the percentage of explained variance between countries; R_1^2 refers to the percentage of explained variance within countries. ρ refers to intraclass correlations.

Supplemental Material

Content

Table S1. Ethics Approval in Each Country

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Table S3. Fit Indices for the Egalitarian Values Model in each Country

Table S1. Ethics Approval in Each Country

	Name of the Ethics committee	Reference number
Algeria	Conseil scientifique du Centre de Recherche en Anthropologie Sociale et Culturelle (CRASC) Oran	012/CRASC/DAR/DSRFR/SSR/2018
Argentina	Not requested	
Australia	The University of Sydney Human Research	2019/062
Austria	Research Ethics at the University of Klagenfurt	2019-014
Belgium	Psychological Sciences Research Institute	2017/24
	Faculty of Psychology and Educational Sciences, Ghent University	2018/20/Charlotte Schrooyen
Brazil	Faculdade de Filosofia, Ciências e Letras de Ribeirão Preto	CAAE: 12579119.5.0000.5407
	Universidade de São Paulo	CAAE: 99681118.-0.5504, 3.022.455
	Universidade do Estado do Rio de Janeiro – UERJ	CAAE: 97550818.3.0000.5282
Burundi	Not requested	
Cameroun	Comité National d'Ethique	576
Canada	Comité d'éthique de la recherche avec des êtres humains, Décanat de la recherche et de la création de l'Université du Québec à Trois-Rivières	CER-18-242-07.07
Chile	Universidad Autonoma de Chile-Ethics Committee	71-18
China	Not requested	
Colombia	Not requested	
Costa Rica	Comité Ético Científico de la Universidad de Costa Rica, Rodrigo Facio Campus, San Pedro, San José	VI-1071-2018
Cuba	Comité d'éthique de Recherche et de Publication de la Faculté de psychologie de l'Université de La Havane	3
Ecuador	Not requested	
Egypt	Psychology department Faculty of Arts Menoufia university	No reference number provided by the Ethics committee
Finland	University of Jyväskylä	No reference number provided by the Ethics committee
France	Comité d'éthique pour les recherches comportementales et en santé (CERCES), Université de Paris	2018 - 29
Germany	Universität Ulm Ethikkommission	21/19
Iran	Not requested	

Italy	Psychological Research of the University of Padova	2527/2018, 94A4CED55F19F317187A28C382244070
Japan	Experimental Research on Human Subject Graduate School of Arts and Sciences/College of Arts and Sciences, The University of Tokyo	420-4
Lebanon	Université Saint-Joseph, Beyrouth (USJ)	2017-168
Netherlands	School of Social and Behavioral Sciences of Tilburg University	EC-2018.13
Pakistan	Not requested	
Peru	Not requested	
Poland	SWPS University of Social Sciences and Humanities, Faculty in Sopot	WKE/S 8/II/37
Portugal	Faculdade de Psicologia e de Ciências da Educação da Universidade do Porto	2017/12-12
Romania	University of Bucharest, Reg.No.CEC: 02/12.01.2018	
Russia	Health et Humane Services IRB00003875St.PetersburgStateUniversity IRB#1 — Behavioral	81
Serbia	Department of Psychology, Faculty of Philosophy, University of Belgrade	#2018-016
Spain	University of the Basque Country, M10/2017/209 Comité de Ética de la Investigación de la Universidad Nacional de Educación a Distancia (UNED, ESPAÑA)	6-2018
Sweden	The regional ethic-committee in Gothenburg	DNR 1010-18
Switzerland	Ethical Committe from the State of Vaud	2018-00186
Thailand	Chiang Mai University Research Ethic Committee, CMUREC	61/046
Turkey	Bahcesehir University	18.01.2018, 20021704-604.01.01-125
UK	University College London (UCL) Division of Psychology and Language Sciences	CEHP/EP/2018/0004
Uruguay	Ethics Committee of the Faculty of Psychology of the University of the Republic	No reference number provided by the Ethics committee
USA	Stanford University IRB Administrative Panel on Human Subjects in Non-Medical Research Rosary Santicruz David BA, Sime Luketa RA, #: IRB Parental burnout 44889; Florida International University IRB	IRB2-eProtocol 44889 #Registration 349 IRB-18-0472
Vietnam	Ho Chi Minh City, Vietnam, Association of Educational Psychology of Ho Chi Minh City (AEPH)	No reference number provided by the Ethics committee

Table S2. Data Collection Procedure in Each Country[1]

	Translation and back-translation[2]	Survey Language	Sampling Procedure	Location of Data Collection[3]	Survey Type[4] (% Online)	Response Rate (%)	Attrition Rate (%)[5]	Period of Data Collection
Algeria	Yes	Yes	Arabic	Snowball	Oran, Mostaganem, Tlemcen, Ain Temouchent, Relizane, Chlef, El Bayadh, Annaba, Constantine et Oum El Bouaghi 0	90	5	March-May 2018
Argentina	Yes	Spanish	Snowball and convenience	San Miguel de Tucumán	100	Not applicable[6]	29	December 2018-March 2019
Australia	Not applicable[7]	English	Snowball	New South Wales, Victoria, Queensland, Western Australia, South Australia, Tasmania, Australian Capital Territory	100	Not applicable	45.6	May 2019
Austria	Yes	German	Snowball and convenience	Undefined	100	Not applicable	50.8	February-May 2019
Belgium	Yes (Dutch version)-Not applicable (French version)	French Dutch	Snowball	Flanders and Wallonia	100	Not applicable	26	February-June 2018
Brazil	Yes	Portuguese	Snowball and convenience	São Paulo and Rio de Janeiro states: Amazonas, Ceará, Mato Grosso do Sul, Minas Gerais, Paraíba, Paraná, Pernambuco, Piauí, Rio de Janeiro, São Paulo, Sergipe	65.1	Not applicable	Not available	November 2018-March 2019
Burundi	Not requested	Not applicable	French	Stratified	Bujumbura Mairie, Bujumbura rural, Bururi, and Rutana 0	Not applicable	0	February-March 2020

Cameroun	Yes	Not applicable	French	Convenience	Yaounde	0	61	11	December 2017-April 2018
Canada	Not applicable	French	Snowball	Ontario, Manitoba, Saskatchewan, Alberta, Québec, territoires du Nord-Ouest	100		Not applicable	55	May-December 2018
Chile	Yes	Spanish	Snowball and convenience	Santiago, Los Lagos (Puerto Montt), Del Maule (Talca)	100		Not applicable	56	February-October 2018
China	Yes	Chinese	Convenience	Zhejiang	100		77	16	January 2018
Colombia	Yes	Spanish	Snowball and convenience	Undefined	100		Not applicable	Not available	December 2017-April 2018
Costa Rica	Yes	Spanish	Snowball and convenience	San José, San Ramon, Heredia, Cartago, Alajuela	94		Not applicable	88	March-June 2018
Cuba	Yes	Yes	Spanish	Snowball and convenience	La Havane, Mariel (Artemesia)	0	98.3	1	September-December 2018
Ecuador	Yes	Spanish	Convenience	Quito, Latacunga, Ibarra Otavalo, Saquisilí, Salcedo, El corazón, Guaranda, Tulcán, Cuenca, Guayaquil, Portoviejo, Esmeraldas, Lago Agrio/Sucumbíos, Puyo	100		Not applicable	40	March-September 2018
Egypt	Yes	Arabic	Snowball and convenience	Menoufia regions- 10 cites; Shebin el kom, Sadat, Menoufa, Bagour, Ashmon, Quessna, Shodaa, sir elayan, Tala, and birkt-elsaba	0		90	10	February-March 2020
Finland	Yes	Finnish	Snowball and convenience	Hyvinkää, Posio, Jyväskylä	86.3		99.4	Not available	February-April 2018
France	Not applicable	French	Snowball and convenience	Provence-Alpes-Côte d'Azur, Ile-de-France	100		Not applicable	33	January-July 2018
Germany	Yes	German	Convenience	Ulm, Baden-Württemberg	100		20	49	May-November 2019

Iran	Yes	Persan	Convenience	Tehran	0	Not available	3	August-September 2018
Italy	Yes	Italian	Snowball and convenience	Padova	98	Not applicable	28	March-December 2018
Japan	Yes	Japanese	Quota sampling (by a research company)	The 47 prefectures in Japan	100	Not applicable	34	July 2018
Lebanon	Yes	French Arabic	Stratified	Mont Liban, Beyrouth, Liban North, Liban South, Nabatieh, Beqaa	100	46	Not available	August-September 2018
Netherlands	Yes	Dutch	Snowball and convenience	Tilburg	100	Not applicable	28	March 2018-February 2019
Pakistan	Yes	Urdu	Convenience	Lahore	0	98	0	July 2018
Peru	Yes	Spanish	Convenience	Lima, Arequipa, Cajamarca, San Martin, La Libertad, Lambayeque	46	Not available	19	February-May 2018
Poland	Yes	Polish	Snowball and convenience	Warsaw	85	Not available	1	February-June 2018
Portugal	Yes	Portuguese	Snowball and convenience	Coimbra, Porto	81	50 (for paper pencil version)	22	April-December 2018
Romania	Yes	Romanian	Convenience	Bucharest, Timisoara	86	Not available	51	December 2017-May 2018
Russia	Yes	Russian	Snowball and convenience	Undefined	100	Not applicable	<1	April-December 2018
Serbia	Yes	Serbian	Snowball and convenience	Belgrade	100	Not applicable	22	November 2018-June 2019
Spain	Yes	Spanish	Snowball and convenience	Spain (undefined) and Basque Country (Galdakao and Igorre, Azpeitia and Errenteria, Vitoria-Gasteiz, Leitza)	68	15	23.4	February - September 2018

Sweden	Yes	Swedish	Snowball	Undefined	100	Not applicable	27	March-May 2019
Switzerland	Not applicable	French	Snowball and convenience	Canton of Vaud	100	Not applicable	44	May-October 2018
Thailand	Yes	Thai	Convenience	Chiand Mai	0	Not available	0	July-September 2018
Turkey	Yes	Turkish	Convenience	Ankara, Istanbul	0	63	5	April-June 2018
UK	Not applicable	English	Snowball and convenience	England, Scotland, Wales and Northern Ireland	100	Not applicable	41	October 2018-March 2019
Uruguay	Yes	Spanish	Snowball and convenience	Montevideo	0	0	0	October 2018
USA	Not applicable	English	Convenience and quota	Stanford, Florida	100	Not applicable	Not available	March 2018-September 2019
Vietnam	Yes	Vietnamese	Snowball and convenience	Ho Chi Minh City, Thanh Hoa, Cam Ranh province, Lam Dong, Mekong Delta area	12.5	Not applicable	11	March-May 2018

[1] More information about the data collection procedure in each country is available upon request to the first author. [2] Translation and back-translations were made once for each language. The questionnaire was translated in a concerted manner by countries using the same version. For example, Spanish-speaking countries coordinated the Spanish translation. Some minor adjustments could however be made by each country. [3] Location is larger for countries where online survey was used because it has been spread all over the country. The location that is mentioned is where the sampling and data collection started. [4] Survey Type: Online vs. Paper-Pencil. [5] Percentage of participants who did not complete the survey completely. [6] For online surveys, the response rate is impossible to estimate. [7] The French and English version of the IIPB survey were already available for use.

Table S3. Model Fit Indices for the Factor Model of the Egalitarian Values in the Pooled Sample and in each Language.

	S-Bχ² (1)	*p*	RMSEA_SB	SRMR	CFI_SB	TLI
Arabic	0.730	.393	0.000	0.009	1.00	1.01
Chinese	0.076	.782	0.000	0.003	1.00	1.02
Dutch	3.307	.069	0.084	0.008	1.00	0.97
English	2.357	.125	0.049	0.008	1.00	0.99
Finnish	2.903	.088	0.035	0.005	1.00	0.99
French	2.810	.094	0.026	0.005	1.00	1.00
German	1.469	.225	0.040	0.019	0.99	0.96
Japanese	0.411	.521	0.000	0.011	1.00	0.99
Persian	0.139	.709	0.000	0.007	1.00	1.03
Polish	0.013	.910	0.000	0.001	1.00	1.01
Portuguese	0.967	.325	0.000	0.015	1.00	1.00
Romanian	0.274	.601	0.000	0.007	1.00	1.04
Russian	0.009	.924	0.000	0.001	1.00	1.01
Serbian	0.117	.732	0.000	0.003	1.00	1.06
Spanish	4.234	.040	0.045	0.010	1.00	0.98
Swedish	0.945	.331	0.000	0.004	1.00	1.00
Thai	0.356	.551	0.000	0.008	1.00	1.03
Turkey	1.020	.312	0.009	0.007	1.00	1.00
Urdu	3.630	.057	0.163	0.045	0.99	0.76
Vietnamese	0.210	.654	0.000	0.003	1.00	1.03