



## OPEN The mediating effect of maturity on anxiety and the motives for postponing parenthood

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Postponed parenthood is considered one of the most extensive changes in the process of family formation. Among the many reasons for deferred parenthood, those related to greater feelings of incompetence as a potential parent, self-focus, perceiving parenthood as a burden, fearing the changes that the birth of a child may bring to a person's life, financial insecurity, and worrying about the child's future seem particularly important. Since little is known about the motives for delayed parenthood in relation to anxiety and psychological maturity, the main goal of our study was to verify how these variables may be related to each other and whether maturity for parenthood mediates the direct association between anxiety and the motives for delayed parenthood. The sample consisted of 223 Polish adults (the age range of the participants was 18–44 years). The respondents completed the State-Trait Anxiety Inventory (STAI), the Maturity to Parenthood Scale (MPS), and the Multidimensional Scale of Motives for Postponing Parenthood (MSMPP-18). The results showed positive correlations between anxiety and four (uncertainty, burden, change, and finance) of the six motives for postponing parenthood and postponed parenthood overall. Maturity for parenting and all its dimensions correlated negatively with anxiety and all factors of postponed parenthood, except worry about the child's future. In all six of the seven models (except "worry"), at least one of the factors of maturity to parenthood mediated the relationship between trait anxiety and motives for postponing parenthood/total score. Based on the results it can be assumed that a tendency to direct attention to a threat related to the context of child-bearing and child-rearing may lead to lower maturity to parenthood, which in turn may result in various motives for postponing parenthood.

**Keywords** Anxiety, Motives, Postponed parenthood, Delayed parenthood, Maturity

Postponed parenthood is one of the central issues of transformation and reproduction in high-income societies<sup>1</sup> of the Western World<sup>2</sup> and East Asia<sup>3</sup>. Over the last few decades, the mean age of childbearing has been continuing to rise<sup>4</sup>, surpassing 30 years in many European countries and in South Korea<sup>1</sup>. This means that since the 1970s there has been a noticeable increase in the age of women delaying their entry into parenthood by 1 year per decade<sup>2</sup>. A similar tendency has also been observed in the case of men. Lawson and Fletcher<sup>5</sup> argue that developed nations are struggling with a continuing trend toward older fatherhood. According to Mills et al. (p. 849)<sup>6</sup>, many societies are experiencing "a massive delay in childbearing."

The motives for postponing parenthood have been associated with multifaceted social, cultural, demographic, and economic factors<sup>7–9</sup>. Bloom<sup>10</sup> defines delayed parenthood as an outcome of a general behavioral process that includes individual choices. As such, parenthood is perceived as a matter of personal preferences, which may be manifested in the deliberate decision not to have children or to postpone having them until a later time<sup>6</sup>. Moreover, young people have multiple goals and expectations that are often not highly integrated or re-evaluated, based on the costs and benefits of parenthood against other lifestyle alternatives<sup>11</sup>.

Psychological literature on the subject shows that low perceived self-efficacy is one of the significant predictors of the intention to delay childbearing<sup>12</sup>. People who think about postponing parenthood more often declare a lower sense of competence<sup>13,14</sup> and higher feelings of inadequacy<sup>14</sup> or self-doubt<sup>14</sup> than those who consider early parenthood. One's career and the focus on one's own needs, choices, hopes, and dreams<sup>15</sup> are other reasons for postponing parenthood<sup>14</sup>. Many people who are under 30 years old postpone parenthood because they believe that this age is a "transitional phase", one where they invest in themselves. The tendency to delay parenting is related also to perceiving childbearing as a challenge, a sacrifice<sup>16</sup>, a burden, cost, hamper, or disturbance<sup>17,18</sup>, time and energy consuming<sup>17,19</sup>. Some individuals are afraid of being constrained, losing their freedom<sup>7</sup>, giving

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up their personal interests, private or social life<sup>20</sup>. A fear of change is another factor that may affect the delay in childbearing. Eriksson et al.<sup>16</sup> claim that some people are afraid of having to modify the lifestyle they have become used to, living partnership changes, or undergoing body alterations resulting from pregnancy. Financial instability is considered a key factor in delaying parenthood<sup>21</sup>. Studies undertaken in different parts of the world show that many young people declare the lack of financial independence before starting family<sup>16,17</sup>. In fact, financial security is seen as a prerequisite for parenthood in many societies<sup>22</sup>. Finally, a preoccupation about a child's future is a relevant motive for postponing the decision to have a child. According to a public poll conducted in the USA in 2020 among Americans between 18 and 44 years old who did not have children, 14.3% of them (12.5 million) indicated climate concerns as a “major reason” for such a decision<sup>23</sup>. Similarly, in a Polish study, climate change was found to be the most important cause for not having a child among antinatalists compared to pronatalists<sup>24</sup>. Moreover, overpopulation and war are often cited as significant factors that prevent people from giving birth<sup>20</sup>.

In addition to the above-mentioned reasons for deferred parenthood, anxiety and the level of maturity seem to be its “psychological markers”. Extensive epidemiological statistics show that more than half of the people aged 18–29 years often experience increased anxiety<sup>25</sup> related to societal pressures for autonomy<sup>26</sup>. At the same time, young people do not perceive themselves as fully mature<sup>27</sup>. Indeed, emerging adulthood is considered “a distinct step toward mature adulthood” (p. 439)<sup>28</sup> or an experience of the “maturity gap” (p. 506)<sup>29</sup>.

Since little is known about the motives for delayed parenthood in relation to anxiety and psychological maturity, the main goal of our study was to verify how these variables may be related to each other and whether maturity for parenthood mediates the direct association between anxiety and the motives for delayed parenthood. Due to the cross-sectional nature of mediation adopted in our study, we analyze the relationships existing between individual constructs of the mediation model according to the temporal ordering of the variables: anxiety and motives for postponed parenthood; anxiety and maturity for parenthood; maturity and motives for postponing parenthood; and maturity for parenthood as a mediator between anxiety and postponed parenthood.

### Trait anxiety and motives for postponed parenthood

Anxiety refers to individual differences in experiencing feelings of fear, apprehension, distress, or tension<sup>30</sup>. Anxiety affects how people think<sup>31</sup>, feel<sup>32</sup>, and act<sup>33</sup>. In the context of research on deferred parenthood, it has been noted that becoming a parent is subjected to uncertainties, feelings of inadequacy<sup>14</sup>, and a lack of preparation<sup>34</sup>. Self-doubting individuals perceive decision-making as a difficult action and tend to delay it<sup>14,30,35</sup> because they do not believe to be good enough parents<sup>36</sup>. Anxiety also relates to the perception of parenting as a strain and, hence, can lead young people to see the parenting role as overwhelming and limiting, frustrating and exhausting<sup>37</sup>. The thought of parenthood can make potential parents with high anxiety fear the changes that will possibly occur in themselves and in their relationship. Research shows that anxious individuals display lower cognitive flexibility and the ability to adapt in the face of novelty than their non-anxious counterparts<sup>38</sup>, are afraid of unwanted changes in their professional and sexual lives<sup>39</sup>. Financial instability is one of the predominant psychosocial stressors which contributes to ambivalence about having children<sup>40</sup>. There is empirical evidence that a lack of financial security relates to anxiety<sup>41</sup>, as its source<sup>42</sup>, preventing important life decisions in several domains of psychological functioning<sup>43,44</sup>, and diminishing the sense of well-being<sup>43</sup>. Postponing parenthood due to concerns about the child's future may also be associated with the trait of anxiety. It has been found that a negative representation of future events results in fear, sometimes appearing long before these events take place<sup>45</sup>. Based on the literature and empirical studies mentioned above, we assumed that:

**H1** Anxiety is positively related to motives for postponing the start of childbearing (feeling of uncertainty and incompetence, self-focus, parenthood as a burden, fear of change, financial security concerns, and worries about the child's future).

### Trait anxiety and maturity for parenthood

Maturity for parenthood with respect to childless adults is a topic about which little is known<sup>46</sup>. According to Liberska et al.<sup>47</sup>, maturity for parenthood means taking responsibility for the child and giving up previous practices that could interfere with the process of raising it. Conceptually, it is also considered an appropriate level of closely connected features that reflect human functioning in the intellectual, personality, emotional, and social dimensions<sup>46</sup>.

Qualitative and quantitative research provides empirical support that high levels in the domain of neuroticism (e.g., anxiety, depression) are associated with lower levels of competent parenting<sup>48</sup> and lower maternal sense of competence<sup>49</sup>. The willingness to fulfill one's own obligations or responsibilities (psychological maturity) correlates positively with emotional stability, but it is inversely related to frustration<sup>50</sup>. Hogan and Roberts<sup>51</sup> consider low neuroticism (low anxiety) the first internal aspect of maturity. Since maturity involves resilience, greater adjustment, and the ability to take on roles, we hypothesized that:

**H2** Anxiety is negatively related to overall maturity for parenthood and its three dimensions (valence, behavioral, and cognitive-emotional maturity).

### Parental maturity and motives for postponing parenthood

The negative relationship between parental maturity and the motives for postponing parenthood seems obvious. Various studies indicate that people who do not feel mature for parenthood delay the decision to have children. For example, Schytt et al.<sup>52</sup> report that feeling not mature enough to be a parent is one of the main reasons for remaining childless, both in men and women in three different age groups. Personal maturity and being

psychologically prepared for having and raising children are considered one of the most important conditions for embarking on parenthood<sup>53</sup>. According to Bodin et al.<sup>54</sup>, being childless at 35 years old is generally connected to not feeling sufficiently mature, alongside variables such as fertility problems or not having the right partner. Considering that maturity plays a crucial role in decision-making and affects its quality, we expected that:

**H3** Parental maturity and its dimensions are negatively correlated with motives for postponing parenting.

### Maturity for parenthood as a mediator between anxiety and postponed parenthood

According to our next hypothesis, anxiety contributes to lower maturity, which in turn causes people to postpone decisions to have children. People who have higher levels of anxiety as a trait, place less importance on parenting as part of their values, have weaker insights into the motives for parenting aspirations, and may have difficulty integrating a vision of parenting within their preferred ethical and moral norms, are less likely to direct their behavior toward taking on the role of parent, and are less cognitively and emotionally aware in taking responsibility for the decisions they make in the context of future parenting roles<sup>46</sup>. Reduced maturity for parenthood, in turn, results in greater feelings of insecurity and incompetence, self-centeredness, perceptions of parenting as a burden, fear of change, and concern for financial security and the child's future.

The research of De Haan et al.<sup>55</sup> may be a solid rationale for the mediating role of parental maturity in a relationship between anxiety and the motives for postponed parenting. They suggest that a parental sense of competence is a psychological mechanism that explains the relationship between the parents' personality (extraversion and agreeableness) and their overreactive/warm parenting (as assessed by adolescents). Extraversion and agreeableness indicate that certain, developmentally primordial personality traits indirectly contribute to the quality of parenting, and the mechanism is mediated by the development of more specific traits associated with parenting (such as competence or maturity for the role of parent). Moreover, in the study by Piotrowski et al.<sup>56</sup>, psychosocial maturity served as a mediator between vocational/familial roles and both adult identity and the strength of commitments. Acquiring life roles in emerging adults can therefore increase the chance that they define themselves in their identity, which allows them in gaining a greater sense of independence. This, in turn, transfers into making life commitments and identifying with them. Therefore, we assumed that:

**H4** Maturity mediates the direct relationship between anxiety and the motives for postponing parenthood.

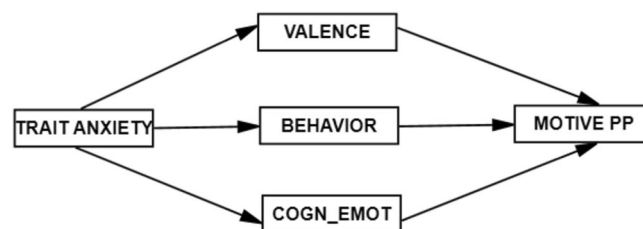
Figure 1 presents a conceptual model of the mediation of maturity to parenthood between trait anxiety and motives for postponing parenthood.

## Research design, research tools, and statistical analyses

### Participants and procedure

The sample consisted of 223 Polish adults, 75.8% of whom were women and 24.2% men. The age range of the participants was 18–44 years ( $M = 20.6$ ;  $SD = 3.8$ ). The group was diverse in terms of residence: 22% of the respondents were from towns of up to 50,000, 24% were from cities between 50,000 and 150,000, 32.0% were from cities between 150,000 and 500,000 inhabitants, and 22.0% were from cities of over 500,000. More than a half of the participants declared they wanted to have a child before the age of 30. All respondents provided their written informed consent for taking part in the research process.

The study was based on an online survey. The questionnaire link was shared on Facebook groups that bring together people interested in late parenthood who have not yet had children. The inclusion criteria, apart from not having children, were women and men aged up to 45 years. This upper age limit was set because the reproductive age of women is usually 45<sup>57</sup>. The respondents were informed about the purpose of the study, its approximate duration, anonymity and confidentiality of the collected data, and the possibility of resigning from participation at any time. The project approval for the current study was obtained from the research Ethics Committee of the Institute of Psychology at the University of Szczecin (No. 24/2023, 9th November 2023) and was conducted according to the standards of the Declaration of Helsinki.



**Fig. 1.** A conceptual model of the mediation of maturity to parenthood (valence, behavioral, cognitive-emotional maturity) in the associations between trait anxiety and the motives for postponing parenthood.

### State-trait anxiety inventory

The State-Trait Anxiety Inventory (STAI), invented by Spielberger et al.<sup>58</sup> and in the Polish adaptation by Wrześniewski et al.<sup>59</sup>, is the two-factor measure: anxiety as an emotional state and anxiety as a personality trait. In this research we focused on anxiety as a trait, expressed in the readiness to react with anxiety in different situations. The anxiety as a trait scale has 20 items with a four-point Likert scale, where 1 = *almost never*, 4 = *almost always*. In the present study Cronbach's  $\alpha$  value was 0.9.

### Maturity to Parenthood Scale

The Maturity to Parenthood Scale (MPS) invented by Łada-Maśko and Kaźmierczak<sup>46</sup> is a measure of a multidimensional nature and has a three-factor structure: valence maturity to parenthood, behavioral maturity to parenthood and cognitive-emotional maturity to parenthood. Valence maturity to parenthood refers to parenthood as a part of a value system and moral norms. Behavioral maturity applies to the level of commitment in intimate relationships and other social relationships that lead to involvement in parenthood. Cognitive-emotional maturity to parenthood means implementing realistic attitudes towards parenthood in everyday life, both in emotional and decisional aspects. The scale has 24 items with a seven-point Likert scale (1 = *strongly disagree*, 7 = *strongly agree*). Cronbach's  $\alpha$  value for the subscale of valence maturity was 0.8, for behavioral maturity was 0.9, for cognitive-emotional maturity was 0.9, and for internal reliability for overall maturity to parenthood was 0.9.

### Multidimensional Scale of Motives for Postponing Parenthood

The Multidimensional Scale of Motives for Postponing Parenthood (MSMPP-18) by Szcześniak et al.<sup>60</sup> is a tool designed to measure six motives to delay the decision to have a first child: (1) feeling of uncertainty and incompetence implies a lack of confidence in one's own abilities related to the role of a parent (e.g., I do not have the required qualities to be a good enough parent); (2) self-focus refers to concentration on self-development and realization of one's own goals (e.g., Currently, achieving my aspirations is my priority); (3) parenthood as a burden is associated with fear of the challenges and sacrifices that being a parent requires (e.g., Parenting takes time and commitment); (4) fear of change reflects concerns about negative changes resulting from the birth of a child (e.g., I am afraid of negative changes in the relationship when the baby comes); (5) financial security concern is linked to fears about economic expenses required by the fact of raising an offspring (e.g., My financial situation at this stage of my life does not allow me to raise a child); (6) worry about a child's future indicates fear that the child could live in unstable times and experience war or some kind of disaster (e.g., I do not want my child to experience a climate catastrophe). MSMPP-18 can be treated as one factor of delayed parenthood, as well. The scale has 18 items with a seven-point Likert scale (1 = *strongly disagree*, 7 = *strongly agree*). The values of internal reliability for all six factors and overall score were very good: (1) feeling of uncertainty and incompetence ( $\alpha = 0.9$ ); (2) self-focus ( $\alpha = 0.9$ ); (3) parenthood as a burden ( $\alpha = 0.8$ ); (4) fear of change ( $\alpha = 0.7$ ); (5) financial security concern ( $\alpha = 0.9$ ); (6) worry about a child's future ( $\alpha = 0.8$ ); and overall score ( $\alpha = 0.9$ ).

### Statistical analyses

The Shapiro–Wilk test was applied to evaluate normality of the data. Since it showed that in all cases, except the STAI measure of trait anxiety, the collected data was significantly different from the normal distribution, a Spearman's Rho was conducted to assess the correlation between anxiety, motives for postponed parenthood, and maturity for parenthood. The bootstrapped values of the correlation coefficients were assessed for 1,000 samples with 95% confidence intervals. A multivariable linear regression analysis was used to: (1) determine the degree of multicollinearity in a dataset; (2) test for unusual observations (outliers); (3) control for potential survey-related confounders and to examine whether they were affecting the direct association between the independent (anxiety) and dependent (motives for postponed parenthood) variables.

Since previous research has indicated negative but inconsistent in strength correlations between anxiety and various forms of maturity (e.g., weak correlation in: Pailing and Reniers<sup>61</sup>; high correlation in: Biaggio<sup>62</sup>), we decided to investigate whether there is a near-linear dependence<sup>57</sup> between the predictor variables in our study. The tolerance statistics and the variance inflation factor (VIF) were applied to measure the variance inflation. The values indicating a multicollinearity problem were lower than 0.1 for tolerance and larger than 10 for VIF. Mahalanobis' distance ( $p < 0.001$ ) and Cook's distance (higher than 1) were used to identify outliers.<sup>63</sup>

The variables of sex, age, place of residence, and willingness to have a child before the age of 30 were assessed to verify their hypothetical effect on the direct relationship between anxiety and the motives for postponing parenthood. Although, according to Lysons and Jadva<sup>64</sup> not all studies about delaying parenthood control for potentially confounding variables, there is a body of research that suggests a lack of similarity in levels of anxiety and delayed parenthood between men and women. In fact, Nisén et al.<sup>2</sup> point out that there are gender differences in the consequences of postponed parenthood. Moreover, Mirowsky and Ross<sup>65</sup> report that the relationship between low mood and parenthood depends on the age at first birth. Also, place of residence is mentioned by some researchers as one of the crucial sociodemographic factors that affect the timing of first birth<sup>66</sup>. The inclusion of the answer about the desire to have the first child before the age of 30 among potential confounders was justified by the fact that postponing decision to this age or later has been found to be related to large declines in the possibilities of having a second child<sup>67</sup>. All four prospective confounding factors were considered in Step 1. Both anxiety and dimensions of maturity for parenthood were included in Step 2.

To detect the necessary sample size, an a priori power analysis was carried out, using G\*Power 3.1.9.4 with a bivariate normal model correlation<sup>68</sup>. The average published effect of  $r = 0.21$  with an alpha of 0.05 and a power of 0.90 was assumed, based on a meta-analysis in the field of personality and social psychology<sup>69</sup>. The results indicated that a total sample size would require at least 187 participants.

Analysis of the acquired data were conducted using IBM SPSS (version 20), IBM SPSS AMOS 21, and the PROCESS macro for SPSS. Mediation model no 4 with three parallel mediators was applied with the Bootstrapping 5000 technique and 95% CI confidence intervals.

## Research design, research tools, and statistical analyses

### Descriptive statistic

Correlations, descriptive statistics for the mean, standard deviation, and the Shapiro–Wilk test of the anxiety, motives for postponed parenthood, and maturity to parenthood are displayed in Table 1.

### Multicollinearity, outliers, and confounders

The VIF values ranged below 10 (between 1.069 and 7.937) and the lowest tolerance was 0.126, suggesting no presence of multicollinearity in the data. The Mahalanobis distance for multivariate outlier detection reveals a chi-squared value of less than 0.001 in only two of the 223 cases (0.000001 and 0.000949). Likewise, Cook's distance values (between 0.000 and 0.073) indicate that the outliers are not problematic.

The linear regression model showed that four categories included in Step 1 explained 20.9% of the variance ( $R^2 = 0.209$ ): sex ( $\beta = -0.032$ ,  $t = -0.558$ ,  $p = 0.578$ ), age ( $\beta = -0.247$ ,  $t = -4.221$ ,  $p = 0.001$ ), place of residence ( $\beta = -0.006$ ,  $t = -0.100$ ,  $p = 0.920$ ), and declaration about having a child before the age of 30 ( $\beta = 0.071$ ,  $t = 0.982$ ,  $p = 0.327$ ). However, age had a significant and negative effect, suggesting that motives for postponed parenthood may decrease with age. Anxiety ( $\beta = 0.159$ ,  $t = 2.682$ ,  $p = 0.008$ ), valence maturity to parenthood ( $\beta = -0.456$ ,  $t = -2.946$ ,  $p = 0.004$ ), behavioral maturity to parenthood ( $\beta = -0.135$ ,  $t = -1.279$ ,  $p = 0.202$ ), and cognitive-emotional maturity ( $\beta = 0.210$ ,  $t = 1.959$ ,  $p = 0.051$ ) predicted a significant amount of the variance (35.3%;  $F(222,8) = 14.601$ ,  $p = 0.001$ ) even after controlling for the effects of confounders.

### Correlations

Table 1 illustrates correlations between variables considered in the study: anxiety, motives for postponed parenthood, and maturity to parenthood. The results are mostly consistent with the hypotheses. Anxiety correlated significantly (weakly or moderately) and positively with four (uncertainty, burden, change, and finance) of the six motives for postponing parenthood and postponed parenthood overall (H1). It also correlated significantly (weakly) and negatively with all dimensions of parental maturity and its total score (H2). Maturity for parenting and all its dimensions correlated significantly and negatively (weakly or moderately) with all factors of delayed parenthood, except worry about the child's future (H3).

### Mediating effect of maturity to parenthood

In mediation analysis, trait anxiety (STA) was the predictor, the dimensions/total score of motives for postponing parenthood were the outcome variables, and dimensions of maturity to parenthood were the mediators. According to our findings presented in Table 2, in six of the seven models (all except for “worry”), at least one of the factors of maturity to parenthood mediated the relationship between trait anxiety and motives for postponing parenthood/total score. More explicitly, in the first mediation model (M1) (Table 2), the influence of anxiety had a statistically significant indirect effect on uncertainty, with valence maturity acting as a mediator (95% CI 0.0154; 0.1061). The initial value of path  $c$  decreased without changing the significance level (path  $c'$ ). In the second mediation model (M2), after adding dimensions of maturity to parenthood, the significance value of path between anxiety and motive of self-focus remained insignificant, with behavioral maturity as a mediator (95% CI 0.0043; 0.0660). In the third model (M3), the significant path  $c$  between anxiety and burden became insignificant as path  $c'$  with valence (95% CI 0.0105; 0.0795), behavioral (95% CI 0.0022; 0.0479), and cognitive-emotional maturity (95% CI  $-0.0535$ ;  $-0.0080$ ). This model is the only one in which all three dimensions of maturity to parenthood were found to be mediators between the predictor and the outcome variable. In the fourth mediation model (M4), valence maturity acted as a mediator in the relationship between anxiety and change (95% CI 0.0291; 0.1292). The value of path  $c$  decreased slightly from  $p < 0.001$  to  $p < 0.01$  of path  $c'$ . In the fifth model (M5), behavioral maturity was a mediator between anxiety trait and financial concern (95% CI 0.0058; 0.0742), remaining at the same level of significance. In the sixth model (M6), there was not any indirect effect in the association between anxiety and worry (95% CI: with a value of 0 between Lower CI and Upper CI), meaning that any of the dimensions of maturity to parenthood acted as mediators. In the seventh model (M7), valence (95% CI 0.0642; 0.4032) and behavioral maturity (95% CI 0.0002; 0.1969) were mediators in the direct relationship between anxiety and postponed parenthood. Based on these results, it can be assumed that a tendency to direct attention to a threat related to the context of child-bearing and child-rearing may lead to lower maturity to parenthood in its different dimensions, which in turn may result in various motives for postponing parenthood. More specifically, people who are prone to perceiving objectively harmless situations as threatening and responding to them with anxiety may place less importance on the role of parents in their value system. This, in turn, can lead to lower confidence in their abilities related to this role (mediation model M1; Table 2) or a higher fear of the changes that may occur as a result of the birth of a child (mediation model M4). People with higher levels of trait anxiety may also present lower commitment in intimate relationships and concentrate on self-development (mediation model M2) or be fearful about economic expenses related to the fact of raising a child (mediation model M5). Finally, increased trait anxiety can trigger valence and behavioral maturity, which may foster a tendency to postpone parenthood (mediation model M7) or elicit reduced levels of maturity for parenthood, which may result in it being perceived as a burden difficult to bear (mediation model M3).



	STA	UNC	SF	BUR	CH	FIN	WOR	MPP	MV	MB	MCE	MT
1. STA	1											
2. UNC	0.45*** [0.341;0.559]	1										
3. SF	0.02 [-0.105;0.152]	0.28*** [0.143;0.413]	1									
4. BUR	0.22** [0.096;0.346]	0.46*** [0.339;0.570]	0.57*** [0.462;0.664]	1								
5. CH	0.30*** [0.172;0.426]	0.45*** [0.329;0.563]	0.35*** [0.221;0.465]	0.52*** [0.415;0.610]	1							
6. FIN	0.25*** [0.121;0.371]	0.31*** [0.193;0.431]	0.470*** [0.341;0.584]	0.44*** [0.324;0.548]	0.25*** [0.104;0.376]	1						
7. WOR	0.10 [-0.033;0.232]	0.25*** [0.113;0.379]	0.14* [0.008;0.263]	0.21** [0.071;0.348]	0.32*** [0.194;0.440]	0.16* [0.032;0.293]	1					
8. MPP	0.35*** [0.238;0.466]	0.72*** [0.644;0.790]	0.59*** [0.476;0.680]	0.70*** [0.623;0.775]	0.72*** [0.640;0.784]	0.60*** [0.493;0.684]	0.54*** [0.432;0.640]	1				
9. MV	-0.30*** [-0.420;-0.170]	-0.52*** [-0.617;-0.408]	-0.27*** [-0.389;-0.139]	-0.48*** [-0.592;-0.361]	-0.45*** [-0.558;-0.328]	-0.22** [-0.359;-0.085]	-0.16* [-0.300;-0.014]	-0.54*** [-0.641;-0.435]	1			
10. MB	-0.20** [-0.337;-0.071]	-0.45*** [-0.563;-0.339]	-0.33*** [-0.458;-0.203]	-0.50*** [-0.608;-0.386]	-0.32*** [-0.447;-0.193]	-0.27*** [-0.404;-0.139]	-0.09 [-0.232;0.051]	-0.48*** [-0.587;-0.362]	0.85*** [0.806;0.889]	1		
11. MCE	-0.27*** [-0.385;-0.148]	-0.43*** [-0.542;-0.315]	-0.19** [-0.326;-0.049]	-0.32*** [-0.540;-0.191]	-0.36*** [-0.484;-0.231]	-0.19** [-0.323;-0.058]	-0.12 <sup>t</sup> [-0.260;0.017]	-0.42*** [-0.531;-0.306]	0.85*** [0.794;0.883]	0.72*** [0.644;0.788]	1	
12. MT	-0.26*** [-0.388;-0.138]	-0.51*** [-0.609;-0.396]	-0.29*** [-0.423;-0.155]	-0.48*** [-0.588;-0.357]	-0.40*** [-0.516;-0.269]	-0.25*** [-0.384;-0.109]	-0.13 <sup>t</sup> [-0.271;0.015]	-0.52*** [-0.624;-0.413]	0.96*** [0.943;0.970]	0.93*** [0.911;0.951]	0.89*** [0.849;0.921]	1
M	50.4	11.4	17.6	17.1	11.4	17.2	12.6	87.2	30.9	31.5	40.7	103.1
SD	10.9	5.7	4.7	4.0	5.0	5.2	5.2	20.8	11.8	14.5	12.1	35.7
S-W	0.992	0.941	0.741	0.845	0.966	0.743	0.956	0.945	0.953	0.957	0.906	0.971
p	0.237	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001

**Table 1.** Correlations, descriptive statistics for the anxiety, motives for postponed parenthood, and maturity to parenthood (N = 223). M: mean; SD: standard deviation; S-W: Shapiro-Wilks; STA: trait anxiety; UNC: uncertainty; SF: self-focus; BUR: burden; CH: change; FIN: financial concerns; WOR: worry; MPP: postponed parenthood total; MV: maturity to parenthood; valence; MB: behavioral maturity to parenthood; MCE: cognitive-emotional maturity to parenthood; MT: maturity to parenthood total. \*\*\*p < 0.001; \*\*p < 0.01; \*p < 0.05; <sup>t</sup>0.05 < p < 0.1

Mediations	a path	b path	c path	c' path	Indirect effect	B(SE)	Lower CI	Upper CI
M1. STA → MV/MB/ MCE → UNC	-0.3122*** -0.2400** -0.2772***	-0.1797** -0.0462 0.0225	0.2309***	0.1700***	0.0561 0.0111 -0.0062	0.0234 0.0110 0.0136	0.0154 -0.0069 -0.0351	0.1061 0.0364 0.0200
M2. STA → MV/MB/ MCE → SF	-0.3122*** -0.2400** -0.2772***	-0.0498 -0.1271*** 0.0608	0.0093(in)	-0.0199(in)	0.0156 0.0305 -0.0168	0.0191 0.0161 0.0110	-0.0215 0.0043 -0.0415	0.0558 0.0660 0.0024
M3. STA → MV/MB/ MCE → BUR	-0.3122*** -0.2400** -0.2772***	-0.1335* -0.0826** 0.0973*	0.0593*	0.0248(in)	0.0417 0.0198 -0.0270	0.0175 0.0119 0.0119	0.0105 0.0022 -0.0535	0.0795 0.0479 -0.0080
M4. STA → MV/MB/ MCE → CH	-0.3122*** -0.2400** -0.2772***	-0.2396*** 0.0524 0.0221	0.1404***	0.0843**	0.0748 -0.0126 -0.0061	0.0257 0.0108 0.0139	0.0291 -0.0361 -0.0341	0.1292 0.0062 0.0215
M5. STA → MV/MB/ MCE → FIN	-0.3122*** -0.2400** -0.2772***	0.0537 -0.1434*** 0.0254	0.1043**	0.0937**	-0.0168 0.0344 -0.0013	0.0216 0.0178 0.0131	-0.0633 0.0058 -0.0327	0.0239 0.0742 0.0193
M6. STA → MV/MB/ MCE → WOR	-0.3122*** -0.2400** -0.2772***	-0.1314 0.0315 0.0525	0.0576(in)	0.0387(in)	0.0410 -0.0076 -0.0145	0.0253 0.0111 0.0173	-0.0039 -0.0317 -0.0527	0.0953 0.0135 0.0168
M7. STA → MV/MB/ MCE → MPP	-0.3122*** -0.2400** -0.2772***	-0.6802** -0.3154* 0.2805	0.6018***	0.3915***	0.2124 0.0757 -0.0777	0.0870 0.0514 0.0548	0.0642 0.0002 -0.2008	0.4032 0.1969 0.0110

**Table 2.** Role of maturity to parenthood between anxiety and dimensions of postponed parenthood (N = 223). (in): insignificant; M1–M7: mediation models; STA: trait anxiety; UNC: uncertainty; SF: self-focus; BUR: burden; CH: change; FIN: financial concerns; WOR: worry; MPP: postponed parenthood total; MV: maturity to parenthood; valence; MB: behavioral maturity to parenthood; MCE: cognitive-emotional maturity to parenthood. Significant values are in bold. \*\*\* $p < 0.001$ ; \*\* $p < 0.01$ ; \* $p < 0.05$ ;  $0.05 < p < 0.1$ .

## Discussion

The study aimed to analyze the relationship between anxiety and motivation to postpone parenthood, considering the mediating role of maturity. We hypothesized that anxiety is positively related to motives for postponing parenting decisions (H1), anxiety as a trait is negatively related to overall maturity for parenting and its three dimensions (H2), maturity and its dimensions correlate negatively with motives for postponing parenting (H3), and that maturity mediates the direct relationship between anxiety and the motives for postponing parenthood (H4).

Regarding hypothesis H1, the results of the study show that, in general, feelings of anxiety related to uncertainty and vagueness about future events are significantly associated with most of the motives for postponing the decision to parenthood and the overall score of postponing parenthood, except for the self-focus dimension and worry about the child's future. The strongest relationship is found for anxiety and a fear of parenthood perceived in the context of feelings of uncertainty about the future, anxiety stemming from anticipation of potential life changes, regardless of their nature, and deferred parenthood as a general outcome. The result of our study is consistent with research conducted on first-time pregnant mothers by Huizink et al.<sup>70</sup>, which demonstrated that anxiety as a trait is related to pregnancy-specific anxiety. The explanation for these relationships can be sought, among other things, in the cognitive processes that are integral to the experience of global anxiety regarding future events. Since it is assumed that the assessment of the risk of an event is primarily influenced by assessment heuristics, such as the availability of cognitive representations of such events that may threaten the individual, therefore individuals in the process of this assessment may overestimate the subjective personal risk<sup>71</sup>. Consequently, such individuals may refrain from making decisions that could further increase this potential subjectively assessed risk.

Statistically significant associations are also found between anxiety and feelings of insecurity related to financial stability, and the perceptions of parenting as a sacrifice. These associations may have been strengthened by the relatively recent COVID-19 pandemic, regardless of the significant role of the financial factor in experiencing anxiety<sup>72</sup>. Studies have indeed indicated that the sense of security associated with material status was affected during the pandemic<sup>73,74</sup>. The pandemic also exacerbated child-rearing problems and the mental state of the children themselves, which can significantly affect parenting decisions<sup>75,76</sup>. The correlations can be explained by the fact that anxiety as a trait appears before the occurrence of a specific event and is not necessarily directly dependent on it. Although the future exists mainly as an abstract concept in our mind, having no physical dimension<sup>77,78</sup>, it can function as a powerful stimulus that triggers subjective sensations that we identify as feelings of anxiety<sup>79,80</sup>. Research shows that the dominant predictors of experiencing anxiety about the future can be war<sup>81–83</sup>, threats to life and health in the context of the COVID-19 pandemic<sup>84,85</sup>, climate change and the consequences it brings to daily human functioning<sup>86–89</sup>, and the political and economic instability in the world, which directly affects the sense of temporal instability<sup>90</sup>. Regardless of whether these causes are global in scope or just personal events, the important common point in this case is the anticipation of potential loss, harm or failure, which the individuals perceive as possible and relate directly to themselves. In other words, our own subjectively perceived well-being is judged to be at risk, which can cause feelings of anxiety about one's own future<sup>91</sup>. As a consequence of the individual's assessment of risk in this way, it is possible that self-preservation behaviors, such as avoidance and even the escape from taking on specific life tasks, may emerge<sup>92</sup>. Against this background, there is also the fear of

significant changes in life that may have directly compromised the individual's sense of self-preservation<sup>93,94</sup>, the nature and quality of the partner relationship<sup>95–97</sup> and also the level of sexual satisfaction in the relationship<sup>98,99</sup>.

The second hypothesis in our study was also confirmed. Anxiety as a trait had a negative relationship with all dimensions of maturity and the overall score. Since valence, behavioral and cognitive-emotional maturity represent different aspects of personal development, they therefore contribute to an individual's overall psychological well-being and functioning<sup>100,101</sup>. While each dimension has its own unique characteristics, they are interrelated and complementary, shaping the individuals' abilities to form mature relationships, make responsible choices, and challenge basic life goals. The findings of Barcaccia et al.<sup>102</sup> point to the important role of an individual's goal-setting and goal attainment as major protective factors against the onset of symptoms of depression, resignation or anxiety. Similar research findings were reported by Cotton Bronk et al.<sup>103</sup>. At the same time, research indicates that individuals characterized by higher levels of anxiety as a trait have lower levels of self-efficacy in terms of their preferred parenting style and responsibilities related to parenting<sup>104</sup>. Likewise, a study by Delvecchio et al.<sup>105</sup> found a positive association of anxiety as a trait with parenting stress (as an indicator of parental helplessness). Another similar research findings on maturity for parenthood are presented by Łada-Maško and Kaźmierczak<sup>106</sup>. Their research shows that the dominance of an avoidant attachment style in a relationship, of which anxiety as a trait is a key element, is directly related to maturity for parenthood. Thus, it can be said that trait anxiety can negatively affect both parenting expectations and cause a deferral of parenting decisions. Since achieving a balance of different forms of maturity is essential for leading a satisfying and successful life, then all three dimensions of maturity can also play a key role in approaching the responsibilities and challenges of parenthood<sup>46</sup>. It is highly likely that maturity, understood in such a multidimensional way, is also associated with a sense of life that allows one to expand one's temporal perspective beyond the present and may be a significant protective factor against global levels of anxiety<sup>107–109</sup>. The significant relationship between maturity at various levels and the experience of anxiety may also be explained by the fact that maturity plays a key role in how individuals perceive, manage and cope with anxiety-provoking situations<sup>110,111</sup>.

The third hypothesis, in which we assumed that maturity dimensions correlate negatively with motives for postponed parenthood, was entirely confirmed. The result obtained in the study remains consistent with previous results on the relationship of diversely understood psychological maturity with finding oneself in the perspective of becoming a parent. According to a study by Camberis et al.<sup>112</sup>, psychological maturity (as a latent construct consisting of ego development, ego resiliency and hardness) was positively correlated to pregnancy adaptation and postnatal adjustment for first-time mothers ( $M_{\text{age}} = 32.81$ ;  $SD = 4.6$ ). In a longitudinal study, Camberis et al.<sup>113</sup> found that the psychological maturity of older first-time mothers is associated with more adaptive parenting cognitions (measured as parental locus of control beliefs), and consequently with greater sensitivity and mind-mindedness of the interactions between mother and child.

The results of the mediation hypothesis indicate that valence and behavioral maturity played the mediating role in as many as four models, although in a different configuration of outcome variables, and the emotional dimension had a significant mediator effect only in one case. The obtained mediation results can be explained in the light of existing literature. It was found that major life transitions are accompanied by changes in the value system. Lönnqvist et al.<sup>114</sup> showed that women entering parenthood, unlike other women who are not mothers, are characterized by more conservative values and fewer values related to openness to experience. This seems understandable if we think that parenting requires greater concentration on the child's needs than on our own and involves concern about the safety of our offspring. Therefore, trait anxiety may reduce valence maturity perceived as part of values and moral norms, which in turn may lead to greater uncertainty about oneself, perceiving parenthood as a burden, fear of changes from being a parent, and postponed parenthood overall.

The mediating role of behavioral maturity, signifying commitment in intimate and other social relationships, is also not surprising. Previous studies conducted in various contexts have shown that anxiety correlates negatively with organizational commitment<sup>115</sup>, and positively with romantic disengagement<sup>116</sup> and avoiding coping strategies<sup>117</sup>. It can therefore be assumed that anxious young people may present lower levels of relational engagement (behavioral maturity), which in turn may be important in postponing parenthood expressed in self-focus, parental burden, financial concern, and overall postponed parenthood. Our results are in line with a study conducted by Ferriby et al.<sup>118</sup>, who found that higher anxiety was associated with changes in commitment at the transition to parenthood, which means that avoidant individuals experienced decreases in confidence and dedication.

Finally, although the cognitive-emotional dimension of maturity only acted as a mediator in one case (between anxiety and parenthood as a burden), it deserves attention as well. One possible explanation for such a result is that fear of the future has both cognitive and emotional components. The cognitive conception of anxiety suggests that it plays a significant role in enabling early recognition of the indicators signaling a potential threat or imminent danger in threatening situations<sup>119</sup>. A likely consequence of anxiety is the motivation to avoid events that threaten the individual in some way, noting that the main determinant of anxiety and its duration is the value of the threat. Thus, the mediation model involving a significant effect of cognitive-emotional maturity suggests that anxiety may lead to a reduced implementation of realistic attitudes toward parenthood in everyday life, both in emotional and decisional aspects, and thus contribute to deferred parenthood by perceiving it as suffering and a burden.

According to the findings of the study, increased levels of anxiety as a trait may contribute to reduced maturity, which in turn may lead to postponed decisions about parenthood. Research by Smith et al.<sup>120</sup> indicates that there is a global fear of taking responsibility for life among young people, and thus a reluctance to reach maturity. One of the manifestations of maturity is the formation of mature relationships and taking on life tasks that arise from the various stages of development. Thus, this attitude can translate into the decision for postponed parenthood, which is always a challenge and involves a special kind of responsibility.



## Limitations

Our study carries inevitable limitations. The most basic is the lack of randomization and the cross-sectional study design. Although the assumed direction of mediating relationships is solidly grounded, definitively proving them would require a longitudinal study, spread over two or three repeated measurements over several years. The result could also have been influenced by confounding variables that we did not include in the study, such as early maladaptive schemas, parental attitudes of the subjects' parents, educational level of the participants, employment, current socioeconomic and relationship status, or the variable of social approval in the context of examining susceptible themes, such as parenting. Due to the aim of our study, which was to verify the mediating role of maturity for parenthood in the relationship between anxiety and the motives for deferred parenthood, we did not compare women and men in terms of the experienced motives related to delayed family planning. In the future, such an analysis could help in understanding how women and men approach parenthood and identify possible implications for decision-making about parenthood.

## Conclusions

In this study, the relationship was examined between anxiety understood as a trait and the motives for which people defer taking on the role of a parent. The relationships of these variables appeared to be mediated by the variable of maturity for parenthood. Individuals who, at the personality level, betray a greater tendency toward timidity may therefore have difficulty achieving parental maturity in valence, behavioral and cognitive-emotional aspects. This in turn may translate into not taking on a parenting role due to greater feelings of insecurity and incompetence as a potential parent; perceiving parenthood as a burden; fearing the changes that the birth of a child may bring to a person's life, financial insecurity and worrying about the child's future.

## Data availability

All data has been made publicly available at osf and can be accessed at [https://osf.io/9w74s/?view\\_only=be89dea2e564488dae32243499c2e1be](https://osf.io/9w74s/?view_only=be89dea2e564488dae32243499c2e1be).

Received: 24 April 2024; Accepted: 23 August 2024

Published online: 31 August 2024

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## Author contributions

M.S., A.F., and K.G.: conceptualization. M.S., A.F., M.M., and K.G.: data collection. M.S., A.F., M.M., and K.G.: data analysis, resources, writing original draft. M.S., A.F., and M.M.: manuscript revision. M.S. and A.F.: supervision. All authors contributed substantially to the manuscript and approved the submitted version.

## Competing interests

The authors declare no competing interests.

## Additional information

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