ABSTRACT

Title of Dissertation: SOCIAL INEQUALITIES IN MOTHERHOOD: THE CONSEQUENCES ON WOMEN'S WELL-BEING AND CHILDREN'S OUTCOMES

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Parenthood in general, and motherhood in particular, has long been documented to bring both costs and benefits to adults' well-being. The well-being of mothers and the impacts of motherhood on women's well-being are also found to vary depending on the social groups women belong to. However, current findings on racial-ethnic and socioeconomic differences in mothers' well-being are limited, inconsistent, and concentrated predominantly in Western developed countries. Poor mental health in mothers can negatively affect children's development. Children experiencing development problems, in turn, can also trigger poor mental health in mothers. Yet, so far, we know little about whether this bi-directional relationship varies according to mothers' socioeconomic status (SES). Using data from the Early Childhood Longitudinal Study: 2010-11 Kindergarten Class and the China Family Panel Study, this dissertation answers three sets of research questions. First, are there racial-ethnic differences in U.S. mothers' parenting-related stress and its associations with depression? Using latent profile analysis to address the multidimensionality of mothers' parenting stress, I find racial-ethnic disparities not only in the type of parenting stress that mothers face but also in the associations between each type of parenting stress and mothers' depression levels. Second, do Chinese

mothers aged between 20 and 49 report better or worse well-being than their peers who have never had a child? Does the effect of motherhood on women's well-being vary by women's SES? The results show that while Chinese mothers generally report worse well-being than women without children, the negative well-being consequences of parenting non-adult children are less pronounced among rural-to-urban migrant women with moderate income and education than among their more disadvantaged and privileged peers. But having only adult children, when compared to not having children, is more harmful to migrant women than to more privileged women. Third, how do U.S. mothers' parenting stress and children's developmental outcomes influence each other bi-directionally over time? How do mothers' education levels moderate the relationships? I find negative mutual impacts between mothers' parenting stress and children's developmental outcomes. But both the harm of high parenting stress on child outcomes and the detrimental impact of children's developmental problems on parenting stress are more pronounced among mothers without a college degree. Overall, my findings reveal the complex roles of race-ethnicity, SES, and national contexts in shaping mothers' parenting experiences, well-being, and children's developmental outcomes. I conclude by discussing the empirical, theoretical, and methodological contributions of these findings to research on social inequalities in motherhood and the consequences on mothers' well-being and children's outcomes. Additionally, I address the policy implications of this dissertation for enhancing the well-being of women and children with diverse social backgrounds.

# SOCIAL INEQUALITIES IN MOTHERHOOD: THE CONSEQUENCES ON WOMEN'S WELL-BEING AND CHILDREN'S OUTCOMES

by

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## Dedication

To my mother, Lyu Shaofen, and my father, Yan Xiufeng,
for your love, support, and sacrifices

## Acknowledgments

I dedicate this dissertation to my mother, Lyu Shaofen, and my father, Yan Xiufeng. This dissertation, along with many of my other studies, is inspired by my mother. Essentially, I just wonder how mothering me has influenced her well-being and whether raising me was worth all the sacrifices she has made. I think I inherited some of my father's curiosity, perseverance, and stubbornness, which have helped me complete this dissertation and earn the degree. Six years ago, I had the courage to leave for the U.S. in pursuit of an uncertain future because I knew my parents would always stand behind me and support my decision to pursue my passion. Mom and Dad, I attribute all my achievements to you, and I hope I make you proud.

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## Chapter One: Introduction

### ***Background***

It is well-established that the parenting role is a "mixed bag" of both "costs and benefits" for adults' well-being (Nomaguchi & Milkie, 2020). Childrearing can bring joy and self-worth to adults as it provides opportunities to fulfill valuable goals such as offering care to children (Nelson, Kushlev, and Lyubomirsky 2014). Empirical studies have also shown that parents perceive their time spent with children as happy and meaningful (Musick, Meier, and Flood 2016; Nelson et al. 2013; Offer 2014). Nevertheless, parenting children also entails various demands and challenges. The time, emotional, and financial commitments of childrearing can cause parents to experience stress related to parenting roles, known as parenting stress (Abidin 1992). Parents are found to fare worse than adults not raising children in multiple dimensions of mental well-being, including stress, depression, and life satisfaction (Glass, Simon, and Andersson 2016; Margolis and Myrskylä 2011; Negraia and Augustine 2020; Umberson, Pudrovska, and Reczek 2010). The detrimental impact of parenting on adults' well-being is greater for mothers than for fathers (Musick et al. 2016; Offer 2014) because women are often the primary caregivers and take on more stressful routine childcare activities such as feeding and bathing (Musick et al. 2016; Negraia, Yavorsky, and Dukhovnov 2020).

The emotional and mental well-being of mothers varies depending on the social groups they belong to, including race-ethnicity and socioeconomic status (SES). So far, only a handful of studies have examined the racial-ethnic difference in mothers' parenting stress and mental health outcomes, presenting inconsistent findings (Cardoso et al., 2010; Nam et al., 2015; Nomaguchi & House, 2013; Nomaguchi & Milkie, 2020; H. X. Yan, 2022; S. M. Yu & Singh, 2012). Evidence on the relationship between mothers' SES and mental well-being is also mixed.

While some studies find lower SES parents report less happiness, lower life satisfaction, and higher parenting stress than their higher SES peers (Carrillo et al., 2017; Gershoff et al., 2007; Margolis & Myrskylä, 2011; Nomaguchi & Brown, 2011; Nomaguchi & Johnson, 2016; Stanca, 2012), there are also studies arguing that higher SES mothers experience greater stress, fatigue, and role captivity (i.e., the feelings of being trapped by one's role) from mothering and find their time with children to be less meaningful (Edin & Kefalas, 2005; Hoffman et al., 1978; Kushlev et al., 2012; Negraia & Augustine, 2019; Nomaguchi & Brown, 2011; H. X. Yan, 2022). Further, despite the importance of national contexts in determining mothering experiences and mothers' well-being (Glass et al., 2016; Nomaguchi & Milkie, 2020), most of the current studies on motherhood and women's well-being are conducted in Western developed countries. Little is known about how motherhood and mothering experience may influence women's well-being in the context of developing countries like China.

Mothers' high parenting stress and emotional distress are found to adversely affect their children's developmental outcomes (Crum and Moreland 2017; Guajardo, Snyder, and Petersen 2009; Rodriguez 2011; Soltis et al. 2015). Children having developmental delays or sociobehavioral problems is also an important trigger of mothers' high parenting stress (Emerson 2003; Gupta 2007; Solem, Christophersen, and Martinussen 2011). Mothers' mental well-being and children's developmental outcomes are, therefore, influencing each other bi-directionally over time (Jiang et al. 2023; Kochanova, Pittman, and McNeela 2022; Mackler et al. 2015; Stone et al. 2016; Woodman, Mawdsley, and Hauser-Cram 2015). However, so far, little attention has been paid to whether there are SES differences in the bi-directional relationships despite the abovementioned inconsistent evidence on SES disparities in mothers' well-being and the well-

documented detrimental impact of low SES on children's developmental outcomes (Bradley and Corwyn 2002; Carneiro, Meghir, and Parey 2013; McLanahan 2004).

***Plan of the dissertation***

The second and third chapters of this study examine racial-ethnic and SES heterogeneities in mothers' well-being in the contexts of the U.S. and China. Chapter two of this dissertation explores racial-ethnic differences in U.S. mothers' parenting stress and its associations with depression, paying special attention to the different types of parenting stress mothers face. Current studies have documented racial-ethnic heterogeneities in U.S. mothers' parenting stress levels. However, despite evidence on the multidimensionality of parenting stress and racial-ethnic discrepancies in mothers' parenting experiences, little is known about racial-ethnic disparities in mothers' experiences with different types of parenting stress and their mental health consequences. Using data from the Early Childhood Longitudinal Study: 2010-11 Kindergarten (N=8,495), I conduct latent profile analysis to construct four types of parenting stress ("relaxed", "just harder", "over-sacrificed", and "highly stressed") for mothers based on their responses to different statements of the parenting stress index. The results show that mothers' distribution across the four types of parenting stress varies by race-ethnicity even when there is no significant racial-ethnic difference in overall parental stress levels. Even among mothers who face the same type of parenting stress, the association between stress and depression levels is inconsistent across racial-ethnic groups.

Chapter three of this dissertation compares the well-being of mothers and women who have never had a child in China and examines the moderating effects of SES. The social context of China, including the stigmatization of childlessness, the one-child policy, the drastically

increased labor market competitions, families' heavy investments in children's education, and the heavy dual burden of paid work and domestic labor on women (Chen 2005; Chen et al. 2021; Ding, Yue, and Sun 2009; Fong 2002, 2004; Yu 2014) may make Chinese mothers experience the costs and rewards of motherhood in a more extreme way than their Western counterparts. The unequal distribution of welfare and education resources between urban and rural areas, combined with the dualist urban/rural household registration system that restricts rural children's access to welfare and resources in urban areas (Hu and Szente 2010; Yan 2005; Zhou and Cheung 2017) may also complicate the moderating effects of SES on the relationship between motherhood and women's well-being in China. Using data from the China Family Panel Study (CFPS), I find that mothers generally report worse well-being than women who have never had a child. But the impact of motherhood on women's well-being varies by SES. By constructing three SES latent classes ("privileged", "disadvantaged", and "migrants") based on mothers' education, employment status, household income, and household rural/urban residence and registration, it is evident that mothering non-adult children, as compared to not having children, was less harmful to the depression and happiness of rural-to-urban *migrant* women with moderate income and education than their more *disadvantaged* and *privileged* peers. But only having adult children, when compared to not having children, is more detrimental to *migrant* women's depression levels and self-rated health than *privileged* women.

Chapter four also focuses on SES heterogeneities, but I move beyond mothers' well-being to explore both mothers' parenting stress and children's developing outcomes. Using data from the second and fourth wave of the ECLS-K: 2011, I conduct a cross-lagged panel (CLP) analysis to test the bi-directional relationships between mothers' parenting stress and children's cognitive and sociobehavioral outcomes over time, paying special attention to the moderating

effects of mothers' education levels. Negative transactional relationships over time are observed between mothers' parenting stress and children's sociobehavioral outcomes. But both the harm of high parenting stress on children's outcomes and the detrimental impact of children's poor developmental outcomes on parenting stress are worse among mothers without a college degree.

***Significance of the present dissertation***

By addressing several gaps in the current literature, this dissertation enables a deeper understanding of racial-ethnic and SES inequalities in mothers' well-being and its relationships with children's developmental outcomes. First, by capturing the multidimensionality of mothers' parenting stress and identifying different types of parenting stress that mothers face, the second chapter depicts a more comprehensive picture of racial-ethnic differences in U.S. mothers' experiences of parenting role strains, where current findings are limited and inconsistent. This chapter is also among the first to provide empirical evidence on racial-ethnic disparities in how high parenting stress is associated with mothers' depression levels, enabling a more systemic interpretation of racial-ethnic differences in the mental health consequences of motherhood.

Second, this dissertation enriches the empirical evidence on the impact of SES on mothers' well-being, where current findings are mixed. Chapter three illustrates how SES moderates the well-being consequences of motherhood on Chinese women in a complex manner, and suggests that multiple indicators of SES, the stage of motherhood, and national contexts need to be considered in order to better understand the moderating effects of SES.

Third, besides SES differences in mothers' well-being, this dissertation also fills in the lack of research on how the bi-directional relationships between mothers' parenting stress and children's developmental outcomes are conditioned by mothers' levels of education. By bridging

the literature on SES disparities in mothers' mental health and the literature on socioeconomic inequalities in children's outcomes, chapter four shows that the negative effect of children's developmental outcomes on mothers' well-being is more pronounced among lower SES mothers and presents mothers' poor mental well-being as an important mechanism for the reproduction of SES inequalities within families.

In additional to advancing empirical knowledge, this dissertation has also made theoretical contributions. Previous research has used the stress process model to explore social inequalities, including racial-ethnic differences in how experiencing stress would lead to poor mental health outcomes such as depression. However, when applying the stress process model, these studies tend to focus primarily on racial-ethnic disparities in people's resources and abilities to cope with the stress they face (McLeod 2012). The findings of chapter two, nevertheless, suggest that more attention needs to be directed toward how people experience stress and the racial-ethnic differences in it. Stressors like parenting stress can be multidimensional, which may complicate the racial-ethnic heterogeneities in mothers' exposure to stress. The same stressor may also carry different meanings for people with diverse racial-ethnic backgrounds, hence resulting in different mental health outcomes.

Further, the findings of this dissertation suggest that while the family stress model is correct in identifying the critical role of low SES in triggering mothers' high parenting stress, the role strain theory offers a theoretical framework for more systematically understanding SES differences in mothers' well-being as it can account for the role of multiple factors, including financial difficulties, high parenting standards, and work-family conflicts, in contributing to mothers' parenting stress.

In this dissertation, I have applied latent profile/class analysis, a relatively novel method to measure U.S. mothers' parenting stress and Chinese women's SES. In chapter two, I use latent profile analysis to capture the multidimensionality of U.S. mothers' parenting stress as it allows mothers to have diverse combinations of different parenting stress dimensions. The results suggest that constructing latent profiles for parenting stress can better reveal the complexity of racial-ethnic disparities in U.S. mothers' parenting stress and its consequences on mothers' general mental health. Therefore, similar methods can be used in future research to better examine social inequalities in mothers' parenting stress and mental well-being. Similarly, I use latent class analysis in chapter three to address the multidimensionality of Chinese mothers' SES. Because the moderating effects of different SES indicators on the well-being consequences of motherhood are inconsistent, using a single SES indicator or using different SES indicators independently is insufficient to capture the effects of SES. Latent class analysis can be applied by future research to better portray people's SES in China and potentially many other developing countries.

The results of this study also have important policy implications. Over the past few decades, both the U.S. and China have witnessed a rise in social inequalities (Akee, Jones, and Porter 2019; Horowitz, Igielnik, and Kochhar 2020; Manduca 2018; Sicular et al. 2007; Xie and Zhou 2014). The financial, time, and emotional costs associated with mothering have also increased in general, and for some social groups in particular (Dow, 2016, 2019; Lareau, 2003; M. K. Nelson, 2010; Nomaguchi & Milkie, 2020). Studying social inequalities in mothers' well-being and its consequences on children's outcomes can, therefore, inform policies that aim to improve the well-being of women and children with different social backgrounds. In the U.S., the findings of chapters two and four call for racially diverse strategies to improve mothers'

mental well-being, as well as social interventions, such as high-quality and affordable childcare, to reduce mothers' parenting stress and improve children's developmental outcomes in low SES families. In China, the high cost of parenting, especially mothering, is perceived as one of the key reasons behind the declining fertility rate in recent years (Ji et al. 2020; Ji and Zheng 2020; The Renmin Net 2022; The State Information Center 2019). The results of chapter three suggest that in order to enhance the well-being of mothers who are parenting non-adult children, special attention needs to be directed towards disadvantaged rural mothers with limited income and education, as well as privileged urban mothers with high income and education. Among mothers with adult children only, greater attention should be given to disadvantaged mothers and rural-to-urban migrant mothers with moderate income and education.

## Chapter Two: Racial-Ethnic Differences in Mothers' Parenting Stress and Its Associations with Depression

### ***Introduction***

Despite the long recognition and increasing attention to racial-ethnic inequalities in population health and well-being in the U.S. (Hummer 2023; Williams 2012), research on racial-ethnic inequalities in mothers' mental well-being remains scarce, focusing primarily on mothers' parenting stress, the stress they experience from parenting roles (Abidin 1992). Quantitative studies using large-scale survey data have documented racial-ethnic differences in mothers' parenting stress levels, presenting mixed evidence (Cardoso et al., 2010; Nam et al., 2015; Nomaguchi & House, 2013; Yan, 2022; Yu & Singh, 2012). Taking the average of mothers' responses to different statements of the parenting stress index, these studies focused only on racial-ethnic disparities in mothers' overall parenting stress levels. However, the Cronbach's alpha score of the index they used to measure parenting stress ranges between 0.5 and 0.7, indicating at best a moderate level of internal consistency (Tavakol and Dennick 2011). This lack of consistency in mothers' responses to different statements of the index suggests the multidimensionality of parenting stress. Further, mothers from different racial-ethnic groups usually do not hold the same parenting beliefs and practices and encounter distinct challenges in raising children (Collins, 2000; Dow, 2016; Elliott et al., 2015; Lee & Zhou, 2015; Segura, 1994). Therefore, besides racial-ethnic differences in overall parenting stress levels, it is critical to also explore if there are racial-ethnic heterogeneities in mothers' experiences with different types of parenting stress.

As a kind of stress, high parenting stress may result from or contribute to high depression levels and the relationship between mothers' parenting stress and depression is likely to vary by

race-ethnicity given differences in coping resources available to mothers of different racial-ethnic groups (Belsky, 1984; Pearlin, 1999a; Thoits, 2010). However, empirical studies usually either have parenting stress as the only outcome (Hastings 2002; Nomaguchi and House 2013; Östberg and Hagekull 2000; Spinelli et al. 2021) or treat parenting stress as one of the many mental health outcomes (Calvano et al. 2021; J. Li et al. 2022). The relationship between mothers' parenting stress and depression and the racial-ethnic differences in it has to a large extent been left unexamined.

Using data from the second wave of the Early Childhood Longitudinal Study: 2010-11 Kindergarten Class (ECLS-K: 2011 https://nces.ed.gov/ecls/kindergarten2011.asp), this study first explores whether there are racial-ethnic differences in mothers' parenting stress. Instead of only focusing on overall parenting stress levels and assuming that mothers have similar stress levels across different dimensions of parenting stress, I conduct latent profile analysis (LPA) to construct a four-type parenting stress typology for mothers based on their responses to different statements of the parenting stress index. Second, I examine whether the associations between the types of parenting stress mothers face and their depression levels vary by race-ethnicity.

By conducting LPA, I offer an innovative way to identify mothers who face different types of parenting stress. Given the multidimensionality of mothers' parenting stress, this is critical for gaining a deeper understanding of social inequalities in mothers' experiences of parental role strains. The current evidence on racial-ethnic differences in mothers' parenting experiences and mental well-being is still limited and mixed. With LPA, this study can depict a more detailed picture of racial-ethnic disparities in mothers' parenting stress and inform studies on racial-ethnic differences in mothers' parenting practices and experiences. I further clarify the ambiguous relationship between parenting stress and depression, enabling a more systematic and

comprehensive interpretation of racial-ethnic differences in the mental health implications of mothering. The findings of this study can inform interventions to reduce the negative mental health consequences of mothering. This is important for improving women's well-being, as well as for understanding the reproduction of social inequalities through parenting and enhancing children's developmental outcomes (McQuillan & Bates, 2017; Nomaguchi & Milkie, 2020).

## ***Background and Theoretical Frameworks***

### Racial-ethnic differences in mothers' parenting stress

Although racial-ethnic inequalities in health and well-being have long been recognized in the U.S. (Hummer 2023; Williams 2012), research on racial-ethnic inequalities in mothers' mental health is still limited, focusing mostly on mothers' parenting stress. A handful of studies using large-scale survey data have documented racial-ethnic differences in mothers' parenting stress levels, presenting mixed findings (Cardoso et al., 2010; Nam et al., 2015; Nomaguchi & House, 2013; Yan, 2022; Yu & Singh, 2012). For example, using data from the Early Childhood Longitudinal Studies Kindergarten (ECLS-K): 1998-99, Nomaguchi and House (2013) found U.S.-born Black, foreign-born Hispanic, and foreign-born Asian mothers had higher parenting stress than U.S.-born White mothers. In contrast, the ECLS-K: 2011 data showed the parenting stress difference between White and Black mothers (the great majority of both racial groups were U.S.-born) to be non-significant (Yan 2022). Cardoso and colleagues (2010) found Black mothers reported higher parenting stress than White mothers using the Future of Families and Child Well-Being Study, but the parenting stress difference between White and Mexican American mothers was not significant. One limitation these studies all face is that the Cronbach's alpha score of the parental stress index they use ranges between 0.5 and 0.7 for both

the overall sample and each racial-ethnic group, which indicates at best a moderate level of internal consistency (Tavakol and Dennick 2011). This lack of consistency in mothers' responses to different statements of the index suggests that parenting stress may be multidimensional and different statements capture different dimensions of parenting stress.

Large-scale social surveys, including ECLS-K, Panel Study of Income Dynamics, and National Survey of Children's Health measure parenting stress using the following four questions derived from the Abidin's (1990) parenting stress scale: (1) Being a parent is harder than expected, (2) Child does things that bother me, (3) I sacrifice to meet child's need, and (4) I often feel angry with the child. According to Abidin's (1990) design of the questionnaire and Pearlin's (1989) theory of role strains, "being a parent is harder than expected" is mainly measuring mothers' role overload, or to what extent the demands of parenting exceed parents' capacities. "I sacrifice to meet child's need" captures parenting distress and parents' role captivity (the extent to which they are unwilling to fulfill their parenting roles). "Child does things that bother me" and "I often feel angry with the child" measure the quality of parent-child relationships (also see Nomaguchi & Brown, 2011; Nomaguchi & Milkie, 2017). The low consistency in mothers' responses to these statements suggests that mothers do not face similarly high or low stress across different dimensions of parenting stress. The racial-ethnic disparities in mothers' parenting stress may also be more complex than a simple difference in the average score of all statements. Therefore, one key objective of this paper is to identify the various types of parenting stress that mothers experience based on their stress levels in different parenting stress statements and explore racial-ethnic disparities in mothers' distributions across different types of parenting stress.

## Racial-ethnic differences in mothering

An increasing number of studies have documented racial-ethnic disparities in mothering beliefs, practices, and experiences, suggesting a complex picture of racial-ethnic differences in mothers' parenting stress.

*Role overload*

Compared with White and Asian mothers, mothering can be more demanding and exhausting for Black and Hispanic mothers due to systemic racism, which refers to the racial discrimination deeply embedded in the operation of a society (Feagin 2006). Black mothers' fears regarding their children encountering racial discrimination increase as their children grow older. In response, they protect their children through strategies like carefully monitoring their school environment and teaching them how to interact with police officers (Dow 2019; Elliott and Aseltine 2013; Elliott et al. 2015; Elliott and Reid 2019). Parenting can be particularly challenging for Black mothers with lower socioeconomic status (SES). Aside from economic challenges, the stereotype depicting impoverished Black mothers as "bad mothers" subjects them to social scrutiny (Cohen 2009; Collins 2000; Elliott et al. 2015; Hitchens, Aviles, and McCallops 2022; McGuffey 2005). Their children also encounter heightened levels of discrimination, violence, and are disproportionately targeted for criminalization and surveillance (Charles 2003; Elliott et al. 2015; Jencks and Mayer 1990). Middle and upper-class Black mothers' organization of their children's education and activities are also constrained by racial discrimination and residential segregation. Compared with White mothers with similar SES, they spend extra efforts on protecting children from police surveillance and searching for good schools and neighborhoods where their children would not be marginalized as Black (Dow 2019; Lareau 2003). For Hispanic mothers, the policing of immigrants has made parenting increasingly

challenging. Even routine childrearing activities such as sending children to school have become difficult for Hispanic mothers, especially foreign-born and undocumented ones (Armenta 2017; Cardoso et al. 2018; Yu and Singh 2012).

The diffusion of ideologies like intensive mothering and concerted cultivation has intensified mothers' role overload. Emphasizing mothers' roles in safeguarding children's well-being and future success, both ideologies require mothers to make great time, emotional, and financial investments in childrearing (Hays, 1996; Lareau, 2003). The practice of intensive mothering and concerted cultivation is documented more commonly among middle and upper-class White mothers (Blair-Loy, 2003; Hays, 1996; M. K. Nelson, 2010). Asian parents are also found to have high expectations of their children's education (Lee and Zhou 2015, 2017; Liu and Xie 2016) and practice concerted cultivation by sending children to after-school learning centers and academic competitions (Dhingra 2020). Studies of Black and Hispanic motherhoods have criticized these ideologies for being White and middle-class focused, arguing that Black and Hispanic populations have different cultural norms of good mothering (Collins 2000; Dow 2016, 2019; Nelson 2010; Segura 1994). Yet, there are also studies arguing that all mothers conform to the intensive mothering ideologies (Hays, 1996; Ishizuka, 2019; McCormack, 2005) and Black and Hispanic mothers also practice intensive mothering and concerted cultivation (Abrego and Schmalzbauer 2018; Elliott et al. 2015; Lareau 2003; Randles 2021)

*Role captivity*

The hegemonic mothering ideologies in the U.S., including intensive mothering and concerted cultivation, perceive motherhood as incompatible with employment (Dow, 2016; Hays, 1996; Lareau, 2003). Women who feel accountable to these ideologies, particularly those who are highly educated and career-committed often experience role captivity and have to sacrifice their

careers and life outside of families to meet children's needs (Blair-Loy 2003; Damaske 2011; Nomaguchi and Brown 2011a). Yet, as mentioned above, the cultural norms of good mothering differ by race-ethnicity.

Middle-class White mothers usually feel compelled to navigate the ideologies that pit employment against motherhood, even when they choose to reject the ideologies (Blair-Loy 2003; Christopher 2012; Damaske 2011). Black and Mexican immigrant mothers, in contrast, may not face the same pressure because their cultural norms perceive working for pay as an important component of motherhood, and default to the idea that mothers can rely on family and community members for childcare support (Collins 2000; Dow 2016, 2019; Segura 1994). If this is the case, Black and some Hispanic mothers may experience lower levels of role captivity and sacrifice less to meet children's demands than White mothers. Nevertheless, there are also studies finding that lower SES Black and Hispanic mothers have internalized the intensive mothering ideology and believe good mothers should sacrifice for their children. In the absence of large social support, they make self-sacrifice to provide emotional, financial, and practical support to their children and protect them from racial discrimination (Abrego and Schmalzbauer 2018; Elliott and Aseltine 2013; Elliott et al. 2015; Randles 2021).

Relatively little is known about the extent to which Asian mothers conform to the hegemonic mothering ideologies or experience role captivity. Many migrant mothers from East Asian countries are found to work full-time to ensure family economic security and share childcare responsibilities with their husbands and parents (Chen 2001; Moon 2003; Yoon 2005). This may reduce mothers' feelings of role captivity. However, not all Asian American mothers have family support for childcare. Meanwhile, the high aspirations for children's academic achievement, as discussed above, may require Asian mothers to sacrifice for their children's

education. Asian parents are also found to express love to their children by making self-sacrifice to prioritize their children's demands (Chao and Kaeochinda 2010).

*Quality of mother-child relationships*

Mothers' experiences of role overload and role captivity may influence the quality of parent-child relationships. For example, engaging in intensive mothering and concerted cultivation requires mothers to be closely involved in their children's daily activities, which may improve mother-child relationships (Knoester and Fields 2020). However, sacrificing too much for children's demands and feeling guilty for not meeting the "good mother" standards may make mothers feel angry with their children more frequently. Depending on to what extent mothers from different racial-ethnic groups experience role overload and captivity, the quality of their relationships with children may vary.

Mothers from different racial-ethnic groups have different parenting values, which can also influence their relationships with their children. Compared with White mothers, Black, Hispanic, and Asian mothers tend to hold more authoritarian parenting values, expect more respect and obedience from children, and use physical discipline more frequently (Chao and Kanatsu 2008; Dixon, Graber, and Brooks-Gunn 2008; Gershoff et al. 2012). Authoritarian parenting, as compared to authoritative or democratic parenting is found to be associated with more parent-child conflicts (Dixon et al., 2008; Nomaguchi & Brown, 2011). Yet, mothers with democratic and authoritative parenting values may be bothered by the constant negotiations with their children, whereas a more authoritarian mother-child relationship may alleviate the emotional toll of parenting (Lareau 2003).

In sum, due to racial-ethnic differences in mothering environments, ideologies, and practices, mothers of different racial-ethnic groups may experience parental role overload, role

captivity, and parent-child relationships in diverse ways. To gain a deeper understanding of racial-ethnic heterogeneities in mothers' parenting stress, it is important to go beyond the overall parenting stress levels and consider mothers' experiences with different dimensions of parental strains. But this does not mean the different dimensions of parenting stress can be studied totally independently. As shown above, mothers' experiences of role overload, role captivity, and parent-child relationships are closely connected. To capture the multidimensionality of mothers' parenting stress, I conduct latent profile analysis (LPA) as it allows mothers to have diverse combinations of parenting stress dimensions. For example, some mothers may report high stress in all parenting stress dimensions, whereas, others may have high stress only in role overload but not in other dimensions. I will elaborate on the LPA in later sections.

**Parenting stress and depression**

As a form of stress, high parenting stress may result in poor mental health such as greater depression. However, current studies usually use parenting stress as the only outcome (Hastings 2002; Nomaguchi and House 2013; Östberg and Hagekull 2000; Spinelli et al. 2021) or treat parenting stress as one of the mental health outcomes (Calvano et al. 2021; J. Li et al. 2022). Some studies control for mothers' depression when using parenting stress as the outcome (Cardoso et al., 2010; Nam et al., 2015), but pay limited attention to the relationship between parenting stress and depression. Current research on racial-ethnic inequalities in mothers' mental health, as mentioned earlier, has focused mostly on mothers' parenting stress. Little is known about how parenting stress is associated with depression for mothers from different racial-ethnic groups.

The stress process model (SPM) offers an insightful framework for understanding the relationship between parenting stress and depression. According to the SPM, stress is a process

that contains three main components: sources of stress, which refers to stressors and strains; moderating resources, including coping mechanisms and social and family supports; and mental health outcomes of stress such as depression. Whether experiencing stressors leads to poor mental health depends on the availability and deployment of moderating resources (Pearlin 1989, 1999b).

From the perspective of the SPM, the relationship between mothers' parenting stress and depression is likely to vary by race-ethnicity because mothers from different racial-ethnic groups have different resources and abilities to cope with the parental strains they face. As discussed above, Black and Hispanic mothers, particularly those with lower SES often have less social support for parenting than White mothers. But Black, Hispanic, and Asian mothers also tend to have more family support for parenting. Further, there are racial-ethnic disparities in the amount of protective psychological resources that mothers have, although the current evidence is mixed. Some studies find racial-ethnic minorities report lower self-efficacy and mastery beliefs than their White counterparts, whereas, others suggest that Black adults have higher mastery and self-esteem than White adults (Buchanan and Selmon 2008; Ejebe, Jacobs, and Wisk 2015; Turner, Taylor, and Van Gundy 2004; Twenge and Crocker 2002).

Nevertheless, compared with the amount of studies that focus on racial-ethnic disparities in the availability of coping resources, one part of the SPM that has received less attention is how people with different racial-ethnic backgrounds experience and perceive stress (McLeod 2012). In the case of parenting stress, the racial-ethnic differences can be rather complex because, as discussed above, parenting stress is multidimensional, which may complicate mothers' exposures to parenting stress. It is also unclear whether the same stressor is being perceived as equally stressful by mothers with different racial-ethnic backgrounds.

**The present study**

This paper studies racial-ethnic differences in mothers' parenting stress and its associations with depression. I ask the following questions:

1. Are there racial-ethnic differences in mothers' parenting stress? Instead of focusing only on mothers' overall parenting stress levels, I also explore racial-ethnic differences in the types of parenting stress that mothers face.
2. Are there racial-ethnic differences in the associations between mothers' parenting stress types and depression?

By answering these questions, I address several gaps in the existing literature. First, studies on racial-ethnic differences in U.S. mothers' parenting stress have focused almost exclusively on overall parenting stress levels. However, the low Cronbach's alpha scores of the parenting stress index suggest that mothers' parenting stress is multidimensional. The racial-ethnic disparities in mothers' parenting ideologies, practices, and environments also imply racial-ethnic asymmetry in mothers' experiences with different dimensions of parenting stress. To address the multidimensionality of mothers' parenting stress, I conduct latent profile analysis (LPA) to classify mothers into multiple latent profiles based on their stress levels on different statements of the parenting stress index. By doing so, I offer an innovative way to capture the different types of parenting stress that mothers face and draw a more detailed picture of racial-ethnic inequalities in mothers' experiences of parenting role strains. Second, despite extensive evidence on the close association between stress and mental health outcomes such as depression, little is known about the relationship between mothers' parenting stress and depression. Existing studies exploring racial-ethnic inequalities in mothers' mental well-being have primarily focused on parenting stress, paying little attention to racial-ethnic differences in the association between

parenting stress and depression. By investigating how different types of parenting stress are related to depression among mothers from different racial-ethnic groups, this study can provide a more comprehensive and systematic interpretation of racial-ethnic disparities in the mental health consequences of motherhood.

## ***Data and Methods***

### Data

I drew on data from the second wave of the Early Childhood Longitudinal Study: 2010-11 Kindergarten Class (ECLS-K: 2011), a nationally representative survey of American children. The age of children in the second wave ranged between 4 and 7.5 years old with an average age of 6. Parent interview data were collected from 10,922 parents of children. Among them, 9,576 were children's mothers, forming the sample of analysis for this study. I dropped mothers who were Native Hawaiian or other Pacific Islanders (38), American Indian or Alaskan (57), and non-Hispanic multiracial (152) due to their small sample sizes. Among the remaining 9,230 mothers, about 7.96 percent had missing values, most of which came from parenting stress statements (4.47 percent) and depression (5.54 percent). Applying the listwise deletion method and using the multiple imputation method to impute missing data with ten replicates of the dataset (Allison 2001) produced very similar results. I present models that applied the listwise deletion method (N=8,495).

### Measures

*Dependent measures.* The first dependent variable was mothers' parenting stress, measured by mothers' levels of agreement (*1= not at all true, 2= somewhat true, 3= mostly true, 4= completely true*) to the following four statements: (1) "Being a parent is harder than expected",

(2) “Child does things that bother me”, (3) “I sacrifice to meet child’s need”, and (4) “I often feel angry with the child”. Higher scores indicated higher levels of parenting stress. The Cronbach’s alpha score (α) for the index was .57 (White: α=.60; Black: α=.54; Hispanic: α=.54; Asian: α=.53), suggesting only moderate internal consistency (Tavakol and Dennick 2011).

The second dependent variable was mothers’ depressive symptoms, measured using the 12-item version of the Center for Epidemiologic Studies Depression Scale (CES-D)[1] (α=.85). Examples of items on the CES-D include respondents’ frequency (*1=never, 2=some of the time, 3=a moderate amount of the time, 4=most of the time*) of feeling “bothered by things that usually do not bother them” and “sleep was restless” during the past week. I calculated the mean score of mothers’ responses to the 12 items with higher scores meaning greater depressive symptoms.

*Independent measure.* The focal independent variable was mothers’ race-ethnicity (*White, non-Hispanic Black, Hispanic, and Asian*). Descriptive statistics (Figure 2.1) show racial-ethnic differences in mothers’ stress levels on the four parenting stress statements. For example, Black mothers had the lowest score on “being a parent is harder than expected”. Black, Hispanic, and Asian mothers were more likely to report “making sacrifices to meet child’s needs” than White mothers. In terms of depression, Black mothers had the greatest depression symptoms although they did not score very high in any parenting stress statements. In contrast, Asian mothers’ depression was the lowest despite their high stress levels in most parenting stress statements.

*Control variables*. The covariates included mothers’ age, nativity (*native-born and foreign-born*), levels of education (*high school diploma or lower, vocational training, some*

[1] The CES-D scale is designed to assess depressive symptomatology in general population. While the scale can indicate the presence and severity of depressive symptoms, it is not sufficient for diagnosing clinical depression (Radloff 1977).

*college, Bachelor's degree, and graduate or professional level education*), English proficiency (*proficient and not proficient*), employment status (*full-time employed, part-time employed, looking for jobs, and not in the labor market*), household income *($30,000 or less, $30,001- $60,000, $60,001- $100,000, and above $100,000*), marital status (*married, separated/divorced/widowed, never married, and civil union/partnership*), use of non-parental child care (*no non-parental child care, relative care, non-relative care, and center-based care or multiple types of care*), as well as mothers' reports of whether the neighborhood was safe for children to play outside (*not at all safe, somewhat safe, and very safe*), and if drugs/drinking and burglary/robbery were big problems in the neighborhood (*big problem, somewhat of a problem, and no problem*). I also included controls for family members' frequency of reading books to the interviewed child (*not at all, once or twice a week, 3-6 times per week, and every day*), and the number of extra-curriculum activities that family members arranged for the interviewed child (0-7). Previous studies have shown these items to predict mothers' parenting stress and mental well-being (Belsky, 1984; Cardoso et al., 2010; Nomaguchi & Milkie, 2017). I further controlled the interviewed child's age, the number of pre-school age (0-7) boys and girls at home, the number of school-age (8-17) boys and girls at home, and the age of the youngest household child, all of which have been found to affect mothers' parenting stress and depression (Nomaguchi and Milkie 2017; Simon and Caputo 2019; Umberson, Pudrovska, and Reczek 2010). Table 2.1 presents distributions of the control variables by race-ethnicity.

Figure 2.1. Mothers' mean scores in the four parenting stress statements (range 1-4) and depression (range 1-4) by race-ethnicity (N=8,495)

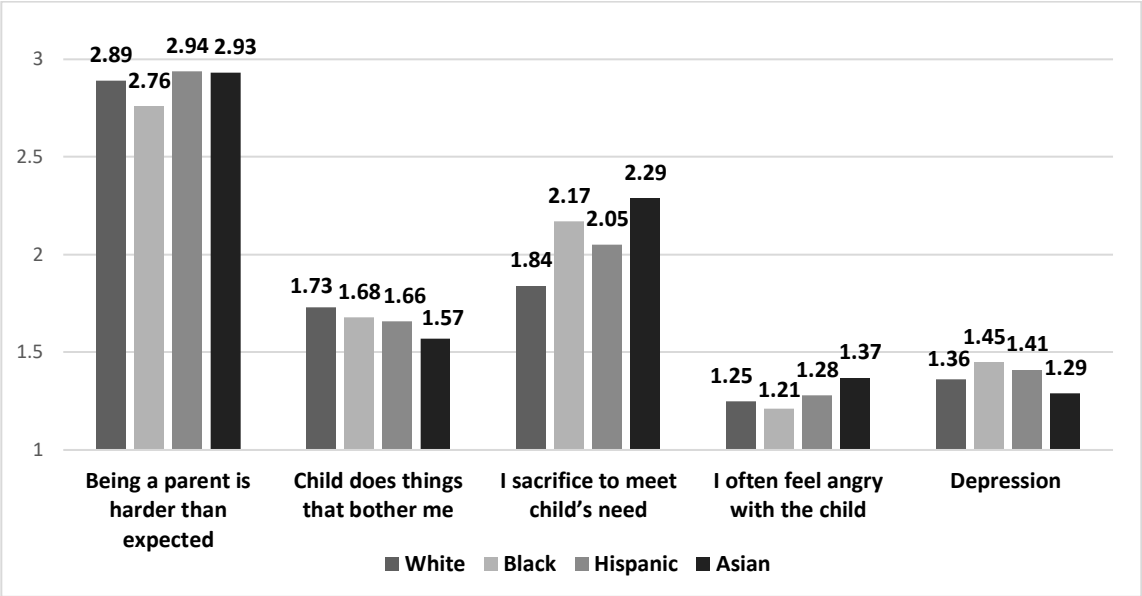



Table 2.1. Weighted means (standard deviations) or percentage distributions for control variables by race-ethnicity (N=8,495)

| | White | Black | Hispanic | Asian | Mean |
|---|---|---|---|---|---|
| Native-born mothers (%) | 96.0 | 92.7 | 39.1 | 13.2 | 81.7 |
| Mother's education (%) | | | | | |
| High school diploma or lower | 19.8 | 37.6 | 62.9 | 15.4 | 30.2 |
| Some college/vocational | 35.0 | 42.4 | 24.5 | 16.9 | 33.2 |
| Bachelor's degree | 27.9 | 12.6 | 8.6 | 34.2 | 22.5 |
| Graduate/professional | 17.3 | 7.4 | 4.0 | 33.5 | 14.1 |
| Mothers proficient in English (%) | 99.8 | 99.7 | 88.5 | 92.4 | 97.3 |
| Household income | | | | | |
| $30,000 or lower | 18.7 | 58.3 | 58.8 | 14.0 | 31.1 |
| $30,001-$60,000 | 22.6 | 22.6 | 23.0 | 19.7 | 22.6 |
| $60,001-$10,000 | 31.4 | 10.9 | 11.2 | 26.3 | 24.8 |
| $10,000 or higher | 27.4 | 8.2 | 6.9 | 40.0 | 21.5 |
| Mothers' employment status (%) | | | | | |
| Full-time | 40.4 | 50.4 | 32.2 | 41.9 | 40.0 |
| Part-time | 24.8 | 16.2 | 16.8 | 18.2 | 22.0 |
| Looking for work | 4.6 | 15.5 | 9.8 | 5.4 | 6.9 |
| Not in the labor market | 30.2 | 17.9 | 41.2 | 34.6 | 31.1 |
| Mothers' marital status (%) | | | | | |
| Married | 79.5 | 36.1 | 61.9 | 89.6 | 71.2 |
| Separated/divorced/widowed | 10.5 | 15.5 | 12.3 | 4.8 | 11.2 |
| Never married | 7.4 | 46.3 | 20.3 | 4.6 | 14.4 |
| Civil union/partnership | 2.7 | 2.1 | 5.6 | 1.0 | 3.2 |
| Use of non-parental care (%) | | | | | |
| No care | 58.0 | 45.4 | 64.7 | 58.8 | 57.9 |
| Relative care | 16.9 | 28.9 | 21.9 | 16.3 | 19.3 |
| Non-relative care | 6.6 | 2.8 | 3.1 | 2.6 | 5.3 |

| | | | | | |
|---|---|---|---|---|---|
| Center-based care or multiple types | 18.5 | 22.9 | 10.2 | 22.3 | 17.5 |
| Mothers' age (year) | 34.73 | 31.73 | 32.54 | 36.06 | 33.98 |
| | (5.95) | (6.42) | (6.29) | (4.95) | (6.17) |
| Age of the interviewed child (month) | 73.76 | 73.05 | 72.61 | 71.74 | 73.38 |
| | (4.53) | (4.59) | (4.33) | (4.78) | (4.54) |
| Number of household girl aged 0-7 | 0.81 | 0.87 | 0.88 | 0.81 | 0.83 |
| | (0.75) | (0.82) | (0.80) | (0.71) | (0.77) |
| Number of household girl aged 8-17 | 0.39 | 0.47 | 0.51 | 0.34 | 0.42 |
| | (0.65) | (0.75) | (0.75) | (0.64) | (0.68) |
| Number of household boy aged 0-7 | 0.87 | 0.84 | 0.91 | 0.81 | 0.87 |
| | (0.78) | (0.76) | (0.81) | (0.73) | (0.78) |
| Number of household boy aged 8-17 | 0.43 | 0.50 | 0.55 | 0.35 | 0.46 |
| | (0.67) | (0.75) | (0.77) | (0.61) | (0.70) |
| Age of the youngest household child (year) | 3.85 | 3.88 | 3.48 | 3.75 | 3.77 |
| | (2.13) | (2.11) | (2.22) | (2.14) | (2.15) |
| Neighborhood is safe for children to play outside (%) | | | | | |
| Not at all safe | 1.4 | 2.9 | 9.9 | 4.0 | 3.4 |
| Somewhat safe | 16.4 | 33.9 | 42.1 | 30.0 | 23.9 |
| Very safe | 82.2 | 63.2 | 48.0 | 66.0 | 72.7 |
| How much of a problem in neighborhood: drugs/drinking (%) | | | | | |
| Big problem | 1.1 | 3.9 | 8.1 | 3.3 | 2.9 |
| Somewhat of a problem | 5.9 | 13.2 | 16.5 | 7.1 | 8.9 |
| No problem | 93.0 | 82.9 | 75.4 | 89.6 | 88.2 |
| How much of a problem in neighborhood: burglary/robbery (%) | | | | | |
| Big problem | 0.9 | 2.8 | 9.0 | 2.9 | 2.8 |
| Somewhat of a problem | 14.1 | 17.0 | 20.6 | 15.1 | 15.7 |
| No problem | 85.1 | 80.2 | 70.5 | 82.0 | 81.5 |
| Frequency of reading for the interviewed child (%) | | | | | |
| Not at all | 0.4 | 0.9 | 2.8 | 1.4 | 1.0 |
| Once or twice a week | 6.4 | 17.6 | 23.6 | 13.6 | 11.4 |
| 3-6 times a week | 32.1 | 32.5 | 37.0 | 32.1 | 33.1 |
| Everyday | 61.1 | 49.0 | 36.6 | 52.9 | 54.6 |
| Number of activities arranged for the | 1.50 | 1.18 | 0.84 | 1.51 | 1.33 |
| interviewed child | (1.26) | (1.24) | (1.16) | (1.43) | (1.27) |
| N | 5397 | 939 | 1652 | 507 | |

**Analytic strategies**

The analysis was composed of three parts, I started by applying latent profile analysis (LPA) to identify a parenting stress typology based on mothers' responses to the four parenting stress statements. The LPA model estimated *latent profile membership probabilities* and *item response means*. Latent profile membership probabilities described distributions of the constructed latent profiles (all profiles adding up to a probability of 1). I determined the ideal number of latent profiles by computing a model first with one latent profile and then steadily adding more profiles. Models were compared based on statistics such as Akaike's information criterion (AIC)

and Bayesian information criterion (BIC), as well as the theoretical meaningfulness of the profile solution (MacDonald 2018). I then predicted mothers' probabilities of belonging to each latent profile and put them in the profile they were most likely to belong. The item response means estimated the association between each observed variable (response to each parenting stress statement) and each latent profile. Higher figures indicated greater associations. I summarized each latent profile's characteristics based on the item response mean of each parenting stress statement.

After constructing the parenting stress typology, I explored racial-ethnic differences in mothers' distributions across the typology by running multinomial logistic regression models with mothers' parenting stress profiles as the dependent variable and their race-ethnicity as the key independent variable. The independence of irrelevant alternatives (IIA) assumption was not violated. As a comparison, I also ran ordinary least squares (OLS) regression with mothers' average scores on the four parenting stress statements (the conventional way of using the parenting stress index) as the dependent variable. To explore racial-ethnic disparities in the relationship between parenting stress and depression, I ran OLS regression with mothers' depression as the dependent variable, and the interaction of mothers' race-ethnicity and parenting stress profiles as the key independent variables. All analyses were weighted using the weight provided by the ECLS-K: 2011.

## ***Results***

### Mothers' parenting stress typology – latent profile analysis

Table 2.2 presents the goodness-of-fit statistics from a two-profile to a five-profile LPA model. Adding the fifth profile was meaningful according to the statistics (both the AIC and BIC

became smaller), but did not provide any meaningful new patterns in parenting stress composition and would make the sample size of some profiles too small. I, therefore, chose the four-profile model.

Table 2.2. Model fit statistics for 2-5 latent profiles

| No. of Classes | Log likelihood | Degree of freedom | AIC | BIC |
|---|---|---|---|---|
| 2 | -39680.97 | 13 | 79387.95 | 79479.56 |
| 3 | -37965.74 | 18 | 75967.48 | 76094.33 |
| **4** | **-36855.37** | **23** | **73756.73** | **73918.82** |
| 5 | -34725.44 | 28 | 69506.89 | 69704.21 |

Table 2.3 displays the item-response means associated with the constructed four-profile model. The probability distributions of the latent profiles are presented in the lower part of the table. I also included the sample mean of each parenting stress statement in the table for comparison. I named Profile 1 mothers (accounted for 33 percent of the sample) “relaxed” mothers as they had lower than average stress levels in all four statements. Mothers in Profile 2 (29 percent) were labeled “just harder”. They had the highest score on the role overload statement “being a parent is harder than expected”, but their stress levels on other statements were lower than the average. Profile 3 mothers (15 percent) were labeled “over-sacrificed”. Besides a higher than average score on role overload, their stress level on the role captivity statement “I sacrifice to meet child’s need” was also the highest among all mothers. Mothers in Profile 4 (23 percent) were labeled “highly stressed” because they had higher than average stress levels in all four statements. This was the only group where mothers reported noticeably higher than average scores in statements “child does things that bother me” and “I often feel angry with the child”. But compared with “just harder” and “over-sacrificed” mothers, “highly stressed” mothers’ role overload scores were lower. Their role captivity score was also lower compared to “over-sacrificed” mothers.

Table 2.3. Item-response means and latent profile membership probabilities (N=8,495)

| | Profile 1 Relaxed | Profile 2 Just harder | Profile 3 Over-sacrificed | Profile 4 Highly stressed | Mean |
|---|---|---|---|---|---|
| Being a parent is harder than expected | 1.68 | 3.70 | 3.43 | 3.22 | 2.89 |
| Child does things that bother me | 1.31 | 1.67 | 1.67 | 2.27 | 1.70 |
| I sacrifice to meet child's need | 1.25 | 1.45 | 3.70 | 2.38 | 1.93 |
| I often feel angry with the child | 1.00 | 1.00 | 1.00 | 2.11 | 1.26 |
| Profile membership probabilities | 33% | 29% | 15% | 23% | |

**Racial-ethnic differences in mothers' parenting stress**

To examine racial-ethnic differences in mothers' parenting stress, I first ran OLS regression with mothers' race-ethnicity as the key independent variable and mothers' average scores on the four parenting stress statements as the dependent variable (Table 2.4). I then conducted multinominal logistic regression with mothers' parenting stress profile memberships as the dependent variable (Appendix Table A1). Figure 2.2a (without control variables) and Figure 2.2b (with control variables) show predicted probabilities of mothers' parenting stress profile memberships by race-ethnicity.

Without controls, Black and White mothers reported similar levels of overall parenting stress (Table 2.4 Model 1). However, the types of stress they faced were different (Figure 2.2a). Compared with White mothers, Black mothers had significantly lower likelihoods of being "just harder" and "highly stressed", but a significantly higher likelihood of being "over-sacrificed". These patterns of racial-ethnic differences still held after adding control variables to the model (Figure 2.2b). But after controlling for mothers' age and marital status, Black mothers' likelihood of being "over-sacrificed" decreased (still higher than White mothers).

Hispanic mothers' overall parenting stress levels were significantly higher than White mothers without controls (Table 2.4 Model 1). This may be because Hispanic mothers were less likely to be "relaxed" and more likely to be "over-sacrificed" than White mothers (Figure 2.2a). Further, although Black and Hispanic mothers' overall stress levels were similar without

controls, Hispanic mothers had lower chances of being "relaxed" or "over-sacrificed" and higher chances of being "just harder" or "highly stressed". After controlling for mothers' nativity, SES, and perceptions of neighborhood safety, Hispanic mothers' likelihood of being "highly stressed" decreased and became similar to that of Black mothers. Their chance of being "relaxed" also increased to a similar level as White and Black mothers (Figure 2.2b).

Without control variables, Asian mothers' overall parenting stress levels were significantly higher than mothers from all other racial-ethnic groups (Table 2.4 Model 3). This may mainly be attributed to Asian mothers' higher possibility of being "highly stressed" and lower probability of being "relaxed" compared to mothers from other racial-ethnic groups (Figure 2.2a). After controlling for mothers' nativity, Asian mothers' chance of being "highly stressed" decreased to a similar level as White mothers but was still higher than Black and Hispanic mothers (Figure 2.2b). Further, similar to Black and Hispanic mothers, Asian mothers had a higher chance of being "over-sacrificed" than White mothers with or without control variables.

Table 2.4. The OLS regression models of racial-ethnic differences in mothers' overall parenting stress levels (mean scores of four parenting stress statements)

| | Model 1 | Model 2 |
|---|---|---|
| Mothers' race-ethnicity (ref=White) | | |
| Black | 0.028 | -0.016 |
| | (0.025) | (0.027) |
| Hispanic | 0.055** | -0.018 |
| | (0.019) | (0.025) |
| Asian | 0.115*** | 0.087* |
| | (0.032) | (0.038) |
| Constant | 1.927*** | 2.475*** |
| | (0.009) | (0.201) |
| Control variables | No | Yes |

Notes: Results present regression coefficients with standard errors in parentheses. All analyses were weighted using the weight provided by the ECLS-K: 2011. Control variables were introduced in the measure section. * p < .05, ** p < .01, *** p < .001, + p < .10.

Figure 2.2a. Predicted probabilities of mothers' parenting stress profile memberships by race-ethnicity (N=8,495 without control variables)

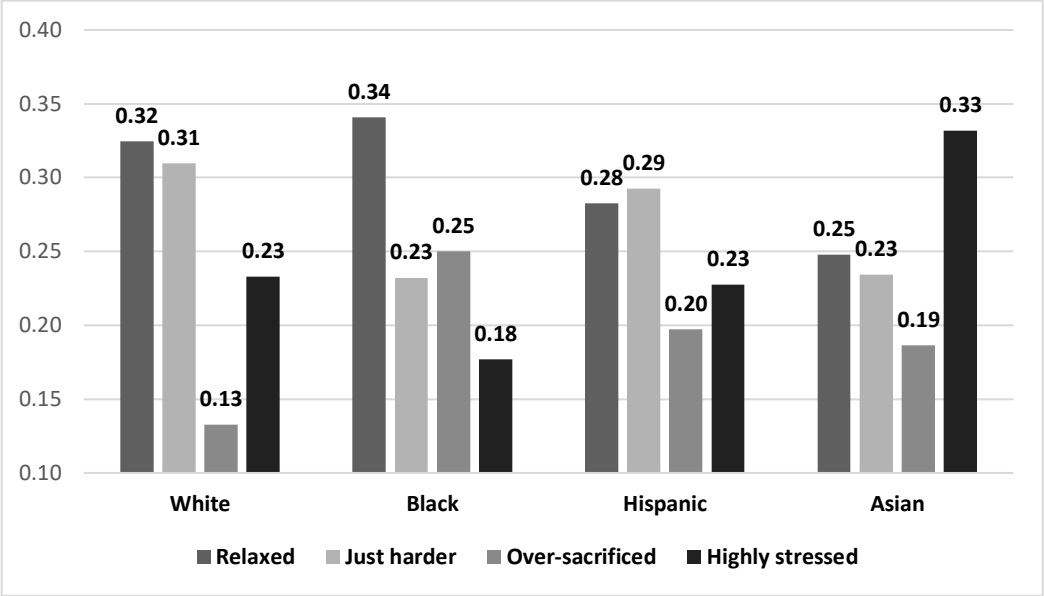
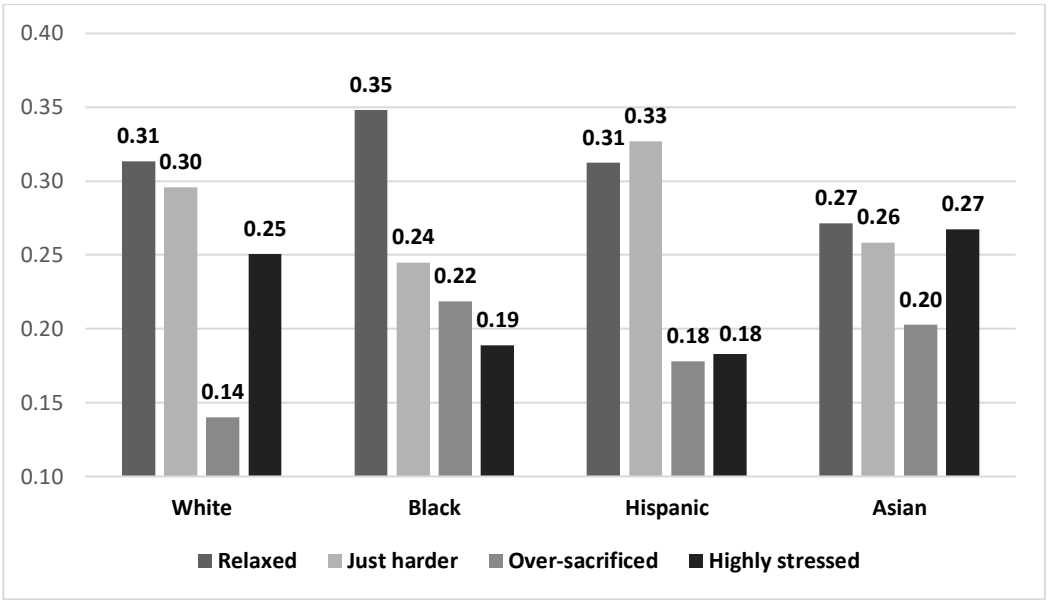



Figure 2.2b. Predicted probabilities of mothers' parenting stress profile memberships by race-ethnicity (N=8,495 with control variables)




**Mothers' parenting stress and depression– racial-ethnic differences**

Figures 2.3a (without control variables) and 2.3b (with control variables) show racial-ethnic differences in the associations between mothers' parenting stress profile memberships and depression. Without controls, compared with being "relaxed", being "highly stressed" was

associated with higher depression for Black mothers than for White, Hispanic, and Asian mothers (Figure 2.3a). The depression gap between being "just harder" and "relaxed" was also larger for Black mothers than for their White and Asian counterparts. Further, being "over-sacrificed" and "highly stressed" predicted greater depression (as compared to being "relaxed") for White, Black, and Hispanic mothers than for Asian mothers. It can be seen that among Asian mothers, "relaxed", "just harder", and "over-sacrificed" mothers reported similar depression. In contrast, among White, Black, and Hispanic mothers, "just harder" and "over-sacrificed" mothers faced greater depression than "relaxed" mothers.

Regardless of parenting stress profile memberships, Black and Hispanic mothers' depression levels decreased after adding control variables, particularly mothers' SES to the model (Figure 2.3b). In contrast, White and Asian mothers' depression levels increased after controlling for covariates. But in terms of racial-ethnic differences in how mothers' parenting stress profile memberships were associated with their levels of depression, the patterns were similar with and without control variables.

Figure 2.3a. Predicted means of mothers' depression levels by mothers' race-ethnicity and parenting stress profile memberships (N=8,495 without control variables)

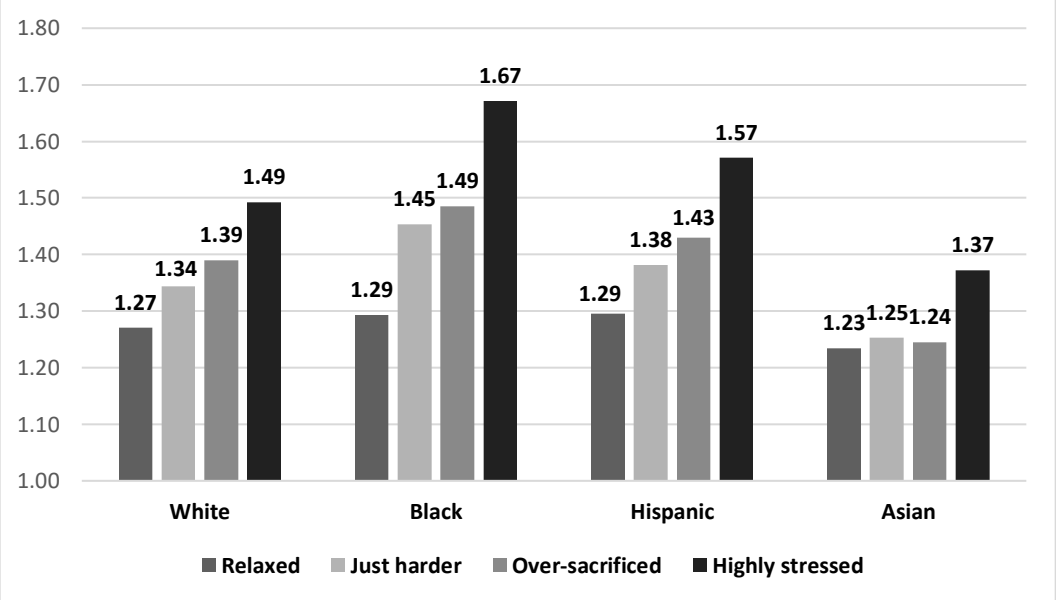
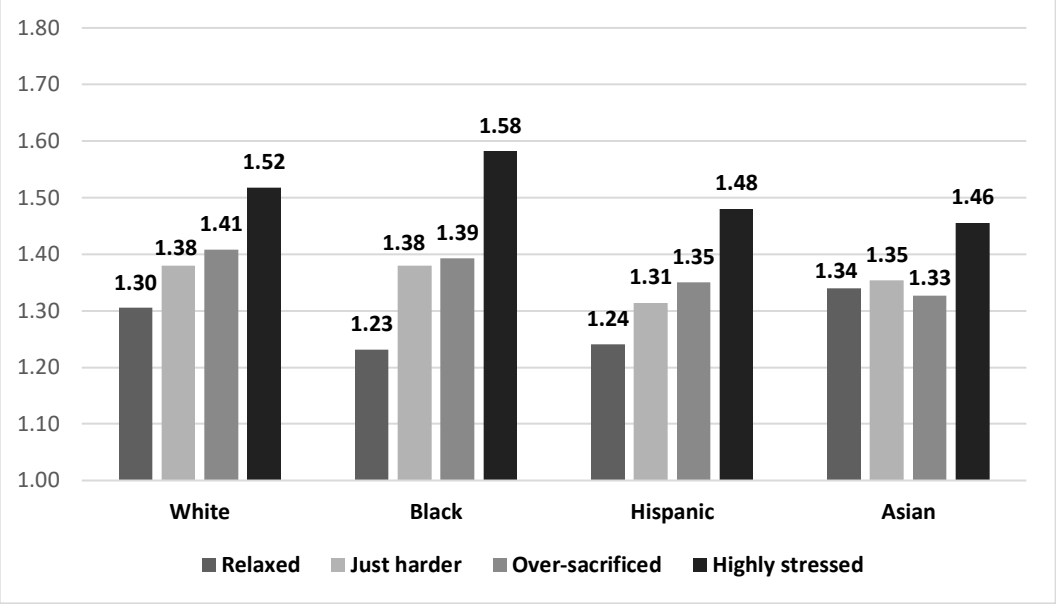


Figure 2.3b. Predicted means of mothers' depression levels by mothers' race-ethnicity and parenting stress profile memberships (N=8,495 with control variables)




## ***Discussion***

Using data from the second wave of the ECLS-K: 2011, this study explores racial-ethnic differences in U.S. mothers' parenting stress and its associations with depression. Instead of only comparing mothers' overall parenting stress levels, I construct four types of parenting stress for mothers based on their stress levels on different statements of the parenting stress index. The findings highlight the significance of considering the multidimensionality of parenting stress and clarifying the relationship between parenting stress and depression when understanding racial-ethnic differences in mothers' mental well-being.

White and Black mothers have similar stress levels when averaging their scores on the four parenting stress statements. However, their distributions across the four types of parenting stress that I construct are different. Black mothers are less likely to experience higher than average stress in all four statements ("highly stressed") even after controlling for mothers' age, nativity, SES, perceptions of neighborhood safety, household structure, and parenting practices.

Previous research finds that due to systemic racism, Black mothers have to put more effort than White mothers into organizing children's education and protecting children from discrimination (Dow 2019). Poor Black mothers also face additional challenges such as parenting children in hostile environments with limited support and struggling with stereotypes that portray them as "bad mothers" (Elliott and Aseltine 2013; Elliott et al. 2015; Elliott and Reid 2019; Hitchens et al. 2022). These factors may all make mothering more stressful for Black mothers than for White mothers. However, the findings of this study suggest otherwise, and low SES or poor neighborhood environments do not seem to result in high parenting stress for Black mothers. One possible explanation is that compared with White mothers, Black mothers are less likely to engage in intensive mothering, which requires mothers to make great time, emotional, and financial investments in childrearing (Hays, 1996; Lareau, 2003) and is found to affect mothers' mental well-being negatively (Gunderson and Barrett 2017; Rizzo, Schiffrin, and Liss 2013). It is also possible that structural racism mainly shifts Black mothers' parenting practices and experiences, but does not necessarily exacerbate their parenting stress.

However, it is important to note that Black and White mothers have a similar likelihood of reporting low stress in all statements ("relaxed"). The distributional differences between them across the parenting stress typology mainly exist among mothers who report high stress in at least one statement. Compared with White mothers, Black mothers are more likely to be "over-sacrificed", meaning a larger share of Black mothers find "being a parent is harder than expected" and score particularly high in "I sacrifice to meet child's need", but do not report poor relationships with their children. After controlling for mothers' age and marital status, Black mothers' chance of being "over-sacrificed*"* decreases, but is still higher than that of White mothers. Qualitative research has indeed found that many low-income Black mothers, single

mothers in particular, believe that good mothers should sacrifice for their children and thus sacrifice their time, education, and employment to meet children's demands (Elliott and Aseltine 2013; Elliott et al. 2015; Randles 2021). It is less clear why despite making sacrifices and reporting parenting to be hard, these mothers do not find their children bothersome or irritating. One possible explanation is that Black mothers discourage their children from showing negative emotions like anger and sadness due to the racial biases that view Black children's expression of these emotions as threatening (Labella 2018; Nelson et al. 2012). Black mothers themselves may also suppress their negative emotions toward children and conceal them during the interview in fear of the stereotype that would portray them as "bad mothers" (Consedine and Magai 2002; Elliott et al. 2015). Another possible explanation is that compared with White mothers, Black mothers receive more childcare support from relatives (see Table 2.1), which helps alleviate some of the stress associated with mothering and reduces the frequency of finding their children bothersome or feeling angry with their children.

Hispanic mothers have a lower likelihood of being "relaxed" than White and Black mothers and a higher chance of being "highly stressed" than Black mothers. But these racial-ethnic differences disappear after controlling mothers' nativity, SES, and perceptions of neighborhood safety. Economic hardships and concerns about neighborhood safety are, therefore, important sources of parenting stress for Hispanic mothers. Foreign-born Hispanic mothers often face greater financial difficulties and worse living environments than their native-born peers. Parenting children in an unfamiliar cultural environment also causes more parent-child conflicts (Johnson et al. 2016; Perreira, Chapman, and Stein 2006; Vesely, Letiecq, and Goodman 2019). The increasing surveillance of immigrants may have further intensified the

stress of parenting, especially for foreign-born mothers with low SES (Armenta 2017; Cardoso et al. 2018; Yu and Singh 2012).

Like Black mothers, Hispanic mothers are more likely to be "over-sacrificed" and less likely to be "highly stressed" than White mothers after controlling for covariates. This may in part be explained by Hispanic families' gender role expectations of *marianismo*, which encourages self-sacrifice among women in taking care of children and families. Self-sacrifice may be taken for granted by some Hispanic mothers that doing so may not affect their relationships with children (Durand 2011; Vesely et al. 2019). Studies have also found that many undocumented Hispanic mothers, who are struggling with the immigration enforcement practices in the U.S., perceive their self-sacrifice as a trade-off for enhancing their children's security and opportunities (Abrego and Schmalzbauer 2018). Further, similar to Black mothers, Hispanic mothers are found to emphasize children's obedience and discourage children's expression of negative emotions (Breen, Tamis-LeMonda, and Kahana-Kalman 2018; Morelen and Thomassin 2013). They also receive more childcare assistance from relatives in comparison to White mothers (see Table 2.1). These may reduce the frequency of Hispanic mothers encountering intense relationships with their children. Like White mothers, Hispanic mothers are more likely to be "just harder" than Black and Asian mothers. This seems to suggest that a larger share of Hispanic and White mothers' sense of being overwhelmed by motherhood demands is relatively independent of their feelings of self-sacrifice or the quality of mother-child relationships.

Asian mothers, especially foreign-born mothers, have a higher chance of being "highly stressed" and a lower chance of being "relaxed" than mothers from other racial-ethnic groups. One possible explanation is that Asian parents in general, and immigrant parents in particular, have high expectations of children's educational attainments. They tend to adopt a strict success

frame for their children, which includes only a narrow set of professions that require high educational credentials such as medicine, law, and engineering (Lee and Zhou 2015, 2017). These parenting beliefs and expectations have pushed mothers to invest heavily in children's education and even sacrifice their own needs and desires to provide their children with good resources and opportunities (Chao 1996; Chao and Kaeochinda 2010; Dhingra 2020). Pushing a narrow success frame can also cause poor parent-child relationships when children cannot or refuse to meet parents' expectations or when parents measure their children's accomplishments against other high-achieving co-ethnics (Lee and Zhou 2015). Additionally, similar to Black and Hispanic mothers, Asian mothers are also more likely to be "over-sacrificed" than White mothers. This may be because Asian parents tend to express love by making self-sacrifice to prioritize children's demands rather than verbal or physical affection (Chao and Kaeochinda 2010).

The relationships between the types of parenting stress mothers experience and their depression levels also vary by race-ethnicity. Although Black mothers are less likely to be "highly stressed" than White and Asian mothers, being "highly stressed" (as compared to being "relaxed") is associated with particularly high depression levels for Black mothers. This may be because "highly stressed" Black mothers are parenting their children under extreme conditions. They have very limited social and family support or psychological resources to cope with the stress they face. Some studies suggest that compared to White people, Black people are more mentally resilient to stressors possibly because of their higher self-esteem and better coping abilities (Barnes and Bates 2017; Keyes 2009; Mezuk et al. 2010). Yet, this resilience does not seem to apply to Black mothers' parenting stress.

Unlike White, Black, and Hispanic mothers, whose depression levels are sensitive to the types of parenting stress they face, Asian mothers who are "relaxed", "just harder", and "over-sacrificed" have similar depression levels. Only "highly stressed" Asian mothers' levels of depression are significantly higher. This suggests that Asian mothers may not face greater depression despite finding parenting to be hard and making sacrifices to meet their children's needs. Instead, their depression levels appear to be primarily influenced by the quality of mother-child relationships.

By conducting LPA to account for the multidimensionality of U.S. mothers' parenting stress, this study reveals racial-ethnic differences not only in mothers' overall parenting stress level, but also in the types of parenting stress mothers face. Mothers' distributions across the constructed four types of parenting stress ("relaxed", "just harder", "over-sacrificed", and "highly stressed") can vary by race-ethnicity even when there is no significant racial-ethnic disparity in overall levels of parenting stress. Moreover, among mothers who face the same type of parenting stress, the link between stress and depression levels may not be consistent across racial-ethnic groups. It is likely that mothers from different racial-ethnic groups hold distinct mothering beliefs and practices, and encounter unique challenges when parenting children, which affect both mothers' experiences with different types of parenting stress and the transition between parental role strains and depression.

In terms of the stress process model, previous studies have used the stress process model as a theoretical framework to explore racial-ethnic differences in how high stress would lead to poor mental health outcomes, focusing primarily on racial-ethnic disparities in people's resources and abilities to cope with the stress they face. The findings of this study suggest that more attention should be paid to how people from different racial-ethnic backgrounds perceive

and interpret the stressors they face. Stressors like parenting stress can be multidimensional, which can complicate the racial-ethnic heterogeneities in people's exposure to stressors. The same stressor may have different meanings for people of different race-ethnicity, resulting in diverse mental health outcomes. For example, it is possible that for Asian mothers, poor parent-child relationship is the only dimension of parenting stress that matters for their depression levels.

Certain limitations of this study are worth noting. First, I do not find many variables from the ECLS-K: 2011 dataset that are effective in explaining why there are racial-ethnic differences in mothers' experiences with the four types of parenting stress and their associations with depression levels. I, therefore, mainly rely on existing literature to speculate on potential causes. More quantitative and qualitative studies are needed to better understand racial-ethnic disparities in mothers' parenting experiences and mental health. Second, the four statements comprising the parenting stress index may only capture some dimensions of parenting stress. The actual racial-ethnic disparities in mothers' parenting stress and its association with depression may, therefore, be more complex than depicted above. However, it is important to note that these four statements have been widely used in large-scale social surveys to measure parenting stress and may continue to be used to maintain consistency in measurement. The aim of this paper is to explore how, with data only on these four statements, we can capture the multidimensionality of mothers' parenting stress and reveal the complexity of racial-ethnic differences in mothers' mental well-being.

Despite these limitations, this study uses latent profile analysis (LPA), a relatively novel approach to identify the different types of parenting stress mothers face, which is critical for addressing the multidimensionality of mothers' parenting stress and can be used in future

research to better investigate social inequalities in mothers' parenting stress. Using LPA, this study has depicted a more detailed picture of racial-ethnic heterogeneities in U.S. mothers' parenting stress and clarified racial-ethnic disparities in how different types of parenting stress are associated with depression levels. The findings of this study, thus, provide more evidence on racial-ethnic differences in the mental health consequences of mothering, where current evidence is limited and mixed, and can inform studies on racial-ethnic disparities in mothers' parenting experiences and practices. By revealing the complexity of mothers' experiences with parenting role strains and depression, this study contributes to the development of the stress process model, emphasizing the importance of exploring social heterogeneities in how people interpret and experience stressors. It also informs efforts on reducing the negative mental health consequences of mothering. This is crucial for improving women's well-being, as well as for enhancing children's developmental outcomes and understanding the reproduction of social inequalities through parenting.

## Chapter Three: Motherhood and Women's Well-being in China: Does Socioeconomic Status Matter

### ***Introduction***

Parenting, particularly mothering has been found to bring both costs and rewards to adults' well-being (see Nomaguchi & Milkie, 2020 for a review). However, most of these studies are conducted in Western developed countries. Little is known about motherhood and women's well-being in non-Western countries like China. National context is an important determinant of mothering experience and mothers' well-being (Glass et al., 2016; Nomaguchi & Milkie, 2020). The pronatalist culture and the stigmatization of childlessness (Ji 2015; Lee et al. 2009; Tang 1995; To 2013) tend to associate motherhood with more rewards at social and family levels in China than in Western countries. But Chinese mothers also seem to experience the challenges and demands of mothering in a more extreme way than their Western counterparts due to the one-child policy (Fong 2002, 2004; Short et al. 2001; Wei et al. 2016), the drastically increased labor market competitions, families' heavy investments in children's education (Chen et al. 2021; Ding et al. 2009; Li et al. 2012), and the heavy dual burden of paid work and domestic labor on women (Kan and He 2018; Yu 2014; Zuo and Jiang 2012).

The impact of motherhood on women's well-being varies by women's socioeconomic status (SES), but evidence on the direction of the moderating effect is mixed. Among studies that use data from Western developed countries or international surveys, some find higher SES mothers have less positive attitudes toward motherhood and experience greater stress and less meaning from mothering than lower SES mothers (Edin & Kefalas, 2005; Kushlev et al., 2012; Negraia & Augustine, 2019; Nomaguchi & Brown, 2011; H. X. Yan, 2022). But there are also studies suggesting the opposite (Alesina, Di Tella, and MacCulloch 2004; Margolis and

Myrskylä 2011; Nomaguchi and Johnson 2016; Stanca 2012; Yan 2022). In China, the SES differences may be even more complex due to the unequal distribution of welfare and educational resources between urban and rural areas and the dualist urban/rural household registration system that restricts rural children's access to resources and welfare in urban areas (Hu and Szente 2010; Yan 2005; Zhou and Cheung 2017).

Using data from the China Family Panel Study (CFPS), this study explores 1) whether mothers report better or worse well-being than women who have never had a child. I focus on women aged between 20 and 49 and use multiple indicators of well-being, including depression levels, life satisfaction, family life satisfaction, happiness, future confidence, and self-rated health. 2) I examine how the relationship between women's motherhood status and well-being varies by SES, measured by women's education, employment status, household income, and households' rural/urban residency and registration.

Exploring how motherhood influences women's well-being and the SES heterogeneities in it in China, a non-Western context, can extend the existing literature on the well-being consequences of motherhood. Because childbirth has still been almost universal in China (Morgan, Zhigang, and Hayford 2009; Zhao and Guo 2007), the findings of this study can inform policies that aim to enhance the well-being of women with different socioeconomic backgrounds. Further, the great costs and demands of childrearing are perceived as important reasons behind China's rapidly declining fertility rate (Ji et al. 2020; Ji and Zheng 2020; The Renmin Net 2022; The State Information Center 2019). The results of this study can, therefore, also inform efforts on decelerating fertility decline and population aging in China.

## ***Background***

### Motherhood and well-being

It is well-established that the parenting role is a "mixed bag" of both "costs and benefits" for adults' well-being (Nomaguchi & Milkie, 2020). Childrearing can bring joy and self-worth to adults as it provides opportunities to fulfill valuable goals such as offering care and love to children (Nelson et al. 2014). Empirical studies have also shown that parents perceive their time spent with children as happy and meaningful (Musick et al. 2016; Nelson et al. 2013; Offer 2014). Nevertheless, parenting children also entails various demands and challenges. The time, emotional, and financial commitments of childrearing can cause parents to experience stress related to parenting roles. Parents are found to fare worse than adults not raising children in multiple dimensions of mental well-being, including stress, depression, and life satisfaction (Glass, Simon, and Andersson 2016; Margolis and Myrskylä 2011; Negraia and Augustine 2020; Umberson, Pudrovska, and Reczek 2010). The detrimental impact of parenting on adults' well-being is greater for mothers than for fathers (Musick et al. 2016; Offer 2014) because women often take on more stressful routine childcare activities such as feeding and bathing (Musick et al. 2016; Negraia, Yavorsky, and Dukhovnov 2020). Moreover, the ideologies of "intensive mothering" and "concerted cultivation" have also contributed to heightened stress levels among mothers. These ideologies, which underscore mothers' pivotal role in their children's development and well-being, promote activities that requires significant amounts of time and energy such as arranging extracurricular activities for children, offering children emotional support, and making self-sacrifices to take care of children's needs (Gunderson & Barrett, 2017; Hays, 1996; Lareau, 2003; Rizzo et al., 2013). Nevertheless, current studies on the impacts of

motherhood on adults' well-being have been conducted almost exclusively in Western developed countries. Little is known about mothers' well-being in the context of China.

**The context of China**

National contexts play important roles in determining mothering experience, and the well-being of mothers as compared to non-mothers (Glass et al., 2016; Nomaguchi & Milkie, 2020). Compared with Western developed countries, parenthood may be associated with more rewards in China. Childbirth and parenting in China happen in a Confucianism pronatalist cultural context where childrearing is not simply providing adults with self-worth and happiness, but also celebrated for its value of family continuation and fulfilling filial piety (Lee et al. 2009; Tang 1995). Childlessness is stigmatized and socially unacceptable, particularly for women. Women not entering into marriage and parenthood in a socially acceptable age range usually face great pressures from social and family members (Ji 2015; To 2013). Consequently, a first birth is almost universal in China (Morgan et al. 2009; Zhao and Guo 2007). By the time of 2018, about 98 percent of women born before 1980 had given birth to at least one child, and over 90 percent of women born between 1980 and 1990 had given birth to at least one child (Yu 2021). The pronatalist norms, therefore, remain largely intact. The rewards of childbirth at social and family levels, and the penalties of being childless may magnify the rewards that parenthood bring to Chinese adults, particularly adult women.

However, the rewards of parenthood may not override the demands of childrearing. Chinese mothers encounter many similar challenges and burdens in childrearing as their counterparts in Western developed countries, albeit often to a more extreme degree. By limiting the number of children a couple could have, the "one-child-policy implemented between 1979

and 2015 has contributed to greater parental involvement and investment in childrearing, making parenting increasingly demanding over time (Fong 2002, 2004; Short et al. 2001; Wei et al. 2016). Further, the rapid marketization of the economy since 2000s has intensified labor market competition drastically and increased the return to education, pushing parents to emphasize and invest heavily in children's education (Chen et al. 2021; Ding et al. 2009; Li et al. 2012). Parents with lower socioeconomic status consider education as the best, if not the only way for their children to achieve upward mobility. They feel anxious about children's academic performance and invest a large share of household income into children's education. (Chi and Qian 2016; Fang, Sun, and Yuen 2017). Even when unable to offer high-quality educational resources or directly assist children's school work, they participate in children's education through strategies such as communicating with children about the importance of education, watching children study, and building good relationships with teachers (Fang et al. 2017; Kim and Fong 2013; Y. Li et al. 2022). Middle and upper-class parents, many of whom achieve their current social status through higher education, perceive higher education as critical for securing children's social status and future success. They invest a great amount of time, money, and energy to make sure their children go to the best schools and attend high-quality out-of-school education and extracurricular activities (Chi and Qian 2016; Crabb 2010; Tsang 2013; Wu 2013).

The division of domestic labor in China is highly gendered with women doing the great majority of housework and childcare. Empirical studies in the past two decades have shown that Chinese women on average spend about twice to thrice as much time as men on housework and childcare, and the gender gap is even larger among married couples (Chen 2005; Kan and He 2018; Luo and Chui 2018; Peng 2022; Yu 2014; Zhao 2018). By comparison, married women in

the U.S. spent around 1.8 times as much time as married men on domestic labor during the same timeframe (Milkie et al. 2024).

Besides being the primary caregivers, mothers in China often work long hours and make economic contributions to families. Chinese women's labor force participation rate (62 percent in 2021), though declining since the 1980s, is still high, especially when compared with many Western developed countries (The World Bank 2022). Due to the rapid marketization of the labor market and the lack of regulation over it, Chinese workers' weekly work hours are among the longest in the world (Cao and Rubin 2014; Mishra and Smyth 2013; Nie, Otterbach, and Sousa-Poza 2015). As a result, many Chinese mothers face severe work-family conflicts due to the double burden of childcare and paid work (Zuo and Jiang 2012).

Along with the increase in work hours, the marketization of the labor market has also intensified the discrimination against both women without children and mothers in workplaces. Employers are unwilling to pay for childbirth-induced costs such as maternity leave and breastfeeding leave, hence are reluctant to hire reproductive-age women who have not given birth yet. Since the implementation of the universal two-child policy in 2015, this discrimination has expanded to reproductive-age women with only one child (Gao 2008; Huang and Jin 2022; Kuhn and Shen 2013). Meanwhile, mothers are perceived as less competent for highly demanding jobs than women without children and men. They face discrimination both in the recruiting process and in workplaces (Busse and Parish 2000; Cao and Hu 2007; Zhang and Hannum 2015). The costs of childrearing on well-being may, therefore, be even higher for women who have high career aspirations or need to work to secure household income.

Current studies on parental status and subjective well-being in China are confined to older adults, studying how factors such as childlessness, coresiding with adult children, and the

relationship between parents and adult children influence older people's well-being (for example Ren & Treiman, 2015; Silverstein et al., 2006; Zhang & Liu, 2007). In other words, the key focus is usually how adult children take care of their older parents. We know very little about the impact of parenting children on adults' well-being in China, despite the near-universal occurrence of childbirth suggesting that the vast majority of Chinese women will mother children at some time point in their lives. Using a sample of 18-70 years old Chinese adults in their first marriage, Qian and Knoester (2015) found no significant difference in the happiness level of parents and adults without children after controlling for their age and SES. However, the impact of having adult children and parenting minor children on people's well-being can be very different. In fact, the study also found parents with only adult children report greater happiness than parents of minor children and childless adults, but did not further make comparisons between parents with minor children and adults without children. Li and Fan's (2016) study found that having more children is negatively associated with young or middle-aged parents' happiness, but promotes parents' happiness when they are older. However, the sample of analysis is restricted to adults with at least one child. Comparisons are, therefore, not made between adults with and without children.

**Motherhood, SES, and women's well-being**

Using data from Western developed countries or international surveys such as the World Value Survey, a handful of studies have examined how the costs and benefits of parenting are distributed across different SES groups. The findings are mixed. Some studies show lower SES parents report less happiness, lower life satisfaction (Alesina et al. 2004; Margolis and Myrskylä 2011; Stanca 2012), and higher anxiety (Nomaguchi & Brown, 2011) than higher SES parents. Low education and economic hardships are also found to be important causes of high parental

stress (Carrillo et al. 2017; Cooper et al. 2009; Gershoff et al. 2007; Nomaguchi and Johnson 2016; Williams, Cheadle, and Goosby 2015), particularly for Black and Hispanic mothers (Yan 2022). However, there are also studies suggesting that women with higher SES report less positive attitudes toward motherhood (Hoffman et al. 1978), experience greater levels of stress and fatigue (Negraia and Augustine 2019), and find less meaning and purpose in life during time with children (Edin and Kefalas 2005; Kushlev et al. 2012; Nomaguchi and Johnson 2016) than lower SES women. Moreover, higher SES is also often linked to elevated parenting standards and increased investments in childrearing. Particularly, the concepts of "intensive mothering" and "concerted cultivation" have gained increasing popularity among middle and upper-class mothers as means to ensure their children's future social status. With an emphasis on mothers' accountability for their children's well-being, these ideologies prioritize mothers' roles in protecting their children and nurturing their capabilities for future success (Hays, 1996; Lareau, 2003; M. K. Nelson, 2010). A handful of studies have documented the negative mental health consequences of intensive mothering (Gunderson & Barrett, 2017; Rizzo et al., 2013).

In the context of China, the impact of SES on the costs and benefits of motherhood can be even more complex given the dualist rural/urban household registration system (*hukou*) and the highly unequal distribution of educational resources between urban and rural areas. Rural women with limited income and education may find mothering to be particularly stressful due to the lack of parenting and educational resources. Migrating to urban areas to work can increase household income. But it may not make parenting easier because children without urban household registration are not eligible for social welfare in urban areas. There are also obstacles that prevent children with rural household registration from enrolling in urban public schools or participating in high school and university entrance exams in urban areas (Hu and Szente 2010;

Yan 2005; Zhou and Cheung 2017). However, women with lower SES may also find childrearing to be more meaningful and rewarding. For example, rural mothers with limited education who work in urban areas to contribute to household income may hold the expectation that their children will enjoy better life and education and achieve upward mobility in the future (Murphy 2014).

Urban women with higher income and education usually have more access to high-quality parenting and educational resources, making their mothering experience less stressful than their less advantaged peers. However, as mentioned above, the conflicts between high workplace demands and high childrearing standards may make high SES women unwilling to enter into motherhood and find less meaning and happiness from mothering. Further, in order to secure their children's future success and social status in an increasingly competitive labor market, middle and upper-class mothers in China have increasingly practiced intensive mothering and concerted cultivation by investing heavily in children's education and carefully organizing children's extracurricular activities (Chi and Qian 2016; Crabb 2010; Tsang 2013; Wu 2013). Under such conditions, higher SES may be associated with more stressful mothering experiences and worse well-being for mothers due to privileged mothers' high parenting standards and anxieties about children's future achievements.

**The present study**

In this paper, I study the impacts of motherhood on the well-being of Chinese women aged between 20 and 49 and explore the moderating effects of SES. By focusing on the social context of China, a non-Western setting, this study extends the existing literature on the implications of parental status and parenting on women's well-being. So far, little is known about the effects of parenting on Chinese younger adults' well-being, although the social context of China suggests

parenting to be associated with both costs and rewards for younger adults, particularly younger women. The great costs and demands of childrearing have been perceived as a key reason for the declining fertility rate in China despite the lift of the one-child policy (Ji et al. 2020; Ji and Zheng 2020; The Renmin Net 2022; The State Information Center 2019). Exploring how parenting influences younger Chinese adults' well-being and the SES heterogeneities in it may, therefore, help to better understand the causes behind the declining birth rate and inform efforts on improving adult women's well-being and slowing down population aging in China. Using data from the China Family Panel Study (CFPS), I ask the following questions:

1. Among women aged between 20 and 49, do mothers report better or worse well-being (measured by *depression, life satisfaction, family life satisfaction, happiness, future confidence, and self-rated health*) than women who have never had a child? I further differentiate between mothers who are still parenting non-adult children and mothers whose children have all become adults.
2. How does the relationship between women's motherhood status and well-being vary by socioeconomic status?

## ***Data and Methods***

### Data

I drew on data from the China Family Panel Study (CFPS), a nationally representative and longitudinal survey of Chinese households and household members collected by the Institute of Social Science Survey (ISSS) at Peking University. I used data from the third wave (2014), which has the most comprehensive measures of women's well-being and SES. I restricted the sample of analysis to women aged between 20 and 49 who answered the adult questionnaire themselves,

instead of only having proxy reports from other family members (N=8,674). About 5.4 percent of the sampled women had missing values in one or more variables. Most of the missing values (around 4.6 percent) came from mothers' reports of depression, life satisfaction, family life satisfaction, happiness, and future confidence. I applied the list-wise deletion method because the amount of respondents with missing values was relatively small. After dropping cases with missing values, the final sample of analysis included 8,199 women. (1,437 women who had never had a child, 4,910 mothers who were parenting non-adult children, and 1,852 mothers who only had adult children). Data from other waves (2010, 2012, 2016, and 2018) were used for robustness checks to account for potential confounding or selection bias (discussed below in detail).

**Measures**

*Dependent variables.* The dependent variables were women's well-being, including the following indicators: 1) *Depression levels* (continuous variable ranges between 1 and 5), measured using six items from the Center for Epidemiologic Studies Depression Scale (CES-D). Respondents reported their frequency (1=never, 2=sometimes, 3=half of the time, 4=often, 5=almost daily) of feeling a) nervous, b) restless or fidgety, c) hopeless, d) everything was an effort, and e) life was meaningful ($\alpha$=.81). I calculated the mean score of women's responses to the 6 items with higher scores meaning higher levels of depression. 2) *Life satisfaction* (continuous, 1-5), 3) *Family life satisfaction* (continuous, 1-5), and 4) *Confidence about the future* (continuous, 1-5). Respondents were asked "are you satisfied with your life?", "are you satisfied with the life quality of your family?", and "are you confident about your future?" with higher scores meaning greater satisfactions. 4) *Happiness* (continuous, 0-10). Respondents rated "are you happy?" with higher scores indicating greater happiness. 6) Self-rated health (continuous, 1-5) with higher scores meaning better health.

*Key independent variables*. The first key independent variable was women's motherhood status, operationalized as 1=never had a child, 2=having non-adult children, and 3=having adult children only. Among mothers with non-adult children, about five percent (239) were not coresiding with any of their children, mostly due to marital dissolutions. Dropping them from the sample of analysis had little impact on the results. I present results that included this subsample of mothers. Among mothers with only adult children, about 30 percent (572) were not living with any of their children. I did not further differentiate between mothers who coresided and did not coreside with their adult children because the patterns of the results were similar for these two groups.

The other key independent variable was women's SES, measured by the following indicators: 1) *Levels of education* (1=illiterate/semi-literate, 2=primary school or junior high school, 3=senior high school/technical secondary school, 4=3-year college, Bachelor's degree, or higher). 2) *Employment status* (0=did not work for pay in the past year, 1=worked for pay in the past year). 3) *Household income* (1=lower than 20,000 RMB, 2=20,000-49,999 RMB, 3=50,000-79,999 RMB, 4=80,000 RMB or higher). 4) *Household residency* (0=rural, 1=urban). 5) *Household registration* (0=agricultural/rural, 1=non-agricultural/urban).

I found the moderating effects of these five SES indicators on the well-being consequences of motherhood to be inconsistent. Also, as mentioned above, households' rural/urban registration relative to their rural/urban residency could influence women's mothering experience when combined with their education, employment status, and household income. I, therefore, applied latent class analysis (LCA) to construct an SES typology for women based on these five indicators. By conducting LCA, I used a "person-centered" approach (as compared to the traditionally "variable-centered" approach) to characterize mothers with

different compositions of SES indicators, making it possible to capture, for example, migrant women who work and live in urban areas with moderate income but do not have urban household registration.

*Control variables*. I controlled for women's age, age squared, marital status (0=not married, 1=married), job type (0=did not work, 1=family agricultural work, 2=private business/self-employed, 3=agricultural work for other families, 4=waged job), number of children aged between 0-6, 7-12, 13-17, and 18 or over, household structure (1=single/couple, 2=nuclear, 3=multigenerational), and the province of residence.

**Analytic strategies**

To test whether mothers reported better or worse well-being than women who had never had a child, I conducted ordinary least squares (OLS) regression with women's well-being indicators as the outcome variables and women's motherhood status as the key independent variable[2].

To further explore SES heterogeneities in the relationship between motherhood status and women's well-being, I first applied LCA to construct an SES typology for women based on their education levels, employment status, household income, urban/rural residency and household registration. The LCA model estimated *latent class membership probabilities* and *item response probabilities*. Latent class membership probabilities described distributions of the constructed latent classes (all classes adding up to a probability of 1). I determined the ideal number of latent classes by computing a model first with one latent class and then steadily adding more classes. Models were compared based on statistics such as Akaike's information criterion (AIC) and Bayesian information criterion (BIC), as well as the theoretical meaningfulness of the class

[2] The present study treated all outcome variables as continuous and conducted OLS regression analyses. In the future, I will test the robustness of the results by treating women's life satisfaction, family life satisfaction, happiness, confidence about the future, and self-rated health as categorical variables and conducting ordinal logistic regression analyses.

solution (MacDonald 2018). I then predicted women's probabilities of belonging to each latent class using STATA's *classposteriorpr* command and put women into the latent class they were most likely to belong to. The item response probabilities estimated the association between each observed variable (i.e., SES indicator) and each latent class with 0 suggesting no association, and 1 suggesting the highest association. I summarized the characteristics of each class according to the item response probability of each empowerment indicator. After constructing the SES typology, I ran OLS regression with women's well-being indicators as the outcomes variables and the interaction of women's motherhood status and the SES latent class that women belonged to as the key independent variables.

One of the common problems that OLS regression models face is selection or confounding bias. Factors such as age, marital status, and SES may predict both women's mothering status and their well-being. Differences in women's well-being may thus be attributed to disparities in these confounding factors, instead of women's mothering status. Further, not all confounders can be observed and measured, causing omitted variable bias. For example, women's mothering status and well-being may be correlated with unmeasured factors such as women's personality. To address these potential biases, I applied the inverse probability of treatment weighting method (IPTW) with one of the mothering statuses as the control group and the other statuses as treatment groups. I predicted women's probabilities of being assigned to different mothering statuses (i.e., treatment and control groups) using variables on women's SES, age, marital status, job type, and the province of residence I discussed above. I then applied the inverse of these probabilities as sampling weights in our fitted OLS regression models. This would allow me to compare the well-being among women who had similar distributions across

all these observable characteristics but motherhood status. I used the *mnps* command that the RAND corporation developed (Cefalu and Buenaventura 2017).

Conducting individual fixed effects analyses using longitudinal data can control for time-constant unobservable factors that may influence women's motherhood status and/or well-being. However, women's levels of happiness and family satisfaction were not measured by the CFPS in all waves, and the measures of depression were inconsistent across waves. Further, because the CFPS used different questions to capture respondents' work status across waves, women's labor force participation rates in 2010 and 2012 were lower than in later waves. Moreover, due to technological difficulties, I could not construct SES latent classes that are comparable across waves. Therefore, at the current stage, I only conducted individual fixed effects analyses to check the robustness of the findings on how motherhood influences women's well-being.

## ***Results***

### Descriptive Statistics

Table 3.1 shows descriptive statistics of the sampled women in wave 2014. Compared with women who had never had a child, mothers with non-adult children and mothers with only adult children in general reported higher levels of depression and lower levels of life satisfaction, family life satisfaction, happiness, future confidence, and self-rated health. In terms of SES, women who had never had a child were the most socioeconomically advantaged, followed by mothers with non-adult children, and mothers with only adult children were the least advantaged. For example, over 30 percent of women without children received a college education, whereas the figures were 10.5 and 3.9 for mothers with non-adult children and mothers only with adult children respectively. Only about 33 percent of mothers with non-adult children and 28 percent

of mothers with adult children only worked for pay while almost half of women who had never had a child were doing paid work. Further, 57 percent of women without children resided in urban areas and 38 percent had non-agricultural household registration. But only around 46 percent of mothers lived in urban areas and around 24 percent had non-agricultural household registration. It should be noted that these SES differences by motherhood status could to a large extent be attributed to the rapid development and structural changes of Chinese economy in the past few decades and did not necessarily reflect individuals' SES changes over life course. Almost all mothers were married. Among women who had never had a child, about 37 percent were married.

Table 3.1. Descriptive statistics of the wave 2014 sample

| | Never had a child | Have non-adult children | Have adult children only | Sample means |
|---|---|---|---|---|
| Depression (1-5)^ | 1.57 | 1.60 | 1.64 | 1.60 |
| | (0.62) | (0.67) | (0.72) | (0.67) |
| Life satisfaction (1-5)^ | 3.81 | 3.79 | 3.74 | 3.78 |
| | (0.93) | (1.00) | (1.06) | (1.00) |
| Family life satisfaction (1-5)^ | 3.91 | 3.87 | 3.85 | 3.87 |
| | (0.90) | (0.97) | (1.02) | (0.97) |
| Happiness (0-10)^ | 7.93 | 7.64 | 7.40 | 7.64 |
| | (1.89) | (2.12) | (2.30) | (2.13) |
| Confidence about the future (1-5)^ | 4.16 | 4.14 | 4.03 | 4.12 |
| | (0.86) | (0.94) | (1.02) | (0.95) |
| Self-rated health (1-5)^ | 3.59 | 3.26 | 2.81 | 3.22 |
| | (1.02) | (1.13) | (1.22) | (1.16) |
| Education levels (%) | | | | |
| Illiterate/semi-literate | 5.9 | 19.4 | 34.0 | 20.3 |
| Primary/junior high school | 33.7 | 56.7 | 54.0 | 52.1 |
| Senior high/technical secondary school | 28.6 | 13.4 | 8.1 | 14.8 |
| 3-year college/Bachelor's degree/above | 31.8 | 10.5 | 3.9 | 12.8 |
| Annual household income (%) | | | | |
| Lower than 20,000 RMB | 13.5 | 13.4 | 13.3 | 13.4 |
| 20,000-49,999 RMB | 36.5 | 40.0 | 40.5 | 39.5 |
| 50,000-79,999 RMB | 25.6 | 24.8 | 26.8 | 25.4 |
| 80,000 RMB or higher | 24.4 | 21.8 | 19.5 | 21.7 |
| Work for pay (%) | 48.8 | 32.9 | 27.7 | 34.5 |
| Type of job (%) | | | | |
| Do not work | 25.9 | 16.0 | 10.9 | 16.6 |
| Agricultural work | 10.4 | 36.7 | 50.9 | 35.3 |
| Private business/self-employed | 8.3 | 11.1 | 8.9 | 10.1 |
| Waged job | 55.4 | 36.2 | 29.3 | 38.0 |
| Urban residency (%) | 56.9 | 46.8 | 45.4 | 48.3 |

| | | | | |
|---|---|---|---|---|
| Non-agricultural household registration (%) | 37.9 | 24.2 | 23.8 | 26.5 |
| Age | 26.52 | 34.73 | 45.58 | 35.74 |
| | (7.01) | (7.13) | (3.02) | (8.86) |
| Married (%) | 36.6 | 97.5 | 94.9 | 86.3 |
| No. of children aged 0-6 | 0 | 0.60 | 0 | 0.36 |
| | | (0.70) | | (0.61) |
| No. of children aged 7-12 | 0 | 0.47 | 0 | 0.28 |
| | | (0.62) | | (0.53) |
| No. of children aged 13-17 | 0 | 0.38 | 0 | 0.23 |
| | | (0.57) | | (0.48) |
| No. of adult children | 0 | 0.20 | 1.58 | 0.48 |
| | | (0.49) | (0.74) | (0.79) |
| Household structure (%) | | | | |
| Single/couple | 18.4 | 0 | 8.5 | 5.8 |
| Nuclear | 51.7 | 44.5 | 54.4 | 47.4 |
| Multigenerational | 29.9 | 55.5 | 37.1 | 46.9 |
| N | 1,437 | 4,910 | 1,852 | 8,199 |

Source of data: China Family Panel Study, wave 2014
Note: ^Higher scores indicating higher depression levels, greater life satisfaction, family life satisfaction, happiness, more confidence about the future, and better self-rated health.

**Motherhood and women's well-being**

Table 3.2 shows regression coefficients for women's well-being by their motherhood status. The data was weighted with the IPTW to account for potential confounding or selection bias[3]. Compared with women who had never had a child, mothers with non-adult children had (marginally) significantly lower levels of life satisfaction, family life satisfaction, and self-rated health. Mothers with only adult children also reported (marginally) significantly lower life satisfaction, family life satisfaction, happiness, and self-rated health than women without children. No significant difference by motherhood status was observed in women's depression levels and confidence about the future.

To check the robustness of the results, I also conducted individual fixed effects analyses using longitudinal data from waves 2010, 2012, 2014, 2016, and 2018. Women's depression levels, family life satisfaction, and happiness were not used as outcome variables because they

[3] For most covariates, the weighted maximum absolute standardized mean difference (ASMD) were lower than 0.20 and the weighted maximum Kolmogorov-Smirnov distance (KS) were lower than 0.10, suggesting the treatment and control groups were balanced in most covariates (Burgette, Preisser, and Rozier 2016). The only exceptions were women's age (ASMD=0.23, KS=0.17) and marital status (ASMD=0.30, KS=0.11).

were either measured inconsistently across waves or not measured in most waves. Women's self-rated health in wave 2010 was also not included due to measure inconsistencies. The results (Table 3.3) confirm that mothers generally reported worse well-being than women who had never had a child. Mothers who were parenting non-adult children reported significantly lower life satisfaction and worse self-rated health than women without children. The self-rated health of mothers with only adult children was also marginally significantly lower than women who had never had a child. No significant difference by motherhood status was observed in women's confidence about the future. Overall, mothers in general fared worse than women who had never had a child across multiple dimensions of well-being.

Table 3.2. Regression models of motherhood status predicting women's well-being using the inverse probability of treatment weighting method (N=8,199)

| | Model 1 | Model 2 | Model 3 | Model 4 | Model 5 | Model 6 |
|---|---|---|---|---|---|---|
| | Depression^ | Life satisfaction^ | Family life satisfaction^ | Happiness^ | Future confidence^ | Self-rated health^ |
| Motherhood status (ref=never had a child) | | | | | | |
| Have non-adult children | 0.041 | -0.173* | -0.146+ | -0.226 | -0.060 | -0.147+ |
| | (0.049) | (0.079) | (0.085) | (0.165) | (0.092) | (0.080) |
| Have adult children only | 0.138 | -0.413*** | -0.243+ | -0.477* | -0.057 | -0.334*** |
| | (0.086) | (0.096) | (0.128) | (0.190) | (0.127) | (0.092) |
| Education levels (ref=Illiterate/semi-literate) | | | | | | |
| Primary/junior high school | -0.089 | -0.150* | -0.082 | 0.139 | 0.098 | 0.337*** |
| | (0.054) | (0.074) | (0.071) | (0.153) | (0.081) | (0.076) |
| Senior high/technical secondary school | -0.160* | -0.048 | -0.036 | 0.289 | 0.182+ | 0.346*** |
| | (0.073) | (0.096) | (0.098) | (0.201) | (0.104) | (0.097) |
| 3-year college/Bachelor's degree/above | -0.310*** | -0.034 | 0.063 | 0.583** | 0.210* | 0.460*** |
| | (0.079) | (0.098) | (0.121) | (0.200) | (0.105) | (0.104) |
| Annual household income (ref=lower than 20,000 RMB) | | | | | | |
| 20,000-49,999 RMB | 0.015 | 0.393*** | 0.303** | 0.421* | 0.009 | 0.132+ |
| | (0.058) | (0.091) | (0.097) | (0.199) | (0.096) | (0.068) |
| 50,000-79,999 RMB | -0.016 | 0.525*** | 0.559*** | 0.623** | 0.026 | 0.261*** |
| | (0.066) | (0.100) | (0.103) | (0.216) | (0.114) | (0.079) |
| 80,000 RMB or higher | -0.049 | 0.755*** | 0.652*** | 0.637** | 0.087 | 0.302*** |
| | (0.081) | (0.105) | (0.111) | (0.224) | (0.107) | (0.089) |
| Non-agricultural household registration | -0.049 | 0.033 | -0.043 | -0.083 | -0.133+ | -0.219*** |
| | (0.057) | (0.073) | (0.079) | (0.141) | (0.075) | (0.065) |
| Urban residency | 0.107* | -0.084 | -0.049 | 0.051 | 0.092 | -0.039 |
| | (0.047) | (0.064) | (0.070) | (0.123) | (0.082) | (0.054) |
| Type of job (ref=do not work) | | | | | | |
| Agricultural work | -0.152* | 0.236* | 0.025 | 0.193 | 0.315** | -0.165* |
| | (0.071) | (0.098) | (0.105) | (0.180) | (0.116) | (0.073) |
| Private business/self-employed | 0.005 | 0.117 | -0.081 | 0.133 | 0.209+ | -0.076 |
| | (0.080) | (0.102) | (0.101) | (0.219) | (0.113) | (0.098) |

| | | | | | | |
|---|---|---|---|---|---|---|
| Waged job | 0.034 | 0.063 | -0.102 | -0.072 | 0.205* | -0.188** |
| | (0.062) | (0.074) | (0.082) | (0.146) | (0.097) | (0.065) |
| Age | 0.023 | -0.031 | -0.017 | -0.038 | 0.016 | -0.068* |
| | (0.025) | (0.031) | (0.032) | (0.062) | (0.030) | (0.033) |
| Age-squared | -0.000 | 0.000 | 0.000 | 0.000 | -0.001 | 0.001 |
| | (0.000) | (0.000) | (0.000) | (0.001) | (0.000) | (0.000) |
| Married | -0.125** | 0.320*** | 0.229* | 0.659*** | 0.374*** | -0.037 |
| | (0.044) | (0.067) | (0.090) | (0.126) | (0.107) | (0.065) |
| No. of children aged 0-6 | -0.041 | 0.100* | 0.056 | 0.025 | -0.007 | 0.017 |
| | (0.027) | (0.043) | (0.047) | (0.081) | (0.044) | (0.042) |
| No. of children aged 7-12 | 0.016 | 0.074+ | 0.066 | -0.030 | 0.015 | 0.091* |
| | (0.027) | (0.043) | (0.045) | (0.087) | (0.044) | (0.043) |
| No. of children aged 13-17 | 0.041 | 0.057 | 0.097+ | -0.020 | 0.099+ | 0.002 |
| | (0.037) | (0.050) | (0.052) | (0.107) | (0.054) | (0.055) |
| No. of adult children | 0.038 | 0.163** | 0.117* | 0.200+ | 0.103 | 0.049 |
| | (0.041) | (0.053) | (0.058) | (0.110) | (0.066) | (0.049) |
| Household structure (ref=single/couple) | | | | | | |
| Nuclear | -0.103 | -0.070 | -0.055 | 0.167 | 0.191 | 0.320** |
| | (0.075) | (0.108) | (0.103) | (0.228) | (0.121) | (0.116) |
| Multigenerational | 0.009 | -0.111 | -0.139 | 0.190 | 0.147 | 0.278* |
| | (0.085) | (0.113) | (0.112) | (0.255) | (0.143) | (0.122) |
| Constant | 1.556*** | 3.256*** | 3.486*** | 6.875*** | 3.004*** | 4.395*** |
| | (0.423) | (0.527) | (0.552) | (1.138) | (0.530) | (0.561) |

Source of data: China Family Panel Study, wave 2014

Notes: ^Higher scores indicating higher depression levels, greater life satisfaction, family life satisfaction, happiness, more confidence about the future, and better self-rated health. Results present regression coefficients with standard errors in parentheses. Coefficients for the province of residence were omitted to conserve space. + p < .10, * p < .05, ** p < .01, *** p < .001.

Table 3.3. Individual fixed effects models of motherhood status predicting women's well-being using longitudinal data from wave 2010 to wave 2018

| | Model 1 | Model 2 | Model 3 |
|---|---|---|---|
| | Life satisfaction^ | Future confidence^ | Self-rated health^ |
| Motherhood status (ref=never had a child) | | | |
| Have non-adult children | -0.107** | -0.055 | -0.136** |
| | (0.039) | (0.036) | (0.046) |
| Have adult children only | -0.078 | -0.061 | -0.116+ |
| | (0.051) | (0.049) | (0.061) |
| Education levels (ref=Illiterate/semi-literate) | | | |
| Primary/junior high school | 0.224*** | 0.162** | 0.089 |
| | (0.061) | (0.060) | (0.100) |
| Senior high/technical secondary school | 0.261*** | 0.142+ | 0.051 |
| | (0.076) | (0.075) | (0.111) |
| 3-year college/Bachelor's degree/above | 0.149+ | 0.144+ | -0.008 |
| | (0.082) | (0.081) | (0.115) |
| Annual household income (ref=lower than 20,000 RMB) | | | |
| 20,000-49,999 RMB | 0.093*** | 0.067*** | 0.054* |
| | (0.018) | (0.017) | (0.022) |
| 50,000-79,999 RMB | 0.120*** | 0.086*** | 0.038 |
| | (0.021) | (0.020) | (0.024) |
| 80,000 RMB or higher | 0.117*** | 0.089*** | 0.060* |
| | (0.023) | (0.022) | (0.026) |
| Non-agricultural household registration | 0.015 | -0.001 | -0.051 |

| | | | |
|---|---|---|---|
| | (0.035) | (0.034) | (0.040) |
| Urban residency | -0.030 | -0.036 | 0.000 |
| | (0.027) | (0.026) | (0.030) |
| Employed | 0.041* | 0.041* | 0.013 |
| | (0.018) | (0.018) | (0.022) |
| Age | -0.018 | -0.055*** | -0.086*** |
| | (0.013) | (0.012) | (0.016) |
| Age-squared | 0.001*** | 0.001*** | 0.001*** |
| | (0.000) | (0.000) | (0.000) |
| Married | 0.153*** | 0.054+ | 0.070+ |
| | (0.034) | (0.032) | (0.038) |
| No. of children aged 0-6 | 0.016 | 0.004 | 0.076** |
| | (0.022) | (0.021) | (0.027) |
| No. of children aged 7-12 | 0.060* | 0.047* | 0.074* |
| | (0.024) | (0.023) | (0.032) |
| No. of children aged 13-17 | 0.071* | 0.044 | 0.098** |
| | (0.028) | (0.027) | (0.038) |
| No. of adult children | 0.080** | 0.042 | 0.066 |
| | (0.029) | (0.029) | (0.042) |
| Constant | 2.464*** | 3.848*** | 4.550*** |
| | (0.266) | (0.238) | (0.315) |
| N | 41,725 | 41,725 | 33,295 |

Source of data: China Family Panel Study, waves 2010, 2012, 2014, 2016, and 2018.
Notes: ^Higher scores indicating greater life satisfaction, more confidence about the future, and better self-rated health. Results present regression coefficients with standard errors in parentheses. Coefficients for the province of residence were omitted to conserve space. + p < .10, * p < .05, ** p < .01, *** p < .001.

**Mothers' SES – Latent Class Analysis**

Table 3.4 presents the goodness-of-fit statistics from the constructed latent classes of mothers' SES. It shows the likelihood ratio statistics, AIC, and BIC from a two-class to a four-class model. Adding the fourth class slightly increased the goodness-of-fit (AIC and BIC became smaller), but did not provide any meaningful new patterns in the SES composition. I, therefore, chose the three-class model.

Table 3.4. Model fit statistics for 2-4 latent classes

| No. of Classes | Log likelihood | Degree of freedom | AIC | BIC |
|---|---|---|---|---|
| 2 | -33673.59 | 19 | 67385.17 | 67518.40 |
| **3** | **-33462.44** | **29** | **66982.88** | **67186.22** |
| 4 | -33331.53 | 39 | 66741.06 | 67014.52 |

Table 3.5 shows the item-response probabilities associated with the constructed three-class model. The probability distributions of the latent classes are presented in the lower part of the table. I also include the sample mean of each SES indicator in the table for comparison. *Class*

*1* women, which accounted for more than 50 percent of the sampled women were named *disadvantaged* because they had the lowest education and household income among all women. The great majority of them resided in rural areas with agricultural household registration and did not work for pay. In contrast, *Class 2* women (17 percent of the sampled women) scored the highest in all SES indicators, and hence were named *privileged*. *Class 3* women (29 percent of the sampled women) fitted the characteristics of rural-to-urban *migrants*. Although having an 83 percent chance of living in urban areas, their likelihood of having a non-agricultural household registration was only 43 percent. Their education levels, household income, and likelihoods of working for pay were higher than *disadvantaged* women, but lower than *privileged* women.

Table 3.5. Item-response probabilities and latent class membership probabilities (N=8,199)

| | Disadvantaged | Privileged | Migrants | Mean |
|---|---|---|---|---|
| Education levels | | | | |
| Illiterate/semi-literate | 0.34 | <0.01 | 0.06 | 0.20 |
| Primary/junior high school | 0.57 | <0.01 | 0.73 | 0.52 |
| Senior high/technical secondary school | 0.06 | 0.32 | 0.21 | 0.15 |
| 3-year college/Bachelor's degree/above | 0.02 | 0.68 | <0.01 | 0.13 |
| Work for pay | 0.19 | 0.72 | 0.42 | 0.35 |
| Annual household income | | | | |
| Lower than 20,000 RMB | 0.20 | 0.04 | 0.07 | 0.13 |
| 20,000-49,999 RMB | 0.46 | 0.21 | 0.39 | 0.40 |
| 50,000-79,999 RMB | 0.22 | 0.28 | 0.31 | 0.25 |
| 80,000 RMB or higher | 0.13 | 0.47 | 0.23 | 0.22 |
| Urban residency | 0.18 | 0.85 | 0.83 | 0.48 |
| Non-agricultural household registration | 0.06 | 0.79 | 0.43 | 0.26 |
| Distribution | 53.6% | 17.1% | 29.3% | |

Source of data: China Family Panel Study, wave 2014

**Motherhood, SES, and women's well-being**

To examine if the impact of motherhood status on women's well-being varies by SES, I interacted women's motherhood status with the SES latent class they belonged to. Significant or marginally significant interaction effects were found in women's levels of depression, happiness, and self-rated health. Among *privileged* women, mothers with non-adult children reported greater depression than women who had never had a child. *Disadvantaged* mothers with non-

adult children also tended to have greater depression than women without children. In contrast, an opposite pattern could be observed among *migrant* women (Figure 3.1 and Table 3.6 Model 1). Similarly, for *disadvantaged* and *privileged* women, mothers with non-adult children reported lower levels of happiness than women who had never had a child, but the opposite was true among *migrants* (Figure 3.2 and Table 3.6 Model 4).

*Migrant* mothers with only adult children faced greater depression than their peers without children, but the reverse was true among *privileged* women (Figure 3.1 and Table 3.6 Model 1). In terms of self-rated health, *migrant* mothers with only adult children exhibited worse health than those who had never had a child. While *privileged* mothers with only adult children also tended to have worse health than those without children, the difference was significantly smaller when compared with *migrant* women (Figure 3.3 and Table 3.6 Model 6). In sum, mothering non-adult children, as compared to not having children, was less harmful to *migrant* women's well-being in terms of depression and happiness than *disadvantaged* and *privileged* women. But only having adult children, when compared to not having children, is more detrimental to *migrant* women's depression levels and self-rated health when compared with *privileged* women.

Table 3.6. Regression models of motherhood status and SES latent classes predicting women's well-being using the inverse probability of treatment weighting method (N=8,199)

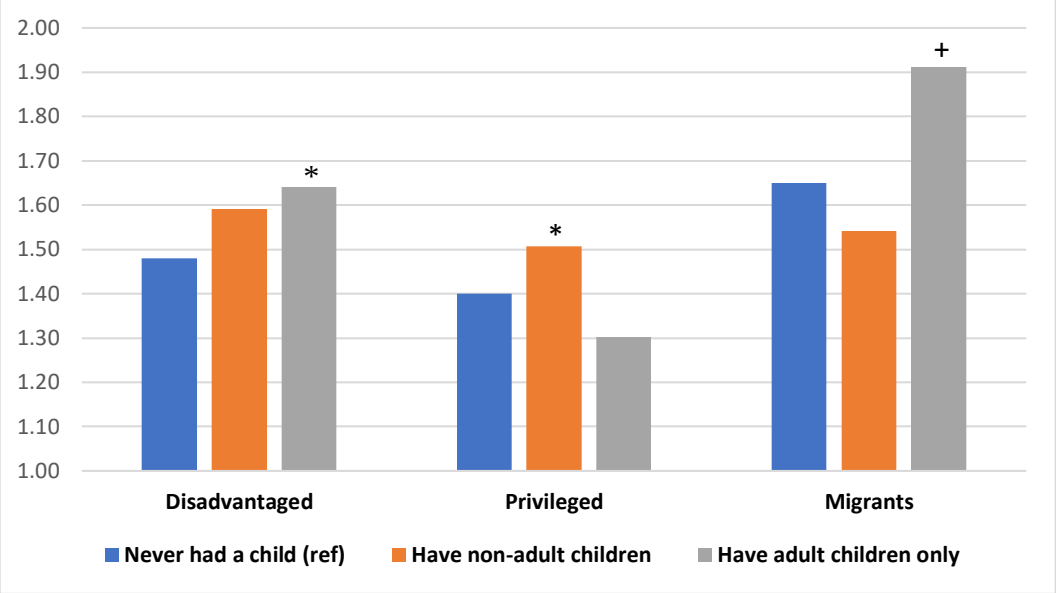
| | Model 1 | Model 2 | Model 3 | Model 4 | Model 5 | Model 6 |
|---|---|---|---|---|---|---|
| | Depression^ | Life satisfaction^ | family life satisfaction^ | Happiness^ | Future confidence^ | Self-rated health^ |
| Motherhood status (ref=never had a child) | | | | | | |
| Have non-adult children | -0.110 | -0.055 | -0.043 | 0.227 | 0.002 | -0.225+ |
| | (0.076) | (0.135) | (0.132) | (0.261) | (0.131) | (0.118) |
| Have adult children only | 0.261+ | -0.230 | -0.262 | -0.211 | 0.067 | -0.559*** |
| | (0.144) | (0.172) | (0.179) | (0.326) | (0.169) | (0.161) |
| SES latent class (ref=migrants) | | | | | | |
| Disadvantaged | -0.171+ | 0.186 | 0.125 | 0.425 | 0.008 | -0.156 |
| | (0.094) | (0.143) | (0.141) | (0.287) | (0.149) | (0.134) |
| Privileged | -0.250*** | 0.319* | 0.251* | 0.800*** | 0.094 | -0.139 |
| | (0.074) | (0.126) | (0.125) | (0.231) | (0.122) | (0.137) |
| Motherhood status*SES latent class | | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| Have non-adult children*Disadvantaged | 0.221* | -0.218 | -0.181 | -0.759* | 0.002 | 0.148 |
| | (0.099) | (0.153) | (0.148) | (0.315) | (0.164) | (0.149) |
| Have non-adult children*Privileged | 0.217** | -0.199 | -0.208 | -0.593* | -0.141 | 0.178 |
| | (0.084) | (0.135) | (0.135) | (0.252) | (0.134) | (0.147) |
| Have adult children only*Disadvantaged | -0.099 | -0.369 | -0.079 | -0.454 | -0.204 | 0.357+ |
| | (0.134) | (0.204) | (0.205) | (0.367) | (0.202) | (0.184) |
| Have adult children only*Privileged | -0.359* | -0.266 | 0.056 | -0.336 | 0.018 | 0.376+ |
| | (0.153) | (0.254) | (0.336) | (0.427) | (0.192) | (0.214) |
| Type of job (ref=do not work) | | | | | | |
| Agricultural work | -0.113+ | 0.216* | 0.002 | 0.073 | 0.312** | -0.171* |
| | (0.063) | (0.105) | (0.112) | (0.168) | (0.110) | (0.076) |
| Private business/self-employed | -0.019 | 0.169 | -0.013 | 0.186 | 0.217+ | 0.024 |
| | (0.074) | (0.108) | (0.106) | (0.225) | (0.111) | (0.103) |
| Waged job | 0.032 | 0.077 | -0.070 | -0.080 | 0.204* | -0.133* |
| | (0.055) | (0.081) | (0.089) | (0.145) | (0.095) | (0.066) |
| Age | 0.024 | -0.050 | -0.028 | -0.063 | 0.012 | -0.087* |
| | (0.022) | (0.042) | (0.040) | (0.063) | (0.029) | (0.036) |
| Age-squared | -0.000 | 0.001 | 0.000 | 0.001 | -0.000 | 0.001 |
| | (0.000) | (0.001) | (0.001) | (0.001) | (0.000) | (0.001) |
| Married | -0.132*** | 0.380*** | 0.305** | 0.765*** | 0.380*** | 0.022 |
| | (0.039) | (0.082) | (0.096) | (0.127) | (0.097) | (0.067) |
| No. of children aged 0-6 | -0.039 | 0.090+ | 0.052 | 0.022 | -0.032 | -0.001 |
| | (0.027) | (0.053) | (0.056) | (0.080) | (0.044) | (0.043) |
| No. of children aged 7-12 | 0.027 | 0.080 | 0.065 | -0.011 | -0.014 | 0.082+ |
| | (0.026) | (0.050) | (0.051) | (0.085) | (0.043) | (0.043) |
| No. of children aged 13-17 | 0.051 | 0.063 | 0.096+ | 0.007 | 0.063 | -0.012 |
| | (0.034) | (0.056) | (0.055) | (0.105) | (0.051) | (0.053) |
| No. of adult children | 0.030 | 0.191** | 0.147* | 0.222* | 0.101 | 0.048 |
| | (0.039) | (0.070) | (0.075) | (0.107) | (0.067) | (0.049) |
| Household structure (ref=single/couple) | | | | | | |
| Nuclear | -0.099 | -0.040 | -0.019 | 0.181 | 0.187 | 0.347** |
| | (0.073) | (0.117) | (0.111) | (0.241) | (0.123) | (0.120) |
| Multigenerational | -0.009 | -0.044 | -0.064 | 0.237 | 0.141 | 0.329** |
| | (0.081) | (0.121) | (0.117) | (0.267) | (0.142) | (0.126) |
| Constant | 1.388*** | 4.082*** | 4.121*** | 8.308*** | 3.660*** | 5.235*** |
| | (0.379) | (0.711) | (0.694) | (1.136) | (0.497) | (0.610) |

Source of data: China Family Panel Study, wave 2014

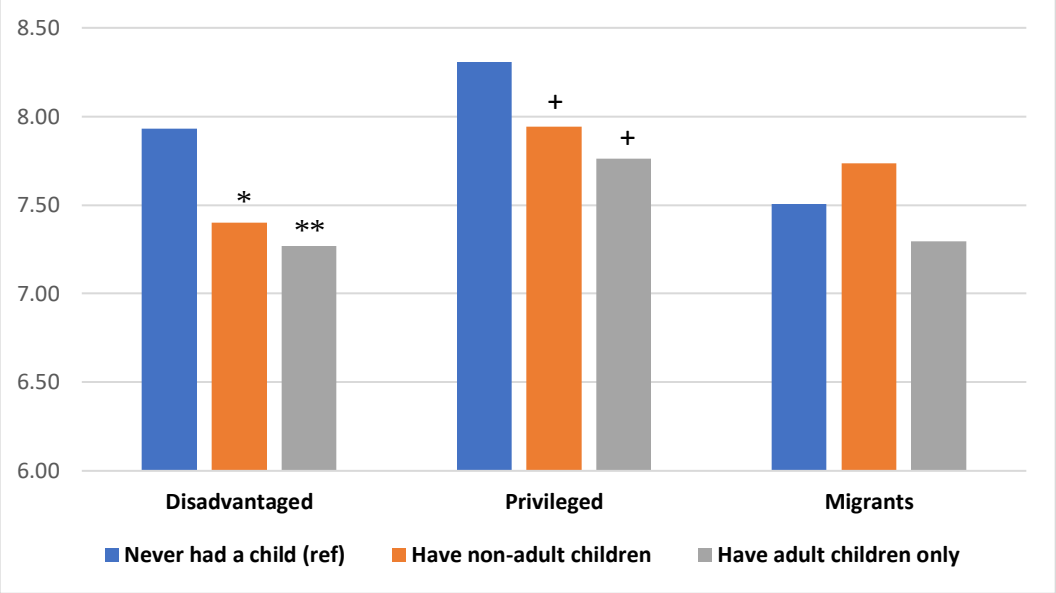
Notes: ^Higher scores indicating higher depression levels, greater life satisfaction, family life satisfaction, happiness, more confidence about the future, and better self-rated health. Results present regression coefficients with standard errors in parentheses. Coefficients for the province of residence were omitted to conserve space. + $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$.

Figure 3.1. Predicted means of women's depression by motherhood status and SES latent classes (N=8,199)



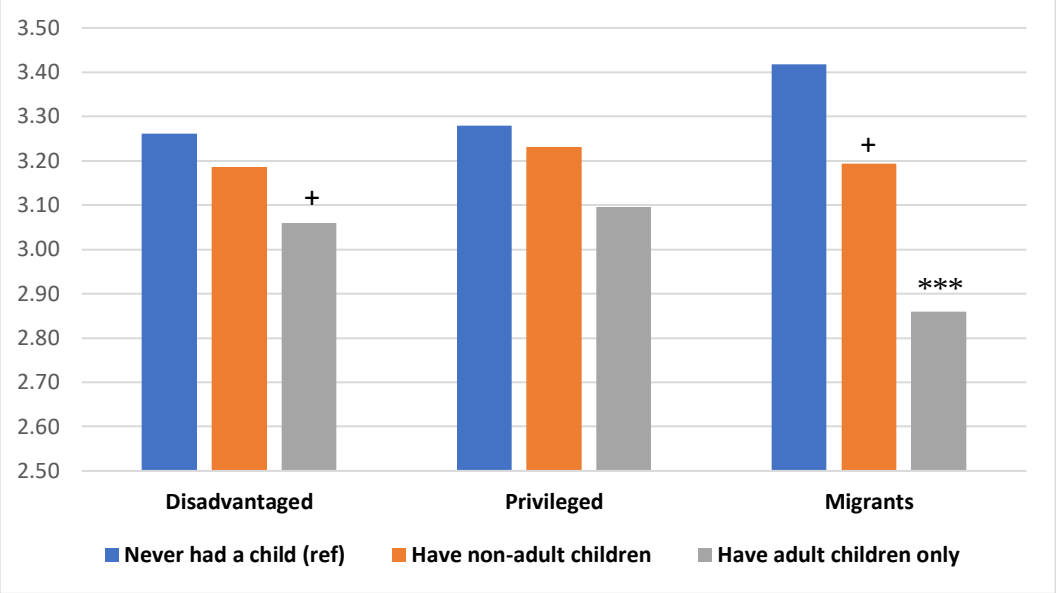

Source of data: China Family Panel Study, wave 2014
Notes: reference group = never had a child. + p < .10, * p < .05.

Figure 3.2. Predicted means of women's happiness by motherhood status and SES latent classes (N=8,199)




Source of data: China Family Panel Study, wave 2014
Notes: reference group = never had a child. + p < .10, * p < .05, ** p < .01.

Figure 3.3. Predicted means of women's self-rated health by motherhood status and SES latent classes (N=8,199)




Source of data: China Family Panel Study, wave 2014
Notes: reference group = never had a child. + p < .10, * p < .05, *** p < .001.

## ***Discussion***

Empirical studies in Western countries have found that although mothers perceive their times with children as happy and meaningful (Musick et al. 2016; Nelson et al. 2013; Offer 2014), on average, mothers fare worse than women not parenting children in multiple dimensions of well-being (Glass et al. 2016; Margolis and Myrskylä 2011; Negraia and Augustine 2020; Umberson, Pudrovska, and Reczek 2010). Using data from the China Family Panel Study, the results of this study show that despite the different national contexts, mothers in China also report worse well-being than women who have never had a child in terms of life satisfaction, family life satisfaction, happiness, and self-rated health. The pronatalist culture in China and the stigmatization of childlessness (Ji 2015; To 2013) do not seem to make motherhood more rewarding to women, or at least the rewards do not override the demands and costs of motherhood. Parenting itself can bring emotional, time, and financial demands and challenges

(Negraia and Augustine 2020; Pollmann-Schult 2014). In China, the implementation of the one-child policy and the intensified labor market competition in the past few decades have further pushed parents to invest heavily in childrearing, particularly children's education (Fong 2002, 2004; Short et al. 2001; Wei et al. 2016). Because the division of domestic labor in China is highly gendered (Chen 2005; Peng 2022; Zhao 2018), the increasing demands of parenting have mostly fallen on mothers. All these factors could have contributed to the negative effects of motherhood on Chinese women's well-being.

However, the results of this study also show that the impact of motherhood status on Chinese women's well-being is not universal, but vary by SES. The absence of a significant difference in depression levels between mothers with non-adult children and women without children can in part be attributed to the varying impact of motherhood based on SES. Among *privileged* and *disadvantaged* women, mothers with non-adult children tend to report greater depression than women without children, whereas among rural-to-urban *migrant* women with moderate income and education, the pattern is reversed. Similarly, *disadvantaged* and *privileged* mothers parenting non-adult children report less happiness than their peers without children, but the opposite is true among *migrant* workers. In other words, the negative effects of mothering non-adult children on women's well-being are less pronounced among *migrant* women compared to *privileged* and *disadvantaged* women.

For *disadvantaged* women, who live in rural areas with limited income and education, and rarely work for pay, the emotional costs of mothering non-adult children may mainly come from the lack of parenting and educational resources for their children. Mothers themselves may also have limited resources and abilities to cope with the depression and unhappiness they experience from parenting. *Privileged* mothers live in urban areas with high income and

education, hence have more resources to take care of their children and themselves. However, they also tend to have high parenting standards and practice intensive mothering by investing heavily in children's education and organizing children's extracurricular activities (Chi and Qian 2016; Crabb 2010; Tsang 2013; Wu 2013), which can be detrimental to mothers' well-being. Further, because *privileged* mothers usually work for pay and are likely to have high career aspirations given their high education levels, the conflicts between high workplace demands and high parenting standards, combined with the discriminations against women in workplaces may also make them find mothering to be less emotionally rewarding.

Rural-to-urban *migrants* also face difficulties in mothering. Without an urban household registration, their children may not be able to benefit from urban social welfare, receive high-quality education, or participate in high school and university entrance exams in urban areas (Hu and Szente 2010; Yan 2005; Zhou and Cheung 2017). But despite these challenges, mothering non-adult children is still less harmful to *migrant* women's well-being compared to *privileged* and *disadvantaged* women. One possible explanation is that rural mothers with limited education believe that by migrating to urban areas, their children would enjoy a better life and achieve upward mobility in the future (Murphy 2014). This expectation may make motherhood more emotionally rewarding and offset some of the depression and unhappiness brought by mothering children.

However, the advantage of migrant mothers no longer exists when it comes to mothers with only adult children. Compared with not having children, having adult children only is associated with greater depression and worse self-rated health for *migrant* women than for *privileged* women. This may be because living and working in urban areas without urban household registrations to access high-quality social welfare has cumulative negative effects on

*migrant* women's physical and mental health. The situation may be worse if their children fail to achieve the upward mobility they anticipate. In contrast, *privileged* women usually have more resources to safeguard their well-being in long term. Once the pressure of parenting non-adult children disappears, they are more capable of protecting their well-being from declining too fast.

Some limitations of this study are worth noting. First, due to measurement inconsistencies in women's employment status and the difficulty of constructing comparable SES latent classes across waves, I could not use longitudinal data to check the robustness of the results on SES heterogeneities. More attempts will be made in the future to address potential confounding and selection biases using longitudinal data. Second, constrained by the scope of the study and the availability of data, this paper cannot examine why motherhood has negative effects on women's well-being or why the effects vary by SES, but rely on existing literature to propose potential explanations. More quantitative and qualitative studies are needed in order to better understand the mechanisms behind the relationship between motherhood, SES, and Chinese women's well-being.

Despite these limitations, this study is among the first to provide evidence on how motherhood status would affect the well-being of young adult women (aged between 20 and 49) in China, as well as how the effects of motherhood vary by SES. By focusing on China, where the social context of motherhood shares both similarities and disparities with Western developed countries, the results of this study broaden the existing literature on the implication of motherhood on women's well-being. I also emphasize the importance of considering multiple SES indicators when examining how the impact of motherhood on women's well-being varies by SES in the context of China and propose latent class analysis as a novel method to portray Chinese women's SES.

The findings of this study can also inform efforts that aim to enhance women's well-being in China. To improve the well-being of mothers with non-adult children, special attention should be given to both *disadvantaged* and *privileged* mothers. Potential strategies include offering *disadvantaged* mothers financial and childcare support and addressing the workplace discrimination that many *privileged* mothers face. Among mothers with adult children only, more efforts should be made to protect the long-term physical and mental health of *migrant* and *disadvantaged* mothers by, for example, providing affordable health insurance and health care to people with agricultural household registrations.

## Chapter Four: Mothers' Parenting Stress and Children's Developmental Outcomes: The Moderating Effects of Maternal Education

### ***Introduction***

Mothers' high parenting stress, which refers to the stress mothers experience from their parental roles (Abidin 1992), is a well-documented predictor of adverse child outcomes, including poor cognition and sociobehavioral problems (Crum and Moreland 2017; Guajardo et al. 2009; Rodriguez 2011; Soltis et al. 2015). Children's cognitive and sociobehavioral problems are also found to play a critical role in determining mothers' parenting stress levels (Emerson 2003; Gupta 2007; Solem et al. 2011). Mothers' parenting stress and children's outcomes are, therefore, influencing each other bi-directionally over time (Jiang et al. 2023; Kochanova et al. 2022; Mackler et al. 2015; Stone et al. 2016; Woodman et al. 2015). However, so far, little is known about whether the bi-directional relationships between mothers' parenting stress and children's outcomes vary by socioeconomic status such as mothers' levels of education.

Current studies have presented mixed evidence on the effect of mothers' education levels on their parenting stress. While low education is found to put mothers at increased risks of financial strains, domestic conflicts, and hence emotional distress (Carrillo et al. 2017; Conger and Conger 2008; Cooper et al. 2009; Nomaguchi and Johnson 2016), highly educated women are found to gain less emotional rewards and experience more stress from motherhood than their less educated peers (Edin & Kefalas, 2005; Kushlev et al., 2012; Nomaguchi & Brown, 2011; Schieman et al., 2009). Mothers with higher education also tend to have higher parenting standards and emphasize the importance of their role in guaranteeing children's well-being (Hays, 1996; Lareau, 2003; M. K. Nelson, 2010), which can result in high parenting stress.

The inconsistent findings on how mothers' education predicts their parenting stress make it questionable whether the transactional relationships between mothers' parenting stress and children's outcomes vary by maternal education. For example, if highly educated mothers' parenting stress mainly comes from high parenting standards rather than economic hardships or poor family relationships, then high parenting stress may lead to better, instead of worse child outcomes. When facing children with poor developmental outcomes, highly educated mothers may also be less stressed as they usually have more resources to improve children's outcomes than their less educated peers. However, the opposite may also be true if highly educated mothers' high parenting standards make them feel particularly stressed when children have cognitive or sociobehavioral problems.

Using data from the second and fourth waves of Early Childhood Longitudinal Study: 2010-11 Kindergarten Class (ECLS-K: 2011), this study explores 1) the relationship between mothers' parenting stress and children's developmental outcomes, including their cognition and social skills and behaviors. Specifically, I apply a cross-lagged panel model (CLP) to examine whether the relationship is bi-directional with mothers' parenting stress and children's outcomes influencing each other over time. 2) I test how mothers' education moderates the relationship between mothers' parenting stress and children's outcomes.

Besides enriching evidence on the bi-directional relationships between mothers' parenting stress and children's outcomes, this study is among the first to examine if the transactional relationships differ by maternal education. Given the inconsistent findings on how maternal education predicts parenting stress, examining whether the mutually negative effects between parenting stress and child outcomes are universal is critical for understanding factors that determine the well-being of mothers and children. The findings of this study can also inform

initiatives aimed at reducing mothers' parenting stress and enhancing children's developmental outcomes among families across different socioeconomic statuses.

## ***Background***

### Parenting stress and children's outcomes

The important role of parents', particularly mothers' mental well-being in determining children's cognitive, social, and behavioral development has been well-documented (Cummings and Davies 2006; Grace, Evindar, and Stewart 2003; Kahn, Brandt, and Whitaker 2004; Leinonen, Solantaus, and Punamäki 2003; Manning and Gregoire 2009; Mensah and Kiernan 2010; Pierce et al. 2020; Smith 2004). Among the aspects of mothers' mental well-being, parenting stress is a well-established risk factor for adverse child outcomes, including poor cognitive outcomes, behavioral problems, and impaired social competence (Anthony et al. 2005; Crum and Moreland 2017; Eyberg, Boggs, and Rodriguez 1993; Guajardo et al. 2009; Rodriguez 2011; Soltis et al. 2015). Current studies have found mothers' high parenting stress to be closely associated with harsh parenting styles (Anthony et al. 2005; de Maat et al. 2021; Putnick et al. 2008) and greater child abuse potential (Nair et al. 2003; Rodriguez 2010; Rodriguez and Richardson 2007). These dysfunctional parenting behaviors can lead to poor child outcomes (Anthony et al. 2005; Deater-Deckard and Scarr 1996; Healy, Sanders, and Iyer 2015; de Maat et al. 2021).

Besides maternal parenting stress's impacts on children's outcomes, children's developmental delays and behavior problems are also found to play a role in exacerbating parenting stress (Baker et al. 2003; Emerson 2003; Gupta 2007; Ross et al. 1998; Solem et al. 2011). An increasing number of studies have examined if the relationship between parenting stress and children's outcomes is bi-directional with mothers' parenting stress and children's

outcomes influencing each other over time (Cappa et al. 2011; Jiang et al. 2023; Kochanova et al. 2022; Mackler et al. 2015; Neece and Baker 2008; Neece, Green, and Baker 2012; Stone et al. 2016; Woodman et al. 2015). These studies have generally supported the bi-directional relationship between mothers' parenting stress and children's sociobehavioral problems. But little is known about how mothers' parenting stress and children's cognitive development are influencing each other over time. Moreover, despite the evidence on the transactional effects between mothers' parenting stress and children's outcomes, almost no attention has been paid to whether the bi-directional relationships vary by mothers' socioeconomic status, particularly their levels of education.

**Maternal education, mothers' parenting stress, and children's outcomes**

There exists strong evidence that low maternal education has deleterious effects on a host of child outcomes, including cognitive development and behavioral problems (for example, Bradley and Corwyn 2002; Carneiro, Meghir, and Parey 2013; McLanahan 2004). Low maternal education impairs children's cognitive development as less educated mothers may not have the time and financial resources to provide cognitively stimulating materials (e.g., books and educational toys) or engage in activities such as reading with children and visiting museums or theatres (Augustine, Cavanagh, and Crosnoe 2009; Harding, Morris, and Hughes 2015; Huang et al. 2022; Weinert, Attig, and Roßbach 2017). Low education also puts mothers at an increased risk of emotional distress and intensifies conflicts between family members, which harms children's cognitive and sociobehavioral development by increasing the likelihood of harsh or neglecting parenting and compromising mother-child relationships (Huang et al. 2022; Masarik and Conger 2017).

Findings on the impact of mothers' education on their parenting stress and mental health, in contrast, are less consistent. Sociologists usually study the determinants of parenting stress using the family stress model and the role strain model as theoretical frameworks. The family stress model suggests that low-SES families usually experience more hazardous life events such as family dissolutions and violence, and face more chronic strains associated with economic hardship and unstable employment, which intensifies conflicts between family members and puts parents at increased risks of emotional distress (Conger and Conger 2008; Masarik and Conger 2017). Some empirical studies have also found that low education level, which is often correlated with low income, unpredictable work schedules, inadequate stress coping abilities, and poor support networks can heighten the stress experienced in parenting (Carrillo et al. 2017; Cooper et al. 2009; Nomaguchi and Johnson 2016).

The role strain theory argues that parents undergo stress when their resources and abilities fall short of fulfilling their expectations of parenting responsibilities. According to this viewpoint, lower SES mothers may indeed be susceptible to stress caused by strained mother-child relationships and role overload (i.e., when the demands of parenting exceed mothers' capacities). Nevertheless, mothers may also face role overload and role captivity (i.e., the feelings of being trapped by ones' parenting roles) related stress when they high expectations toward parenting responsibilities, or when they do not find parenting to be emotionally fulfilling (Abidin 1992; Nomaguchi and Milkie 2017, 2020; Pearlin 1989).

There is empirical evidence showing that socioeconomically disadvantaged women gain more emotional rewards from motherhood than their more privileged counterparts (Edin and Kefalas 2005; Kushlev et al. 2012; Schieman et al. 2009). In terms of maternal education, caring for minor children is found to be associated with more stress and fatigue only among women

with some college or higher education (Negraia and Augustine 2019), and having a college degree predicts greater parenting stress, particularly for White and Black mothers (Yan 2022). One study also finds that mothers with a college degree face less parenting anxiety, but greater role captivity, and less new life meaning from parenting than their peers without a college degree (Nomaguchi and Brown 2011).

Moreover, higher SES is also often linked to increased investments in childrearing and elevated parenting standards. Particularly, the concepts of "intensive mothering" and "concerted cultivation" have gained increasing popularity among middle and upper-class mothers as means to ensure their children's future social status. With an emphasis on mothers' accountability for their children's well-being, these ideologies prioritize mothers' roles in protecting their children and nurturing their capabilities for future success (Hays, 1996; Lareau, 2003; M. K. Nelson, 2010). Studies have documented the negative impact of intensive mothering on mothers' mental health (Gunderson & Barrett, 2017; Rizzo et al., 2013). Beliefs and behaviors such as viewing mothers as primary caregivers and the most necessary parents, and prioritizing children's needs over their own are found to be linked to greater stress and depression (Gunderson & Barrett, 2017; Rizzo et al., 2013).

Overall, existing studies have presented mixed evidence on the relationship between mothers' education levels and their experiences of parenting stress. The source of parenting stress also tends to vary by mothers' education. For mothers with lower education, economic hardship, lack of schedule control, and poor stress coping abilities tend to be the main causes of high parenting stress. Mothers with higher education may experience parenting stress mainly because their high career expectations and intensive mothering standards are competing for their limited time and energy.

Given both mothers' parenting stress and children's developmental outcomes vary by mothers' levels of education, the bi-directional relationships between mothers' parenting stress and children's outcomes are likely to be conditioned by maternal education. However, with inconsistent findings on the relationship between mothers' education levels and parenting stress, it is unclear how maternal education may moderate the bi-directional relationships. Compared with mothers with higher education, high parenting stress may predict worse child outcomes among mothers with lower education. As mentioned above, practices such as intensive mothering and concerted cultivation require mothers to make great financial, time, and emotional investments into childrearing. If high mothering standards and intensive mothering practices are important sources of highly educated mothers' parenting stress, then high parenting stress may predict better, instead of worse developmental outcomes for children. Further, mothers with higher education usually have more resources to cope with the stress they face than their less educated peers, which may reduce the negative effects of high parenting stress on children's development. Similarly, when children have poor cognitions or sociobehavioral problems, mothers with higher education may also feel less stressed than less educated mothers as they often have more resources and abilities to invest in children's development and improve children's outcomes.

However, holding high mothering standards may also make mothers feel particularly stressed when their children have poor cognition or sociobehavioral problems. If this is the case, then poor child outcomes may result in higher parenting stress for mothers with more education. Further, as discussed above, compared with women with lower education, highly educated women gain less emotional rewards and experience more role captivity from their parenting

roles. Having children with poor cognition or sociobehavioral problems may further intensify their feelings of being trapped by mothering roles, resulting in particularly high parenting stress.

### The present study

In this study, I explore the transactional relationships between mothers' parenting stress and children's developmental outcomes (cognition and social skills and behaviors), paying special attention to how maternal education moderates the relationships. Using data from the second and fourth wave of Early Childhood Longitudinal Study: 2010-11 Kindergarten Class (ECLS-K: 2011), I ask the following questions:

1. How do mothers' parenting stress and children's cognition and social skills influence each other bi-directionally over time?
2. How do mothers' education levels moderate the relationships between mothers' parenting stress and children's cognitions and social skills and behaviors?

## ***Data and Methods***

### Data

The Early Childhood Longitudinal Study: 2010-11 Kindergarten Class (ECLS-K: 2011) is a nationally representative and longitudinal study of American children. I used the second (Spring kindergarten) and fourth (Spring first grade) waves of the data, where mothers' parenting stress[4], direct assessments of children's cognitions, and teachers' reports of children's social skills and behaviors were all available. The second wave of data was collected from 10,693 children and

[4] The parenting stress data was also available in the nineth wave. I did not use the data due to the high attrition rate.

their parents. I dropped cases for which the parent was not the child's biological mother[5], reducing the sample size to 9,160. Around 80 percent (N=7,225) of the mothers and children in wave 2 were reinterviewed in wave 4. I used the sample weight suggested by the ECLS-K: 2011 to adjust for the bias caused by sample attrition. The sampled children's average ages were 6.1 years old (range between 4.4 and 7.5) in wave 2 and 7.1 years old (range between 5.3 and 8.8) in wave 4.

**Measures**

*Mothers' parenting stress*. Mothers' parenting stress in wave 2 and wave 4 were measured by their levels of agreement (*1= not at all true, 2= somewhat true, 3= mostly true, 4= completely true*) to the following four statements derived from Abidin's (1990) Parenting Stress Index: (1) "Being parent is harder than expected", (2) "Child does things that bother me", (3) "I sacrifice to meet the child's need", and (4) "I often feel angry with the child". Higher scores indicated higher levels of parenting stress. The Cronbach's alpha score was 0.56 in wave 2 and 0.59 in wave 4, which suggests there is a lack of consistency in mothers' responses to these four statements (Tavakol and Dennick 2011). To examine if the bi-directional relationships between mothers' parenting stress and children's outcomes were consistent across different statements of parenting stress, I used the parenting stress index in two ways: a) take the average score of the four statements (i.e., the conventional way of using the parenting stress index), and b) use the four statements independently. Table 4.1 shows the sample means of mothers' overall parenting stress levels and scores on each statement. From wave 2 to wave 4, mothers' stress levels decreased significantly on most statements. The only exception is the statement "I often feel angry with the child", which remained consistent between waves.

[5] A small number of non-biological mothers (232) were not included in the sample because the mother may not be the same person in different waves.

*Children's cognitive outcomes*. The ECLS-K: 2011 conducted direct cognitive assessments to measure children's knowledge and skills in reading, mathematics, and science in all rounds of data collection. The assessments were administered directly to the sampled children on an individual basis by certified child assessors. Children's assessment scores were calculated using Item-Response Theory (IRT) procedures, which enables longitudinal measurement of gains in achievement even when the assessment administered to a child are not identical at each time point (Tourangeau et al. 2019). The range of possible IRT scale scores was 0-205 for reading, 0-206 for mathematics, and 0-130 for science. I took the sum of children's reading, mathematics, and science scores and then standardized the score (ranging between -2.74 and 4.55 in wave 2, and between -3.71 and 3.35 in wave 4). Because the assessment questions were adjusted across waves to ensure the assessments adequately measure children's knowledge and skills as they progressed through school, children's mean cognitive scores were similar in two waves (Table 4.1).

*Children's social skills and behaviors*. Children's teachers reported how often their students exhibited certain social skills and behaviors using a four-option frequency scale ranging from "never (1)" to "very often (4)". The items measuring children's social skills and behaviors came from the Social Skill Rating System (Gresham and Elliott 1990), which included measures of children's self-control, interpersonal skills, externalizing behavior problems, and internalizing behavior problems. I took the average of children's scores on these four measures after reversely coding internalizing and externalizing behavior problems ($\alpha$=0.82 in wave 2 and 0.81 in wave 4). Higher scores indicated better social skills and behaviors. Compared to wave 2, children's average social skill scores were lower in wave 4 (Table 4.1).

*Mothers' education* was measured by their levels of education (*college degree and no college degree*) in wave 2. Mothers' education levels maintained stable between waves (Table 4.1). Only one mother gained a college degree between wave 2 and wave 4.

*Control variables* included mothers' age, race-ethnicity (*White, Black, Hispanic, Asian, and others*), nativity (*native-born and foreign-born*), as well as mothers' marital status (*married and not married*), employment status (*employed and not employed*), and household income (*18 consecutive categories started from $5,000 or less and ended with $200,001 or more*) in wave 2 and wave 4. I also controlled for the interviewed children's sex (boy or girl), age at the time of assessment, as well as the number of pre-school age children (0-7) at home, the number of school age children (8-17) at home, and age of the youngest household child in waves 2 and 4.

Table 4.1. Descriptive statistics of the analytic sample

| | Wave 2 | Wave 4 | |
|---|---|---|---|
| Mother's parenting stress | 1.94 | 1.66 | *** |
| | (0.61) | (0.53) | |
| "Being a parent is harder than expected" | 2.89 | 2.31 | *** |
| | (1.16) | (1.03) | |
| "Child does things that bother me" | 1.69 | 1.53 | *** |
| | (0.78) | (0.65) | |
| "I sacrifice to meet the child's needs" | 1.94 | 1.56 | *** |
| | (1.13) | (0.89) | |
| "I often feel angry with the child" | 1.25 | 1.24 | |
| | (0.50) | (0.47) | |
| Child's cognitive scores (standardized) | 0.12 | 0.13 | |
| | (0.99) | (0.99) | |
| Child's social skills | 3.34 | 3.30 | *** |
| | (0.47) | (0.47) | |
| Mother has a college degree (%) | 34.0 | 34.0 | |
| Mother's age (years) | 33.95 | 34.95 | *** |
| | (5.92) | (5.92) | |
| Mother's race-ethnicity (%) | | | |
| White | 62.1 | 62.1 | |
| Black | 12.5 | 12.5 | |
| Hispanic | 19.4 | 19.4 | |
| Asian | 3.1 | 3.1 | |
| Others | 2.9 | 2.9 | |
| Mother is employed (%) | 62.6 | 67.6 | *** |
| Mother is married (%) | 71.5 | 72.0 | |
| Age of the interviewed child (months) | 73.50 | 85.51 | *** |
| | (4.49) | (4.46) | |
| Interviewed child is a girl (%) | 48.3 | 48.3 | |
| Number of household children aged 0-7 | 1.68 | 1.06 | *** |

| | | | |
|---|---|---|---|
| | (0.79) | (0.92) | |
| Number of household children aged 8-17 | 0.90 | 1.52 | *** |
| | (1.00) | (1.08) | |
| Age of the youngest household child (years) | 0.89 | 0.95 | *** |
| | (0.32) | (0.22) | |

Note: Descriptive statistics of household income were shown in Appendix Table A2 to conserve space. *** p<0.001.

**Analytic strategies**

To examine the relationship between mothers' parenting stress levels and children's outcomes, I conducted a cross-lagged panel (CLP) analysis, which can test the directional relationship between two or more variables measured over time (Kline 2015). Figure 4.1 shows the hypothesized cross-lagged relationships between mothers' parenting stress and children's outcomes. The coefficients of paths B1 and B2 indicated the importance of the wave 2 variable in predicting the same variable in wave 4 (e.g., how mothers' parenting stress in wave 2 predicted their parenting stress in wave 4). The double-arrow paths C1 and C2 represented the correlation between mothers' parenting stress and children's cognitive outcomes measured at the same time point. The main focus of this study is the strength of the cross-lagged coefficients of paths A1 and A2, or in other words the effects of one variable on the other over time. If the coefficient of A1 (i.e. mothers' parenting stress in wave 2 predicting children's outcomes in wave 4) is significantly different from zero, then changes in mothers' parenting stress would result in changes in children's outcomes. Similarly, if the coefficient of A2 (i.e. children's outcomes in wave 2 predicting mothers' parenting stress in wave 4) is significantly different from zero, then changes in children's outcomes would lead to changes in mothers' parenting stress.

To further explore the moderating effects of mothers' education levels, I tested how the coefficients of paths A1, A2, B1, and B2 vary according to mothers' education (see Figure 4.2). I

paid special attention to whether the coefficients of paths A1a and A1b are significantly different, as well as whether those of paths A2a and A2b are significantly different.

Figure 4.1. Hypothesized cross-lagged relationships between mothers' parenting stress and children's outcomes.

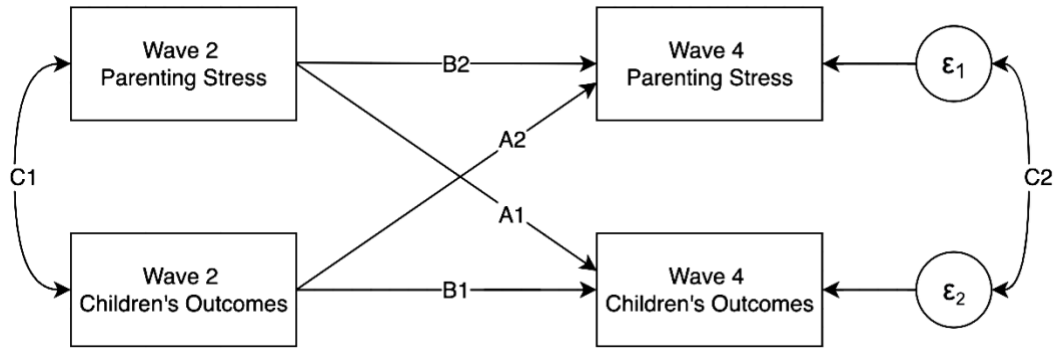
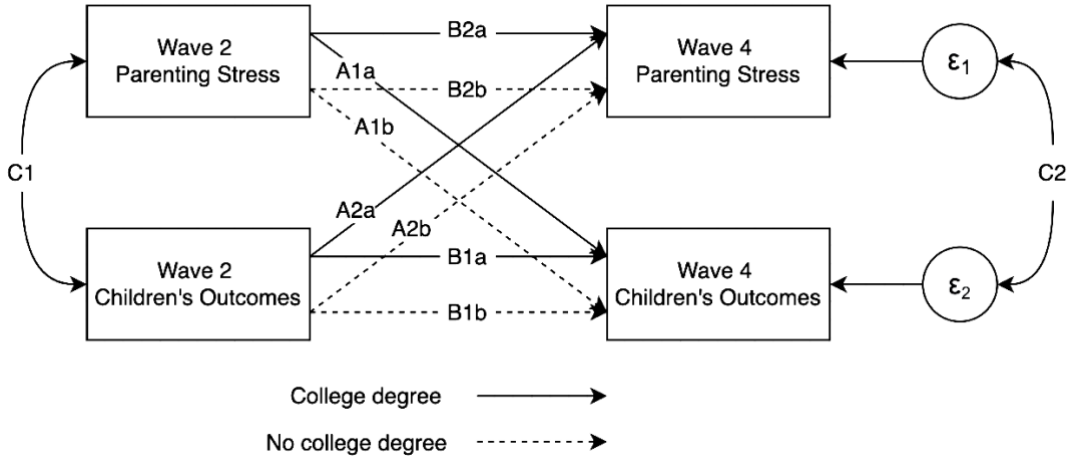



Figure 4.2. Hypothesized cross-lagged relationships between mothers' parenting stress and children's outcomes, and the moderating effects of mothers' education.



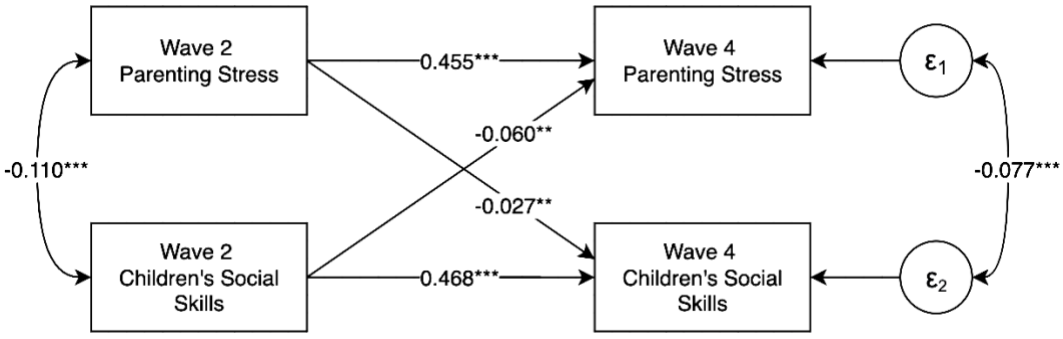

## ***Results***

### Mothers' parenting stress and children's outcomes

To examine bi-directional relationships between mothers' parenting stress and children's developmental outcomes, I first conducted CLP analysis using mothers' overall parenting stress levels (i.e., average scores of the four parenting stress statements) and children's scores on cognitions and social skills and behaviors in wave 2 and wave 4. Significant transactional effects

over time were observed between mothers' parenting stress and children's social skills and behaviors. Figure 4.3 shows the standardized coefficients. Mothers having high parenting stress in wave 2 would result in children having low scores on social skills and behaviors in wave 4 ($\beta = -0.027$, $p<0.01$). In return, children having low scores on social skills and behaviors in wave 2 also led to high parenting stress in wave 4 ($\beta = -0.060$, $p<0.01$). Regarding effect size, the effect of social skills on parenting stress was larger than that of parenting stress on social skills. No significant transactional effects were observed between mothers' parenting stress and children's cognitive outcomes (results not presented).

Figure 4.3. The bi-directional relationship between mothers' parenting stress (average scores of four statements) and children's social skills



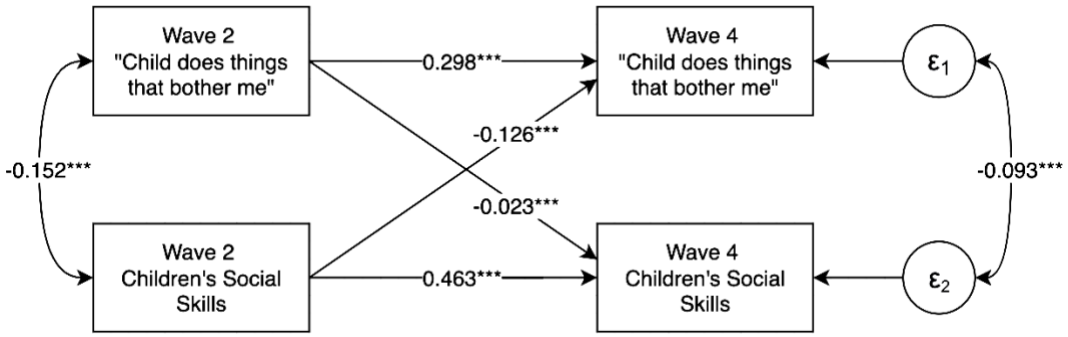

Notes: Results present standardized coefficients. ** p<0.01, *** p<0.001.

Due to the lack of consistency in mothers' responses to different statements of the parenting stress index, I further conducted CLP analyses using each parenting stress statement and children's outcomes. As shown in Figure 4.4a, Mothers' feelings of "Child does things that bother me" in wave 2 negatively predicted children's social skills and behaviors in wave 4 ($\beta = -0.023$, $p<0.001$). Children's social skills in wave 2 also negatively predicted mothers' feelings of being bothered by children in wave 4 ($\beta = -0.126$, $p<0.001$). Significant transaction effects could also be found between mothers' levels of "I often feel angry with the child" and children's social skills and behaviors with mothers' likelihood of feeling angry and children's social skills

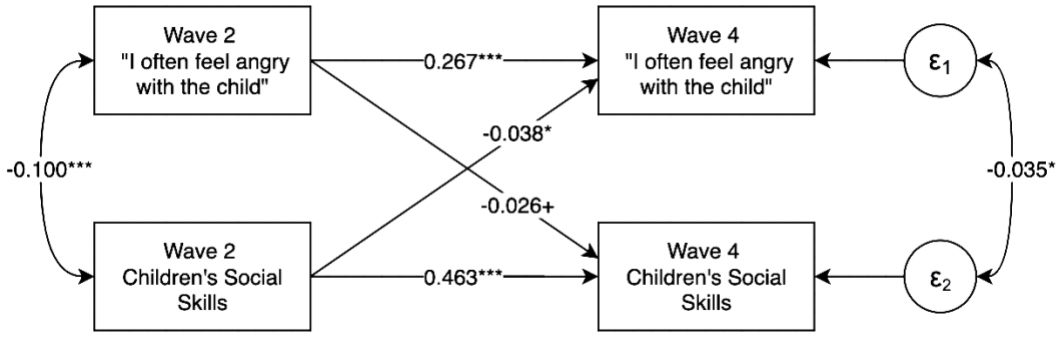
negatively affecting each other over time (Figure 4.4b). Children's social skills and behaviors in wave 2 had a marginally significantly negative effect on mothers' levels of "I sacrifice to meet the child's needs" in wave 4 ($\beta$ = -0.060, $p<0.10$), but the impact of mothers' sacrifices in wave 2 on children's social skills in wave 4 was minor and non-significant (Figure 4.4c). No significant transactional effects were observed between mothers' feelings of "Being a parent is harder than expected" and children's social skills and behaviors (results not presented). Further, although as mentioned above, no significant effects were found between mothers' overall parenting stress and children's cognitive outcomes, when looking at each individual parenting stress statement, it can be seen that mothers' levels of "I often feel angry with the child" in wave 2 negatively predicted children's cognitive scores in wave 4 ($\beta$ = -0.040, $p<0.01$). But the effect of children's cognitions on mothers' feelings of anger was minor and non-significant (Figure 4.4d).

Figure 4.4. The bi-directional relationship between mothers' scores on parenting stress statements and children's outcomes

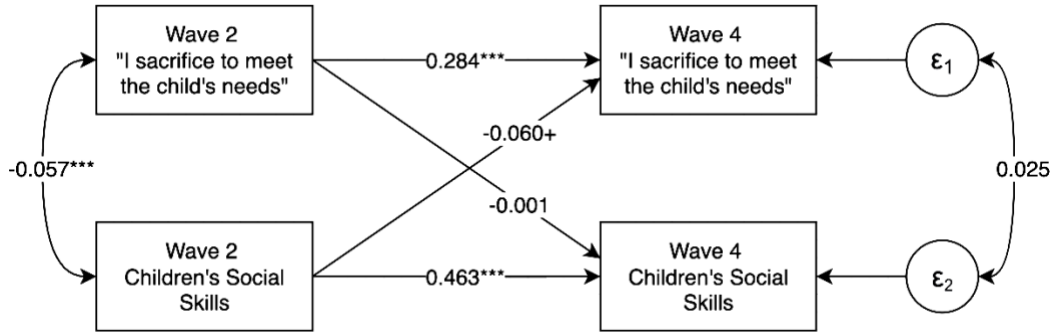
(a)



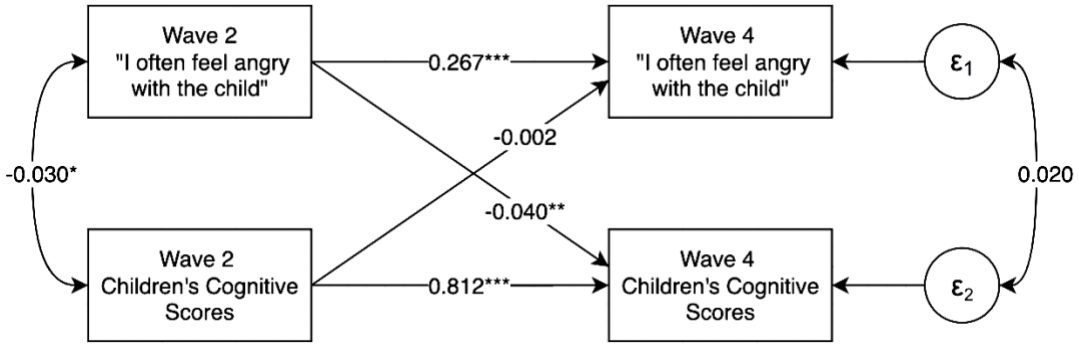

(b)



(c)




(d)




Notes: Results present standardized coefficients. + p<0.1, * p<0.05, ** p<0.01, *** p<0.001.

**The moderating effects of maternal education**

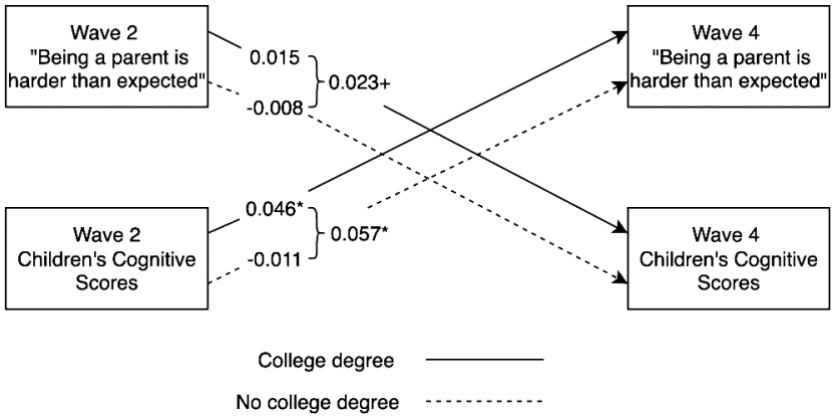
To investigate the moderating effects of mothers' education, I tested whether the bi-directional effects between mothers' responses to each parenting stress statement and children's developmental outcomes vary by mothers' education levels in wave 2. Figure 4.5 presents results where significant or marginally significant differences by education were observed. As can be seen in Figure 4.5a, among mothers without a college degree, reporting "being a parent is harder than expected" in wave 2 tended to negatively affect children's cognitive outcomes in wave 4, although the effect was not significant. In contrast, a marginally significantly different pattern could be observed among mothers who had a college degree with finding parenting hard in wave 2 positively affecting children's cognitions in wave 4. Similarly, Figure 4.5c shows that mothers' feelings of "I often feel angry with the child" influenced children's social skills and behaviors

negatively among mothers without a college degree, but positively among those with a college degree (not significant), and the difference by maternal education was significant.

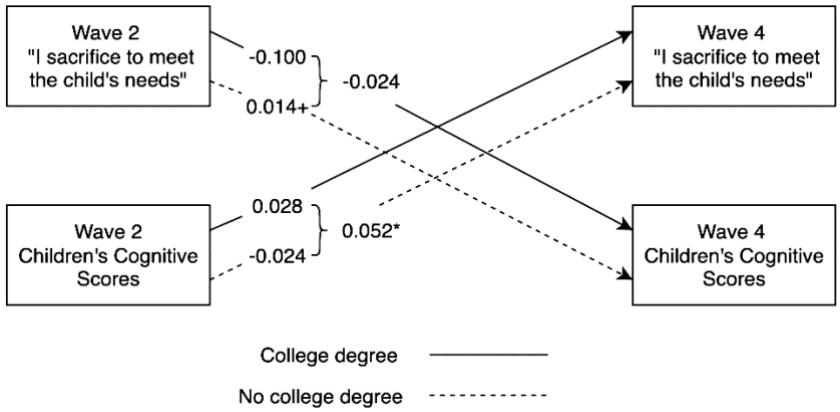
In terms of children's impacts on mothers, children's cognitions in wave 2 affect mothers' feelings of "being a parent is harder than expected" in wave 4 negatively among mothers without a college degree, whereas, a significantly opposite pattern could be found among college-educated mothers (Figure 4.5a). Further, children's cognitions in wave 2 tended to influence mothers' levels of "I sacrifice to meet children's needs" in wave 4 negatively for mothers without a college education, but positively for mothers with a college degree, and the difference by maternal education was significant (Figure 4.5b). In sum, both the harm of high parenting stress on children's outcomes and the negative impact of children's poor outcomes on parenting stress are worse among mothers without a college degree.

Figure 4.5. The bi-directional relationship between mothers' scores on parenting stress statements and children's outcomes and the moderating effects of mothers' education.

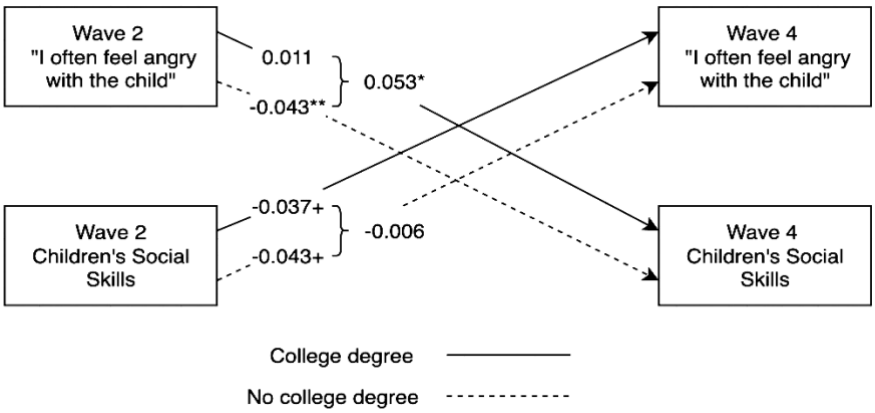
(a)



(b)




(c)




Notes: Results present standardized coefficients. + p<0.1, * p<0.05, ** p<0.01, *** p<0.001.

## ***Discussion***

Do mothers' parenting stress and children's developmental outcomes influence each other over time? Consistent with many existing research, this study finds bi-directional relationships between mothers' parenting stress and children's social skills and behaviors. Mothers having high parenting stress has a negative impact on children's social skills and behaviors. Children's sociobehavioral problems, in return, also lead to high parenting stress among mothers. However, when running analyses with each parenting stress statement respectively, it can be seen that the transactional effects between parenting stress and social skills mainly exist in two parenting stress statements: "child does things that bother me" and "I often feel angry with the child".

While children's sociobehavioral problems also negatively affect mothers' feelings "I sacrifice to meet the child's needs", the reverse is not true. And no significant effects were found between "being a parent is harder than expected" and children's social skills in either direction. This may be because finding parenting to be hard or making sacrifices to meet children's needs do not necessarily lead to dysfunctional parenting behaviors such as harsh parenting and child abuses, hence have limited negative effects on children's social skill and behavioral development. It is less clear why children's sociobehavioral problems can adversely affect mother-child relationships and make mothers feel over-sacrificed, but do not result in mothers feeling being a parent is harder than expected. One possible explanation is that some of younger children's sociobehavioral problems are not unexpected by many mothers. While these problems would make parenting hard, it may not be harder than many mothers anticipated.

No significant transactional relationships were observed between mothers' overall parenting stress levels and children's cognitive outcomes. The only notable effect identified is that mothers "often feel angry with the child" negatively influences children's cognitive development. This may be because children in the sample are still too young (in kindergarten or first grade) for their mothers to feel highly stressed about delays in their cognitive development. And young children's cognitive development may not be very sensitive to their mothers' parenting stress yet, but is determined more by their own temperament, health, or other biological factors (Guez et al. 2021; Martin and Holbrook 1985; Valiente, Lemery-Chalfant, and Swanson 2010). However, when examining the moderating effects of maternal education, it can be seen that the lack of transactional relationships between parenting stress and children's cognition can also partly be attributed to the differing effects observed between mothers with and without a college degree.

The impacts of children's cognitive scores on mothers' feelings of "being a parent is harder than expected" and "I sacrifice to meet the child's needs" tend to be negative when mothers do not have a college degree, but positive among mothers with a college degree. In other words, children having high cognitive scores would make college-educated mothers feel more, instead of less parenting stress. The effects of mothers' feelings of "being a parent is harder than expected" on children's cognition also vary significantly by mothers' educational levels. Finding parenting hard negatively predicted children's cognitive scores among mothers without a college degree, but the opposite is true among those with a college degree. A similar pattern can also be observed in how mothers' feelings of "I often feel angry with the child" affect children's social skills and behaviors.

Overall, the results of the moderation analysis suggest that both the harm of high parenting stress on children's outcomes and the negative effect of children's poor developmental outcomes on parenting stress are more pronounced when mothers do not have a college degree. This could be because mothers with a college degree have more resources and coping abilities to manage the stress they encounter in parenting. Hence, high parenting stress may not necessarily result in dysfunctional parenting behaviors or poor mother-child relationships, which could adversely affect children's cognitive and sociobehavioral development (Huang et al. 2022; Masarik and Conger 2017). Many highly educated mothers' parenting stress may also come from high parenting standards and their practices of intensive mothering, which may benefit, instead of harm children's development.

Highly educated mothers may not be very stressed when their children have developmental delays either, as they usually have more resources to improve their children's outcomes. Further, empirical studies have found that socioeconomically disadvantaged women

perceive their mothering roles as more important and meaningful than their more privileged peers (Huang et al. 2022; Masarik and Conger 2017; Nomaguchi and Brown 2011). Consequently, children having poor developmental outcomes may be perceived as more stressful for less educated mothers. Highly educated mothers' high parenting standards and their practices of intensive mothering and concerted cultivation do not seem to make them feel more stressed about their children's poor outcomes. Instead, college-educated mothers report greater stress, especially in terms of "being a parent is harder than expected" when their children have higher cognitive scores. This may be because children's outstanding cognitive performance would push highly educated mothers, especially those who practice intensive mothering and concerted cultivation, to invest more into children's development and spend more time negotiating with their children.

Some limitations of this study are worth noting. First, mothers' parenting stress levels vary by parenting stages and children's age (Nomaguchi and Milkie 2017, 2020). The average ages of the sampled children are 6.1 in wave 2 and 7.1 in wave 4. The results of this study, therefore, may not be generalized to mothers with younger or older children. Second, constrained by the length and scope of this study, I only examine the moderating effects of mothers' education. Future studies can explore how maternal education, when combined with other socioeconomic indicators such as income and employment status would moderate the transactional effects between mothers' parenting stress and children's outcomes.

Despite these limitations, this study has enriched evidence on the bi-directional relationships between mothers' parenting stress and children's outcomes. It points out that not all dimensions of parenting stress are equally related to children's outcomes. The transactional effects mainly exist in mothers' feelings of "child does things that bother me" and "I often feel

angry with the child". This research is also among the first to explore how mothers' education levels moderate the relationships between parenting stress and children's outcomes. Given the mixed evidence on how mothers' education influences their parenting stress, it is critical to explore if the negative effects of high parenting stress on children's outcomes are universal, as well as if children's poor developmental outcomes are important sources of parenting stress for all mothers. Because the mutually negative effects between parenting stress and child outcomes are more pronounced among mothers without a college degree, the results call for social interventions, such as high-quality and affordable childcare, to reduce mothers' parenting stress and improve children's developmental outcomes in families with lower socioeconomic status.

## Chapter Five: Conclusion

Using data from the Early Childhood Longitudinal Study: 2010-11 Kindergarten Class and the China Family Panel Study, this dissertation answers three sets of research questions. (1) Are there racial-ethnic differences in U.S. mothers' parenting stress and its associations with depression? To capture the multidimensionality of mothers' parenting stress, I conduct latent profile analysis to construct four types of parenting stress and find that mothers' allocation among the four types of parenting stress differs by race and ethnicity. The relationships between parenting stress and depression also vary by race-ethnicity among mothers who face the same type of parenting stress.

(2) Do Chinese mothers aged between 20 and 49 report worse well-being than their peers who have never had a child? And does the effect of motherhood on women's well-being vary by women's SES? The results show that while mothers generally report worse well-being than women who have never had a child, mothering non-adult children (as compared to not having children) is less harmful to rural-to-urban *migrant* women with moderate income and education than their more *disadvantaged* and *privileged* peers. But only having adult children (when compared to not having children) is more harmful to *migrant* women's well-being than *privileged* women.

(3) How do U.S. mothers' parenting stress and children's developmental outcomes influence each other bi-directionally over time? And how do mothers' education levels moderate the relationships? By conducting cross-lagged panel analyses, I find negative mutual relationships between mothers' parenting stress and children's sociobehavioral outcomes over time. But both the harm of high parenting stress on children's outcomes and the detrimental

impact of children's poor outcomes on parenting stress are more pronounced among mothers without a college degree.

By answering these questions, this dissertation extends the existing literature, enabling a deeper and more comprehensive understanding of racial-ethnic and SES differences in mothers' well-being and its relationships with children's developmental outcomes. First, this dissertation highlights the lack of consistency in mothers' responses to different statements of the parenting stress index that has been widely used by large-scale social surveys. By addressing the multidimensionality of mothers' parenting stress, I depict a more detailed and systematic picture of racial-ethnic disparities in U.S. mothers' parenting stress and clarify racial-ethnic heterogeneities in how different types of parenting stress are associated with depression levels. I hence offer more empirical evidence on racial-ethnic differences in the mental health consequences of mothering, where current findings are still limited and inconsistent.

Second, this dissertation is among the first to provide empirical evidence on how motherhood status affects the well-being of young adult women (aged between 20 and 49) in China, as well as how these effects vary according to SES. By focusing on China, where the social context of motherhood shares both similarities and disparities with Western developed countries, the results of this dissertation expand upon existing literature concerning the implications of motherhood on women's well-being. Through the examination of SES as a moderator, I also add to the current inconsistent findings regarding SES disparities in the effects of motherhood on women's well-being, and shed light on the importance of utilizing context-specific SES indicators when studying the effects of SES in various national contexts.

Third, this dissertation has enriched evidence on the bi-directional relationships between mothers' parenting stress and children's outcomes by pointing out that not all dimensions of

maternal parenting stress are equally associated with children's developmental outcomes. The bi-directional relationships mainly exist between mothers' stress levels on parent-child relationships and children's outcomes. It is also among the first to reveal that the negative transactional relationships between parenting stress and child outcomes over time mainly exist among mothers without a college degree. Besides informing research on the reproduction of inequalities within families, the findings also contribute to the literature on SES inequalities in mothers' well-being. Children's poor developmental outcomes are critical triggers of high parenting stress, but primarily among socioeconomically disadvantaged mothers.

Besides advancing empirical knowledge, this dissertation has also made theoretical contributions by deepening the understanding of the stress process model. Current studies that apply the stress process model to examine social heterogeneities in how stress would lead to poor mental health outcomes usually focus only on social inequalities in people's resources and abilities to cope with the stress they face. The findings of this dissertation, nevertheless, move beyond the coping resources and point out that first, stressors like parenting stress can be multidimensional, which may complicate social disparities in people's exposures to stressors. Second, the same stressor may also have different meanings for people with diverse social backgrounds. I, therefore, call for more attention to social heterogeneities in how people perceive and interpret the stressors they encounter.

Moreover, current studies usually interpret the determinants of parenting stress through the lenses of the family stress model and the role strain theory. According to the findings of this dissertation, while the family stress model correctly identifies how low SES can heighten the risk of emotional distress among mothers, it fails to account for the intensive parenting standards that high SES mothers hold and the conflicts arising from their high parenting standards and high

career aspirations. In contrast, from the perspective of role strain theory, the lack of parenting resources, high parenting standards, and high career aspirations could all contribute to mothers' feelings of role overload, role captivity, role captivity, and hence high parenting stress. The role strain theory, therefore, seems to offer a theoretical framework for a more systematic understanding of SES differences in mothers' well-being.

Methodologically, chapter two of this dissertation highlights the limitation of the current measure of parenting stress in large-scale social surveys. Due to the lack of consistency in mothers' responses to different statements of the parenting stress index, taking the sum or average of mothers' responses (i.e., the method commonly adopted by current studies) may overlook the multidimensionality of mothers' parenting stress and mothers' inconsistent stress levels across different dimensions of parenting stress. I present latent profile analysis as a novel method to address the multidimensionality of mothers' parenting stress. The findings of chapter two suggest this method is effective in uncovering the complexity of racial-ethnic disparities in U.S. mothers' parenting stress, and hence can continue to be employed to further investigate social inequalities in mothers' experiences of parental role strains and mental well-being. Further, the racial-ethnic differences in mothers' parenting experiences and the types of parenting stress they face underscore the need for further examining whether the current parenting stress index can properly reflect the parenting-related stress experienced by mothers from various social backgrounds.

In chapter three, I show that in the context of China, the moderating effects of different SES indicators on the well-being consequences of motherhood are inconsistent and that relying on individual SES indicators is inadequate for capturing the full effects of SES. I suggest that constructing SES classes using latent class analysis can examine the moderating effects of SES

in a more comprehensive way, which is critical for advancing the empirical and theoretical understanding of SES differences in mothers' well-being. The difficulties of constructing SES latent classes that can both be compared over time and properly address the rapid economic development in China in recent years also call for more innovative methods to measure Chinese people's SES.

In terms of policy implications, the findings of this dissertation first call for racially diverse strategies to protect U.S. mothers' mental well-being. For example, more stress-relieving interventions such as financial and childcare support should be provided to Black mothers as high parenting stress is associated with a particularly high depression level among Black mothers. In terms of Asian mothers, special attention should be paid to improving mother-child relationships as Asian mothers' depression levels seem to be especially sensitive to their stress levels on mother-child relationships. Second, alleviating mothers' childrearing burdens is a crucial strategy for enhancing women's well-being in China, where childbirth has been almost universal and the vast majority of women will enter into motherhood. The rapid decline of the birth rate in recent years also underscores the importance of reducing mothers' childcare burdens. Nevertheless, given the complex findings regarding how SES moderates the effects of motherhood on women's well-being in China, tailored strategies are needed for mothers of different SES. For example, to improve the well-being of mothers who are parenting non-adult children, special attention needs to be directed toward disadvantaged rural mothers with limited income and education, as well as privileged urban mothers with high income and education. Potential strategies include offering disadvantaged mothers financial and childcare support, as well as reducing privileged mothers' work-family conflicts by addressing discrimination against women and mothers in the workplace. Third, because in the U.S., both the harm of high

parenting stress on children's outcomes and the detrimental impact of children's developmental problems on parenting stress are worse among mothers without a college degree, I call for social interventions such as high-quality and affordable childcare to relieve mothers' parenting stress and improve children's developmental outcomes in low SES families.

***Limitations and directions of future research***

This study faces several limitations. First, in chapters two and four, the ages of sampled children were around 6 and 7. Mothers' parenting stress and mental well-being vary depending on their parenting stages and children's ages. For example, studies have found that Black mothers' concerns about children encountering violence and racial discrimination increase as their children grow older (Dow 2019; Elliott and Aseltine 2013). The results of these two chapters, therefore, may not be generalized to children of different ages and their mothers. In future research, I will use samples with younger and older children to examine racial-ethnic differences in mothers' mental health and the bi-directional relationships between mothers' parenting stress and children's developmental outcomes.

Second, in chapter three, longitudinal data and individual fixed effects analyses are needed in order to examine whether differences in women's well-being are really caused by differences in their motherhood status and SES, instead of confounding factors such as their age, marital status, and personality. However, due to technological difficulties, I was unable to construct SES latent classes that are comparable across multiple waves of data to test the robustness of the results on SES heterogeneities. In the future, I will figure out methods to construct comparable SES latent classes across waves.

Third, all the indicators of women's and mothers' well-being are self-reported and non-clinical. For example, in chapters two and three, women's depression is measured using the CES-D scale, which can indicate whether they have depressive symptoms, but not clinically diagnosed depression (Radloff 1977). The measure of Chinese women's physical health in chapter three is also self-rated. While the effectiveness of the CES-D scale and self-rated health in capturing well-being has long been recognized and both indicators have been widely used in current studies, some research finds that respondents of varying racial-ethnic and SES backgrounds adopt systematically different frames of reference in rating their mental and physical health (Perreira et al. 2004; Xu and Xie 2016). Future research could employ more objective measures of well-being such as biomarkers and clinically diagnosed physical and mental health conditions to examine social inequalities in mothers' well-being.

Fourth, in all three chapters, I have focused on revealing the existence of racial-ethnic and SES differences. Constrained by the availability of data and the scope of studies, I cannot explain, for example, why there are racial-ethnic differences in mothers' experiences with the four types of parenting stress or why the impact of motherhood on Chinese women's well-being varies by SES. So far, I have primarily relied on the existing literature to identify potential mechanisms. Informed by a rising call to study the structural causes of health disparities, in my future research, I will pay special attention to whether structural racism and urban inequalities are effective in explaining racial-ethnic and SES disparities in mothers' well-being, using county-level data on residential segregation and crime rate.

Despite these limitations, I believe this dissertation project has made significant empirical, theoretical, and methodological contributions to the current scientific understanding of social inequalities in motherhood and their consequences on mothers' well-being and children's

outcomes. The findings of this dissertation also carry policy implications and can guide efforts aimed at enhancing the well-being of mothers and children from diverse racial-ethnic, socioeconomic, and national backgrounds. Moreover, the limitations of this dissertation have set directions for future research on social inequalities in mothers' well-being and children's outcomes. Particularly, I believe greater efforts should be dedicated to exploring the mechanisms behind racial-ethnic and SES disparities in mothers' well-being. This is crucial for addressing the current inconsistent evidence and for more effectively improving women's well-being and children's outcomes.

## Appendices

Table A1. The multinomial logistic regression models of racial differences in mothers' parenting stress profile memberships with relaxed mothers as the reference group (N=8,495).

| | Model 1 | | | Model 2 | | |
|---|---|---|---|---|---|---|
| | Over burdened | Over-sacrificed | Highly stressed | Over burdened | Over-sacrificed | Highly stressed |
| Mothers' race-ethnicity (ref=White) | | | | | | |
| Black | -0.337*** | 0.587*** | -0.325** | -0.298** | 0.342** | -0.401** |
| | (0.101) | (0.108) | (0.112) | (0.113) | (0.123) | (0.125) |
| Hispanic | 0.082 | 0.538*** | 0.114 | 0.101 | 0.241+ | -0.325** |
| | (0.079) | (0.091) | (0.083) | (0.104) | (0.126) | (0.117) |
| Asian | -0.009 | 0.610*** | 0.622*** | 0.008 | 0.521** | 0.215 |
| | (0.156) | (0.165) | (0.141) | (0.183) | (0.200) | (0.174) |
| Mothers' nativity (ref=native-born) | | | | | | |
| Foreign-born | | | | -0.070 | 0.088 | 0.278* |
| | | | | (0.112) | (0.132) | (0.113) |
| Mothers' education (ref=high school or lower) | | | | | | |
| Some college/vocational | | | | 0.005 | -0.082 | 0.061 |
| | | | | (0.086) | (0.102) | (0.092) |
| Bachelor's degree | | | | 0.026 | -0.179 | 0.244* |
| | | | | (0.105) | (0.133) | (0.114) |
| Graduate/professional | | | | 0.138 | -0.070 | 0.365** |
| | | | | (0.122) | (0.159) | (0.131) |
| Household income (ref=$30,000 or lower) | | | | | | |
| $30,001-$60,000 | | | | 0.037 | -0.210+ | -0.259* |
| | | | | (0.097) | (0.114) | (0.103) |
| $60,001-$10,000 | | | | 0.117 | -0.175 | -0.298* |
| | | | | (0.109) | (0.132) | (0.118) |
| $10,000 or higher | | | | 0.095 | -0.090 | -0.542*** |
| | | | | (0.119) | (0.145) | (0.131) |
| Mothers' employment status (ref=full-time) | | | | | | |
| Part-time | | | | 0.133 | 0.094 | 0.166+ |
| | | | | (0.085) | (0.102) | (0.092) |
| Looking for work | | | | 0.047 | 0.136 | 0.238 |
| | | | | (0.146) | (0.158) | (0.147) |
| Not in the labor market | | | | 0.121 | 0.108 | 0.198* |
| | | | | (0.090) | (0.108) | (0.097) |
| Mothers' English proficiency (ref=proficient) | | | | | | |
| Not proficient | | | | 0.001 | -0.033 | -0.307 |
| | | | | (0.237) | (0.246) | (0.220) |
| Mothers' marital status (ref=married) | | | | | | |
| Separated/divorced/widowed | | | | -0.038 | 0.109 | -0.222+ |
| | | | | (0.109) | (0.128) | (0.120) |
| Never married | | | | -0.048 | 0.260* | -0.085 |
| | | | | (0.113) | (0.124) | (0.120) |
| Civil union/partnership | | | | -0.208 | -0.059 | -0.428* |
| | | | | (0.182) | (0.212) | (0.199) |
| Use of non-parental care (ref=no care) | | | | | | |
| Relative care | | | | 0.067 | 0.168 | -0.132 |
| | | | | (0.091) | (0.105) | (0.101) |
| Non-relative care | | | | -0.083 | -0.247 | 0.122 |
| | | | | (0.144) | (0.187) | (0.149) |
| Center-based care or multiple types | | | | 0.065 | 0.022 | 0.083 |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | (0.095) | (0.113) | (0.102) |
| Mothers' age | | | | -0.006 | -0.008 | 0.020** |
| | | | | (0.006) | (0.008) | (0.007) |
| Age of the interviewed child | | | | 0.015* | 0.012 | 0.013+ |
| | | | | (0.007) | (0.008) | (0.008) |
| Number of household girl aged 0-7 | | | | -0.008 | -0.023 | -0.057 |
| | | | | (0.069) | (0.081) | (0.072) |
| Number of household girl aged 8-17 | | | | -0.014 | -0.225*** | -0.138** |
| | | | | (0.044) | (0.063) | (0.052) |
| Number of household boy aged 0-7 | | | | 0.093 | -0.069 | 0.028 |
| | | | | (0.068) | (0.083) | (0.071) |
| Number of household boy aged 8-17 | | | | -0.028 | -0.126* | -0.264*** |
| | | | | (0.044) | (0.058) | (0.052) |
| Age of the youngest household child | | | | -0.019 | -0.012 | -0.052* |
| | | | | (0.025) | (0.029) | (0.026) |
| Neighborhood is safe for children to play outside (ref=not at all safe) | | | | | | |
| Somewhat safe | | | | -0.070 | -0.245 | -0.200 |
| | | | | (0.199) | (0.214) | (0.201) |
| Very safe | | | | -0.202 | -0.343 | -0.383+ |
| | | | | (0.199) | (0.215) | (0.201) |
| How much of a problem in neighborhood: drugs/drinking (ref=big problem) | | | | | | |
| Somewhat of a problem | | | | -0.285 | 0.175 | -0.013 |
| | | | | (0.251) | (0.286) | (0.248) |
| No problem | | | | -0.269 | 0.207 | -0.336 |
| | | | | (0.238) | (0.274) | (0.239) |
| How much of a problem in neighborhood: burglary/robbery (ref=big problem) | | | | | | |
| Somewhat of a problem | | | | 0.230 | -0.554* | 0.057 |
| | | | | (0.265) | (0.265) | (0.248) |
| No problem | | | | 0.012 | -0.705** | -0.227 |
| | | | | (0.262) | (0.257) | (0.246) |
| Frequency of reading for the interviewed child (ref. not at all) | | | | | | |
| Once or twice a week | | | | -0.457 | -0.608 | -0.482 |
| | | | | (0.399) | (0.409) | (0.400) |
| 3-6 times a week | | | | -0.618 | -0.702+ | -0.766+ |
| | | | | (0.392) | (0.402) | (0.395) |
| Everyday | | | | -0.602 | -0.721+ | -0.957* |
| | | | | (0.392) | (0.401) | (0.395) |
| Number of activities arranged for the interviewed child | | | | 0.025 | 0.025 | 0.020 |
| | | | | (0.027) | (0.033) | (0.029) |
| Constant | -0.075* | -0.991*** | -0.358*** | -0.147 | 0.420 | 0.754 |
| | (0.037) | (0.050) | (0.040) | (0.853) | (0.954) | (0.883) |

Notes: Results present regression coefficients with standard errors in parentheses. All analyses were weighted using the weight provided by the ECLS-K: 2011. * p < .05, ** p < .01, *** p < .001, + p < .10.

Table A2. Frequency distribution of household income by waves

| | Wave 2 | Wave 4 |
|---|---|---|
| Household income categories (%) | | |
| $5,000 or less | 3.2 | 2.9 |
| $5,001 to $10,000 | 3.3 | 3.7 |
| $10,001 to $15,000 | 5.4 | 5.3 |
| $15,001 to $20,000 | 5.3 | 5.7 |
| $20,001 to $25,000 | 7.3 | 6.7 |
| $25,001 to $30,000 | 5.3 | 5.4 |
| $30,001 to $35,000 | 5.3 | 4.5 |
| $35,001 to $40,000 | 5.1 | 5.2 |
| $40,001 to $45,000 | 3.6 | 3.9 |
| $45,001 to $50,000 | 4.0 | 3.7 |
| $50,001 to $55,000 | 3.5 | 3.4 |
| $55,001 to $60,000 | 3.7 | 4.0 |
| $60,001 to $65,000 | 3.6 | 3.9 |
| $65,001 to $70,000 | 3.5 | 3.1 |
| $70,001 to $75,000 | 4.2 | 3.9 |
| $75,001 to $100,000 | 14 | 14.0 |
| $100,001 to $200,000 | 15.7 | 16.1 |
| $200,001 or more | 4.0 | 4.8 |

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