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HEALTH

Karolinska Institutet, Stockholm, Sweden

PERINATAL MENTAL HEALTH AMONG YOUNG WOMEN IN URBAN CHINA

Simone Eliane Schwank



**Karolinska
Institutet**

Stockholm 2019

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Published by Karolinska Institutet.

Printed by Eprint AB, Stockholm 2019

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ISBN 978-91-7831-557-4

Perinatal Mental Health Among Young Women in Urban
China
THESIS FOR DOCTORAL DEGREE (Ph.D.)

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som för avläggande av medicine doktorsexamen vid Karolinska Institutet offentligen
försvaras i Rolf Luft Center for Diabetes Research L1:00

Friday 8/11/2019, 14:00



To my grandpa, Dr. med. André Bodmer: you always believed in me and supported my academic path; and to my husband, Dr. med. PhD Cheng Xu, for continuing my grandpa's legacy of unconditionally supporting my intellectual curiosity and inspirations.

ABSTRACT

In order to reach the WHO's Sustainable Development Goals relating to maternal and infant health, maternal mental health preconditional needs to be addressed. The purpose of the thesis project was to explore how Shanghai women and health care providers perceive mental health problems during the perinatal period in urban China, in the light of the two-child policy. **Method:** Data collections were conducted in Shanghai, urban China. In **Study I**, thirty-seven women were interviewed regarding their judgement and decision-making whether to have a second child after the introduction of the two-child policy. Qualitative systematic text condensation analysis was used to describe their decision-making factors. **Study II** involved 15 interviews with key health care informants and their perceptions of the current situation of perinatal mental health care in urban China. Qualitative content analysis was used to describe their responses. In **Study III**, sixteen women were interviewed about their insights on perinatal mental health problems. Thematic analysis of the semi-structured interviews was conducted. **Study IV** was a web survey study of 487 women. The topics discussed related to women's perinatal and current mental health status, help-seeking behavior for mental health care, disclosure opportunities and preferences, and the kind of help they would expect and request. Descriptive and comparative statistics were performed. **Results:** Urban Chinese women's decision-making regarding having a second child in reference to the two-child policy include women's status, career, challenges of two children, one-child generation, restriction of reproductive freedom, and the expectation of governmental support. The outcomes highlight the impact of the child policy societal, economic, and on perinatal health changes (I). Key health care informants described how mental health was influenced by tradition affecting the perception of mental health in both society and the individual. The health care experts, policy makers, and public health professionals stressed the required resources and reflected in the lack of professional training, limited staff, and resources available to provide adequate care for patients with mental health problems (II). Intergenerational transition, maternal mental health, and transition into motherhood capture the Shanghai women's position of being in between the traditional and modern Chinese role of motherhood. The urban Chinese woman in a modern society with a professional life expects to have access to high-tech medicine and all aspects of a cosmopolitan lifestyle (III). A total of 487 women confirmed the results in a survey and emphasized the trust in friends, husband, and community health care centers, but all of these were overshadowed by online resources. Women from the one-child generation reported less mental well-being compared to the older generation. The vast majority of the participating women (82.2%) would seek help from online resources and over 70% of the participants would seek help primarily at community health centers. The majority of the women trusted their friends and husband as their first contact to share their mental health problems with. The mother-in-law was the person the women trusted least. **Conclusion:** The findings provide an enhanced understanding of mental health problems in the perinatal period on local level, and provide suggestions for improved perinatal mental health care for urban Chinese women. The public health concern and cause for action to reach out to the young mothers of the one-child generation are evident. Hesitation to seek care due to lack of knowledge or lack of trust in the health care system are identified as obstacles for young women to seek care. These results are relevant in the current discourse surrounding the reduction of the fertility rate in China, despite the introduction of the two-child policy. This thesis illustrates the need to continue understanding perinatal mental health and the contribution of the new child policy on a societal and family level.

Key words: Perinatal mental health; depression; anxiety; urban China, public health; health care policies; two-child policy.

SUMMARY IN SWEDISH

För att uppnå WHO:s svenska hållbarhetsmål för mödrars och barns hälsa är det av stor vikt att även beakta mödrars mentala hälsa och välbefinnande. **Syftet** med denna avhandling var att undersöka hur kvinnor och vårdgivare i Kina upplever mentala hälsoproblem under perinatalperioden, inklusive mot bakgrund av den nyligen reformerade tvåbarnspolitiken. **Metoder:** Datainsamling genomfördes i Shanghai, Kina. I **Studie I** intervjuades 37 kvinnor beträffande deras bedömning och beslutsfattande kring att föda ett andra efter tvåbarnspolitikens införande. Kvalitativ innehållsanalys användes för att identifiera områden som påverkade kvinnornas beslut. I **Studie II** ingick 15 intervjuer med nyckelpersoner inom vården, kring deras uppfattningar om den aktuella situationen för perinatal psykisk vård i Kina. Kvalitativ innehållsanalys användes för att beskriva deras erfarenheter. För **Studie III** intervjuades 16 kvinnor angående deras erfarenheter och uppfattningar om perinatale psykiska hälsoproblem. Tematisk analys genomfördes. För **Studie IV** utformades en webbenkät som innehöll frågor relaterade till kvinnors aktuella perinatale, mentala hälsosituation, hjälpsökande beteende för psykisk ohälsa, vem de helst vänder sig till för att dela upplevelser av psykisk ohälsa samt vilken typ av hjälp de förväntar sig. Beskrivande och jämförande statistik användes för att presentera resultaten. **Resultat:** Kvinnornas status, karriärer, social prestige, ekonomiska förutsättningar, föräldrarnas status som ensam barn, och begränsningar av reproduktiv frihet var områden som bidrog till huruvida kvinnorna önskade ett andra barn i ljuset av tvåbarnspolitiken. Resultatet belyser den politiska påverkan på perinatal hälsa samt samhällliga och ekonomiska förändringar (I). Hälsoinformatörer och beslutsfattare beskrev hur mental hälsa och uppfattningen därom påverkas av traditioner hos både samhälle och individ. Sjukvårdsexperter, beslutsfattare och folkhälsoexperter betonade särskilt bristen på yrkesutbildning, begränsade resurser i form av kompetens och vårdmiljöer som hinder för att ge adekvat vård för patienter med psykiska hälsoproblem (II). Totalt 487 kvinnor besvarade webbenkäten. Kvinnorna från enbarnsgenerationen rapporterade sämre psykiskt välbefinnande jämfört med den äldre generationen. Majoriteten av de deltagande kvinnorna (82.2%) skulle söka hjälp från webbaserade resurser och över 70% av deltagarna skulle främst söka hjälp på offentliga vårdinrättningar. Majoriteten av kvinnorna litade på vänner och make som deras första kontakt för att dela med sig av psykiska hälsoproblem. Ingen av deltagarna uttryckte preferens för att söka hjälp och stöd hos sin svärmor. **Sammanfattningsvis** bidrar resultaten med en ökad förståelse av den mentala hälsan under perinatalperioden på lokal nivå och ger förslag om hur en förbättrad vård i samband med problem relaterade till perinatal mental hälsa kan utformas för kvinnor i det urbana Kina. Den mentala hälsan har påverkan på folkhälsan och behovet att nå ut till unga mödrar framstår tydligt. Tveksamhet inför att söka vård till följd av kunskapsbrist och brist på förtroende för vårdssystemet identifierades som hinder för unga kvinnor. Resultaten är relevanta i diskussionen om det minskade barnafödandet i Kina trots införandet av tvåbarnspolicyn. Avhandlingen illustrerar behovet av en kontinuerlig uppföljning av och förståelse för den perinatale mentala hälsan och hur förändringen av familjepolitiken påverkar familjer och det kinesiska samhället på flera nivåer.

Nyckelord: Perinatal mental hälsa; depression; ångest; urbana Kina, folkhälsa; hälso- och sjukvårdspolitik; ett-och tvåbarnspolitik

LIST OF SCIENTIFIC PAPERS

- I. **Schwank, S.**, Gu, Q, Cao, Z., Andersson, E., Jiang, Ding, Y., Lindgren, H. (2018). China's Child Policy Shift and Its Impact on Women's Decision-Making. *International Journal of Women's Health*, 10, 1-10.
- II. **Schwank, S.**, Lindgren, H., Wickberg, B., Ding, Y. Andersson, E. (2019). Perinatal Mental Health in China: Views of key health system informants in Shanghai – A Qualitative Study. *Public Health Journal*, 3, 76-81.
- III. **Schwank, S.**, Lindgren, H., Wickberg, B., Fu, S-C., Ding, Y. Andersson, E. (2019). Shanghai Women's Discourse on Perinatal Mental Health. *Women's. Reproductive Health*. Submitted.
- IV. **Schwank, S.**, Andersson, E. Wickberg, B., Fu, S-C., Ding, Y. Lindgren, H. (2019). Care-seeking behavior and disclosure on mental health among women in urban Shanghai, China. *Health Psychology Open*. Submitted.

Scientific papers not included in the thesis

Schwank, S. (2017). The Development of the Mind: A Three Months Old Infant. *Shanghai Archives of Psychiatry*, 29, (1) 346-349.

Gu, C., Zhu, X., Ding, Y. **Schwank, S.**, Wang, X., Tao, H. Zhang, Y. (2018). A qualitative study of nulliparous women's decision making on mode of delivery under China's two-child policy. *Midwifery*, 62, 6-13.

Zheng, Z., Gu, C., Zhu, X., Ding, Y., **Schwank, S.**, Wang, X. Tao, H. (2018). Factors associated with Chinese nulliparous women's choices of mode of delivery: A longitudinal study. *Midwifery*, 62, 42-48.

PREFACE

Mental health care in urban China is related to a large treatment gap caused by a multitude of factors embedded in an anthroposophical, political, societal, and individual context. In order to maintain national health in line with the WHO Sustainable Development Goals, it is important to address perinatal mental health care in China. Urban Chinese women play a pivotal role in the modern Chinese economy. This is especially important considering the recent transition to a two-child policy, and the emerging role of China as a leader in medicine and mental health care. Perinatal mental health care in particular must be addressed in order to improve aggregate life quality as well as sustain growth and prosperity.

The one-child policy created a society that is aging rapidly, creating demographic challenges and high expectations on the young generation to support their elders. Young adults' mental health and well-being is of great importance, considering the impact of mental health disorders on as measured by the global burden of disease (GBD). Common mental disorders are a great and increasing problem globally, accounting for an estimated 12% of total disability adjusted life years (DALYs). Yet, government spending on mental health accounts for only a median of 2% of the health spending. Thus, common mental health disorders represent a major public health concern in China and action to reduce the treatment gap is required.

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LIST OF ABBREVIATIONS

CMD	Common Mental Disorders
FHRV	Fetal Heart Rate Variance
HPA	Hypothalamic–pituitary–adrenal axis
mhGAP	Mental Health Gap Action Program
PMHP	Perinatal Mental Health Problems
PMD	Prenatal Maternal Depression
PPD	Post Partum Depression
PrA	Pregnancy related Anxiety
PRC	People’s Republic of China
STC	Systematic Text Condensation
SSRI	Selective Serotonin Re-uptake Inhibitor

1 BACKGROUND

1.1 INTRODUCTION TO THESIS

Mental health is a challenging public health issue. Mental disorders accounted for 6.6% of global disability-adjusted life years and 18.9% of global years lived with disability, making them among the leading causes of the non-communicable disease burden in 2015 (1).

In China, mental disorders accounted for over 15% of the total health expenditure and for 1.1% of gross domestic product (2). With the rapid development of the economy and society, common mental disorders and psychological behavioral disorders are increasing, leading to severe challenges for mental health care in China. Concerns about the burden of mental disorders and their association with urbanicity have grown worldwide; however, little is known about the extent of these issues in the rapidly-expanding megacities like Shanghai (3). Currently, mental health service resources are insufficient and unevenly distributed. Focus is put on severe mental disorders, attention and resources sparse for common mental health problems (anxiety, depression).

Publications and reports in prestigious journals about perinatal mental health, and promising actions in several low-and middle-income countries, were not sufficient to speed up the progress in mental health care development (4). There is an urgent need to evaluate the barriers of mental health service development through international collaborations and experts in the field. Predominant public-health priorities effect funding, major barriers for mental health care are; resistance to move mental health services from hospitals to community health centers; challenges to execute the implementation of mental health services in primary-care settings; the limited resources and professionals in the field, who are trained and supervised in mental health care; and the limited public-health perspectives in mental health leadership (4). There is a need for global investors in health research, such as universities, donors, research councils, to increase resources and prioritize research in mental health. The dissemination of research findings through research capacity should further be improved (5).

The global demographic transition to low fertility is a major event in human demographic history (6). In the light of the Chinese two-child policy and the government's efforts to increase population growth in China, maternal mental health has gained importance. Maternal mental health problems have severe consequences for the family and the child during pregnancy and the development postpartum. One in five women develop mental health problems related to

pregnancy and childbirth. The lack of recognition of the problem may have serious implications for both mother and infant (7).

The project explores the various conceptions of health professionals, policy makers, mainland Chinese women, and society towards the identification and understanding of perinatal mental health problems, treatments and help-seeking behavior. To date, it is still not known how these different groups view mental health problems and what interventions are needed foremost. The project's aims are in line with the WHO's Sustainable Development Goals to attain better maternal and children's health. These WHO goals can however not be achieved without maternal mental health care (8). There is an urgency for high-quality and evidence-based care for perinatal mental health problems. Community and web-based interventions for safer pregnancies in low- and lower-middle-income countries have to be provided (9).

1.2 OVERVIEW OF THE RESEARCH FIELD

There has been growing international recognition of perinatal mental health as a major public health concern. Mental health during the childbearing period affects not only the mother, but also the children and the whole family. Perinatal psychiatric disorders are the leading cause of maternal morbidity and are associated with serious, long-term consequences for maternal mental health (10-12), marital problems, and psychological health issues of the partner (13). The negative impact that this carries on the health and wellbeing of women and that of their families, as well as the associated economic costs to individuals and health services are considerable. In addition, maternal perinatal mental health problems increase the risk of adverse infant development, poorer health, and reduced social functioning later on in life, especially if these are prolonged or severe (14-16). These risk factors for adverse outcomes of a child's development are reported to be less extensively studied in low- and middle-income countries comparing to developed countries according to a Lancet review (17). For these reasons, interventions that are put in place earlier in life, or during pregnancy may have significant impact on reducing adverse health and psychosocial risks for mothers and infants postnatal (18). There is evidence pointing to the importance of focusing on the antenatal period in order to develop preventive and psychosocial interventions, as a recent Cochrane review has shown (19). Midwives, obstetricians, and other health care staff within maternity health care are diagnosing women with a wide range mental health disorders, the most common being depression and anxiety (20).

Social and emotional support reduces associations between postnatal depression and early cognitive development in the child (21, 22). Chinese women, who had higher Perceived Social Support Scale scores at late pregnancy and 4 weeks postpartum showed less likelihood of developing perinatal depression. Conversely, the Perceived Social Support Scale scores at late pregnancy did not predict the risk of postpartum depression (3). The lack of recognition of perinatal mental health, distress, and disorders may have serious implications and negative long-term effects on both mother and infant (23, 24). A recent review by Howard and colleagues (20) has shown that psychological and psychosocial interventions are effective treatments for postnatal depression; evidence from low-income and middle-income countries showed that these can be provided effectively by trained non-specialist workers. The structural and cultural problems in China require the creation of new types of mental health professionals (25). Little research, however, exists about the epidemiology or effectiveness of interventions

for perinatal non-psychotic mental health disorders, other than postnatal depression (20). Evidence on the treatment of antenatal depression is limited to small trials (with 36–53 women) of interpersonal therapy, culturally relevant brief interpersonal psychotherapy, and CBT (21, 26, 27). Research has shown that a more women-centered care in combination with psychosocial support during the perinatal phase can reduce mental health issues in women and provide a better trajectory for the children's development (28).

The prevalence of postpartum depression is high in China: the pooled prevalence lies around 14.7% (29). The prevalence varies between different regions. Municipalities directly under central government, such as Shanghai, have the lowest rates (10.9%) compared to rural areas with average rates of 16.4% (9, 29). Very limited treatment is available, although the World Health Organization's (WHO's) Mental Health Gap Action Program (mhGAP) (30) recommends psychological treatments as first-line treatment for common non-psychotic mental disorders. The WHO survey showed a treatment gap of 75% in most low-and middle-income countries, yet in China the gap is 91.8%, which is it extraordinarily high. The number refers to the total of individuals with any mental health diagnosis (31). China is, however, introducing and raising awareness of mental health as an important assignment.

1.3 GLOBAL MENTAL HEALTH CARE

An increasing amount of epidemiological research has attested to the considerable burden of mental disorders in all world regions. The Global Burden of Disease indicated that 5 of the top 10 contributors to years lived with disability globally were mental disorders (32). Major depression was ranked fourth amongst the three leading causes of Global Burden of Disease, and second among women aged 15-44 (10.6% of disability adjusted life years, DALYs lost) (33). In 2006, depression was estimated to become among the three largest causes of both disability and life lost within the next 10-15 years (34). A multinational population survey initiated by the World Health Organization (WHO) in 2000 found that mental disorders were highly prevalent, often associated with serious impairments, and often left untreated. Every year, up to 30% of the population worldwide has some form of mental disorder. At least two-thirds of those people receive no treatment, even in countries with the most resources (35, 36). In developing countries, more than three-quarters of people with serious mental disease do not receive any treatment (37). Notwithstanding the considerable amount of the Global Burden of Disease attributed to mental health disorders, its care is unequally distributed globally. The

consequent treatment gap is a contravention of basic human rights—more than 75% of those identified with serious anxiety, mood, impulse control, or substance use disorders in the World Mental Health surveys in low- and middle-income countries received no care at all, despite substantial role disability (37). It is therefore important to collaborate internationally, support, and educate health professionals on site in psychosocial support to counteract the treatment gap (25). Still, many countries challenged to deliver sufficient health care resources to provide necessary mental health care interventions (38). Evidence has at the same time shown that efficacious drug and psychological treatments are available for a range of mental disorders and that non-specialist health care workers can deliver psychosocial interventions treatments or multicomponent stepped care interventions for mental disorders with large treatment effect sizes that are sustained for extended periods. Considering the severe and persistent shortages of personnel and the spiraling costs of specialist mental health care, such evidence of the effectiveness of non-specialist interventions counter the pessimistic outlook that nothing can be done (36). The Global Health Group argues that basic, evidence-based care services for core mental disorders should be increased, and that protection of the human rights of people with mental disorders and their families should be strengthened (36). The Global Health Group emphasizes the importance of national and international stakeholders acting in health research. There is an urgency to increase the resources for priority research in mental health, build research capacity, and improve the dissemination of findings from such research (36). In order to sustain mental health care services on community mental health care level, investments in primary care are important. There is a need for training, supervision, and continuous support for primary care workers. Recognition and improvement of training of non-specialists in the community health care settings is highly recommended (4).

1.4 PERINATAL MENTAL HEALTH DISORDERS

Perinatal mental health disorders are a broad spectrum of depression, anxiety, PTSD, eating disorders, bipolar, and more severe postnatal psychosis, but the most common are anxiety and depression. Overall around the world, most women are not receiving care, with few notable exceptions, such as the Nordic countries with whole coverage of healthcare (9). Depression in pregnancy affects up to 10% of women, with higher rates in low- and middle-income countries, a rate only slightly lower than in the postpartum period (9, 39). The number of pregnant women, who receive adequate care is only 20% (40, 41). Perinatal mental health disorders are not

culturally bound, they affect women from every socioeconomic background and from every society (42). Despite the existence of perinatal mental health disorders not only in western societies, but in low- and lower-middle-income countries research has been limited (43). There needs to be a reform in priorities from preventing pregnancy-related deaths to prevention of perinatal mental health disorders (9). It has been discussed that women in resource-constrained countries would be protected from perinatal mental health disorders, due to traditional social practices during the perinatal period (10, 14). A recent review reveals a serious disparity regarding resources and evidence for perinatal mental health (9). One disparity is the lack of local evidence-based practices and mental health policies in low- and middle-income countries. In more than 80% of the world's 112 low- and lower-middle-income countries and in 90% of the least-developed countries, the evidence surrounding women's perinatal mental health problems is missing (9). This stands in sharp contrast to extensive number of papers from high-income countries that provide high-quality epidemiological, clinical, health service, and health system evidence surrounding common perinatal mental health problems. The second disparity lies in the rates of pregnant and postpartum women experiencing mental health problems being substantially higher in low- and middle-income countries, 10% in pregnancy (44) and 13% postnatally (42) are reported in high-income countries. The population prevalence of common mental health disorders during the perinatal period in low- and lower-middle-income countries have been underestimated. For instance, the study sites and exclusion criteria may have resulted in the samples being disproportionately composed of women of relatively higher socioeconomic status and in better health, among whom prevalence is generally lower (9). The underestimated prevalence rate of common perinatal mental health disorders in low- and middle-income countries has several consequences. For instance, it neglects the seriousness of policy makers and health professionals being less likely to diagnose mental health disorders, especially when resources are sparse. In *The Lancet* in "No health without mental health", the WHO addressed an international call for action, stating that in resource-constrained countries mental health problems are a major burden and it is essential to address them for development (45).

Beyond effects on the mother alone, maternal mental health problems can have negative effects on the fetus and the child. A *Lancet* review reported that the effect of maternal depression on child cognitive development and long-term effect on infant growth or mortality has been studied less extensively in low-income and middle-income countries than in developed countries (17, 45). Maternal depression in low- and lower-middle-income countries is associated with higher rates of malnutrition and related illnesses, hospital admissions for

diarrhea, infectious illnesses, lower birth weight and following birth reduced immunization completion amongst infants (46). Prenatal exposure to maternal depression is common and puts offspring at risk for developing a range of neuropsychiatric disorders. Despite its prevalence and adverse associations, neurobiological processes by which prenatal maternal depression (PMD) conveys risk remain poorly understood (47). Maternal mood disorders are associated with increased fetal exposure to maternal cortisol (48). Maternal mental health disorders may affect the downregulation of placental 11 β -HSD2 (48). These epigenetic changes in placenta may influence fetal exposure to maternal stress hormones (49). Antenatal and postpartum depression and anxiety have adverse impacts on parent–infant interactions, parenting, attachment (50), as well as child development such as infant temperament and children’s behavioral or emotional development (51). The negative effects on the child’s emotional and cognitive development are particularly significant, especially if the depression is prolonged or recurrent (14-16), highlighting the importance of emphasizing prevention and early intervention for female populations with multiple risk factors, including women during the perinatal period.

1.5 PERINATAL DEPRESSION

1.5.1 Antenatal Depression

Antenatal depression often precedes postnatal depression and causes great suffering to the woman and her family (52). Physicians must expect that one out of eight new mothers will have postpartum depression. Perinatal depression is divided into three severity categories, mild, moderate, and severe depression. In women with previous episodes of postpartum depression, the risk of recurrence is one in four. Since identification of postpartum depression is the first step, it is recommended that women are screened after delivery with the Edinburgh Postnatal Depression Scale, which is brief, is highly acceptable to patients, and reliably detects the presence of postpartum depression (indicated by a score of 10 or higher) (53-55). A substantial percentage of women who experience perinatal depression will develop recurrent long-term mood disorders (56). Prevalence of antenatal depressive disorders to be between 3.1% and 4.9%. Including minor depression estimated to be up to 11% during pregnancy in western countries (39). A meta-analysis of 21 studies concluded the mean prevalence of depression across the antenatal period was 10.7% (21). A higher prevalence of antenatal and postnatal depression (major and minor) is generally reported in women in low-and middle-income countries than in women in high-income countries (57). The prevalence of perinatal depression

in urban and rural China is estimated at 10-15%, with higher prevalence in rural comparing to urban China (58). The varied rates of depression over the perinatal period underscore the importance of longitudinally examining the course of depression from pregnancy to postpartum, which in turn has significant implications for when screening and preventive and treatment interventions would be most effective. Treatment for mild depression is primarily psychological and secondary psychopharmacological drug treatment (21). NICE has produced guidelines on the assessment and management of mild, moderate, and severe perinatal depression, which often co-exist with other circumstances and stressors related to the disorder (59-66).

1.5.2 Postpartum Depression (PPD)

PPD is one of the most common non-obstetric complications associated with childbearing (20, 67). Prevalence of major depression to be between 3.1% and 4.9% during pregnancy, and including minor depression estimated to be up to 11% during pregnancy (39).

The prevalence of postpartum depression in China is high at 14.7% and 10.9% in Shanghai (68-70). Postnatal mood disorders according to the meta-analysis were the highest in rural areas prefecture-level cities (25.4%), lower rates in provincial capitals (19.5%), and lowest in municipalities directly under central government (12.9%) (70). Perinatal psychiatric disorders are the leading cause of maternal morbidity and are associated with long-term consequences for maternal mental health (7, 20). Epidemiological research shows that women in vast growing metropolitan cities are at great risk for developing common mental health disorders (71, 72). Concerns about the burden of mental disorders and their association with urbanicity have grown worldwide; however, little is known about the extent of these issues in the rapidly-expanding megacities like Shanghai (73).

1.6 PERINATAL ANXIETY

1.6.1 Pregnancy Anxiety

Anxiety is a severe condition, however been overshadowed by depression research and prevention. Little research has been done into the course of anxiety disorders in the perinatal period. There is growing evidence that anxiety occurs frequently during pregnancy and exists independent of depression. The prevalence of anxiety disorders in pregnant or post-partum women lies at 13%, comparable with non-pregnant women (20). There is a considerable amount of comorbidity in antenatal depression and other mental health disorders, particularly

anxiety (74). Anxiety during pregnancy whether general or pregnancy specific (PrA) has often been seen as a feature of depression rather than a syndrome in its own right (44). As a review by Gorman and colleagues 1996 have shown, comorbidity between depression and anxiety estimated to be as high as 85% (75). In a recent study Lydsottir and colleagues (2014) showed that pregnant women, who screened positive on the EPDS had a range of other serious mental disorders, other than major depression, including GAD, OCD, bipolar disorder, and eating disorders (76). Lydsottir's study has shown higher prevalence of antenatal anxiety than depression (76). GAD was the most common anxiety disorder diagnosed, although a substantial proportion of women were diagnosed with social phobia, OCD, panic disorder, and agoraphobia. Women in large US population-based study had a prevalence of anxiety of up to 13% in currently pregnant or post-partum women, indicating that it may be even more common than depression (77-80). Similar prevalence of anxiety is also found in low- and middle-income countries (8, 9). Faisal-Cury and Menezes (2007) noted a higher prevalence of antenatal anxiety (59.5%) than antenatal depression (19.6%) in 432 community pregnant women (81). In another study in Bangladesh (n=720), 18.3% of pregnant women had depression, 29.4% anxiety, yet only 3.4% were comorbid (82).

1.6.2 Prevalence of Anxiety During Pregnancy

Anxiety is greater than the prevalence of Generalized Anxiety Disorder (GAD) in the wider population (up to 3%) (83). Furthermore, pregnancy-related anxiety (PrA), is anxiety characterized by pregnancy specific fears and worries, may in fact represent a specific type of anxiety response in women (84) with reported prevalence as high as 14.4% (85). Anxiety symptoms in pregnancy can relate to several anxiety types, such as general anxiety, anxiety disorders, and pregnancy related anxiety (PrA), anxiety characterized by pregnancy specific fears and worries. Awareness of these distinctions however, is not always wide spread. Both general anxiety and PrA are associated with maternal negative outcomes (e.g. increased nausea) however; PrA is more often associated with negative outcomes for the child (e.g. preterm birth) (77).

1.7 RISK FOR PERINATAL MENTAL HEALTH PROBLEMS

Pregnancy is a period of transition, making women more vulnerable and in unfavorable circumstances may lead to psychopathology in both mother and child. The birth of a baby implies personal change and potentially evoke psychodynamic aspects related to the own

childhood (86). Despite substantial research into risk factors for perinatal disorders, particularly depressive disorders, there are few systematic reviews and research using diagnostic measures, longitudinal approaches, and comparison groups. Studies often exclude women with a history of mental illness (20). A systematic review (9) assessing perinatal mental health problems (PMHP) in women from low- and lower-middle-income countries has shown that PMHP are affected by multiple factors and direct causal pathways are lacking. The relative importance of biological, etiological, psychological, and social factors and their interaction is debated. Multiple risk factors increased the severity of PMHP and Patel and colleagues (2002) found that risk factors interact, in culturally determined means (87).

1.7.1 Psychosocial and Genetic Risk Factors

Psychological distress and stressful life events during the previous year increase the risk for perinatal mood disorders (88). The women's relationships are important for her well-being. Poor relationships increase the risk of depression (42, 89-91). Lower partner support is a risk factor and higher prevalence of relationship conflict in women with postpartum depression (92). Maternal perceptions of social integration and partner provision of problem-focused informational support and positive feedback are important (93). These findings are in line with our qualitative research of Shanghai women, highlighting the protective factor of the husband's support (94). Women with a history or current abuse are at high risk for perinatal depression (95). Unemployment, low income, or unplanned pregnancy have also been associated with increased risk for perinatal mood disorders (96, 97).

Based on current research (19), one of the strongest risk factors and predictors of postpartum depression are women who experience depression or anxiety during pregnancy or have a previous history of depressive disorder (42, 97). An Australian twin study found that 25-38% of postpartum depression were explained by genetic components (98). Personality factors, such as negative self-attribution and neuroticism have been linked to higher risk for mood disorders, also in the perinatal period (42). The living situation with family members, particularly parents-in-law may be a risk factor for postpartum depression among Chinese puerperal women (99).

1.7.2 Maternal Mental Health Problems Risk Factor for Infant

Children exposed to maternal prenatal mental health problems, and distress are at increased risk for psychopathology. Elevated maternal cortisol and epigenetic regulations of placental glucocorticoid-pathway genes are potential mechanisms (100). The maternal ANS/cardiovascular and Hypothalamic Pituitary Adrenal Axis (HPA) systems are two primary

biological effectors of emotion experiences that are potential mediators affecting fetal neurodevelopment with potentially lasting effects into childhood (19, 101). Predictions from fetal behavior to early childhood are note-worthy and highlight its value. For example, fetal heart rate variance (FHRV) is positively associated with cognitive and motor abilities at age of 2 years (19). Even though, until recently largely ignored, maternal affective symptoms, such as perinatal depression and anxiety, may alter placenta function in a way that moderates fetal exposure to glucocorticoids, such as cortisol (102). Individuals with exposure to stress in early life may be more vulnerable to psychosocial stress in the perinatal period, due to previous alternation in the regulation of the HPA axis (47, 103, 104).

In Europe, 3% of the depressed pregnant women are estimated to be treated with selective serotonin re-uptake inhibitors (SSRI) and 4-10% in North America. Selective serotonin re-uptake inhibitors (SSRI) are the most common drugs for depression treatment (105). There is an increased risk for admission to neonatal care for infants exposed to SSRI's during the third trimester of pregnancy (106). Two recent register studies stated however, no increased risk for autism spectrum disorders in children exposed to SSRI's during fetal life (107). Studies assessing pregnancy outcomes and infant outcomes are however limited (108).

1.7.3 Risk Factors in Developing Countries

Most studies of perinatal mental health are conducted in industrialized countries. Less focus has been put into risk factors specific to developing countries. Especially, prominent for China, that has undergone vast economic growth and a population policy shift from the one-child to the two-child reproductive policy. Factors that may impact the family dynamics and increase tension among the generations. In many cultures, including China, lack of support from the in-laws seems equally important a lack of support from the women's partners (109, 110). The WHO Mental Health Burden defined risk factors for mental and behavioral disorders are unstable family environments, abuse and civil unrest. These risks can be reduced by supporting stable family life, social cohesion and human development (111).

1.7.4 Risk Factors Specific to China

A risk factor specific for China is female gender of the new born, where boys are the preferred sex with a large over proportion of male infants (112, 113). The Chinese sex ratio at birth is currently the highest in the world, with 120 male to 100 female infants (114). Urban, highly educated, women of advanced age might have greater boy preference due to implicit social status (115). Studies have shown that disappointment over the infant's gender is a significant

risk factor for postnatal depression in China (116). The positive association between infant male gender and postpartum well-being could be moderated by two-child birth control policy (117).

Prevalence of postpartum depression is higher in women from the Chinese one-child generation compared to previous generations (118). Women without siblings are more likely to be affected by negative mood states (119). Epidemiological research shows that women in vast growing metropolitan cities are at great risk for developing common mental health disorders (71, 72). Concerns about the burden of mental disorders and their association with urbanicity have grown worldwide; however, little is known about the extent of these issues in the rapidly-expanding megacities like Shanghai (3).

In China, it is common to live with the parents-in-law after the delivery of the child. Living with parents-in-law may be a risk factor for postpartum depression among Chinese puerperal women. Future preventive interventions should include strategies that target the puerperal women who lived with parents-in-law (99). The generation gap between the parental generation and the young couple can be significant, particularly in China, due to the vast economic change. In addition, rural-urban migration within China contributes to generations of grandparents from rural areas of China moving to the metropolitan cities, where their sons and daughters work and have established an urban lifestyle. Traditional values and modern lifestyle clash and cause tension between generations, negatively impacting perinatal women's mental health. Traditional rituals that contribute to social order are challenged and transformed in response to contemporary social changes, family structures, women's status, and health-care systems (120). The ancient Confucian philosophy is present in contemporary China, reflected in the central role education plays to be a good Confucian scholar and member of society (121, 122).

1.8 PREVENTION, EARLY IDENTIFICATION AND PREPARATION FOR PARENTHOOD

The risk of perinatal mental health problems is shown to be lower in women with non-judgmental and supportive family relationships, access to a better education, paid work, sexual and reproductive health services (9). The positive impact of education on mental health has been supported by the survey study of Shanghai women, where the healthy women had significantly less mental health problems and were much more likely to seek help (123). Routine pregnancy care is important to reduce risks of perinatal mental health disorders. It is important that antenatal healthcare providers (including obstetricians, prenatal nurses, and

family doctors), and women themselves are educated about these risk factors. For clinicians, it is important to ensure a thorough clinical history is obtained, which specifically asks about previous episodes or feelings of depression. Non-targeted psychosocial or psychological interventions do not significantly reduce the number of women developing postnatal depression (21, 93). However, professional postnatal support individually targeted to at-risk women may be beneficial (93, 124).

The National Institute of Health and Clinical Excellence (NICE) (125) guidelines recommend that health care professionals should ask pregnant or postpartum women at their first visit about past or present severe mental illness, previous treatment, and family history of perinatal mental illness (125). Assessment for maternal mental health would support health professionals to identify women with high-risk profiles and provide ability to offer preventive interventions (126). Assessment are not always conducted, and therefore many women are not identified as being at risk for, or as currently suffering from, antenatal anxiety and depression (127, 128). Screening for anxiety during pregnancy is evident, as it is associated with negative outcomes for mother and infant, such as increased nausea and poor maternal attachment (129, 130). Failure to recognize postpartum mood disturbance can sometimes lead to tragic consequences for the mother and child, notably maternal suicide and infanticide. The majority of postnatal depressions are self-limiting, resolving within months of onset (11, 131). In the perinatal period parents are often highly motivated to seek support for their babies' wellbeing and for the potential reduction in intergenerational family dysfunction, and hence this is a unique opportunity to provide preventive interventions for the mental health of the whole family (132).

1.9 SOCIOCULTURAL CONTEXT OF WOMEN'S MENTAL HEALTH

The influence of a society's core value system is visible in many areas of cultural life. It is however nowhere more evident than in the cultural treatment of the human body, most especially during the perinatal period (133). Women's mental health, particularly during the perinatal period is critically important for the women themselves. A recent study found that women's interest in their mental health outweighed their interest in reproductive health or had high priority and the women were open to share their mental health problems (94, 134).

Perinatal mental health is a women's health priority for policy and practice focus in many high-income countries (135). However, the psychological health and social needs of women in low- and middle-income countries is not a priority for governments, as shown in treatment gaps

(36). It is resulting in an environment where women attribute much of their psychosocial distress to financial insecurity, especially after a second child in China, financial and emotional responsibility, heavy work burden, and a gender-based burden to take care of the older generation as well (9, 136, 137). Risks for mental health disorders are probable to diverge due to the environment and women's perinatal mental health influenced by social and cultural factors beyond the women's individual control, such as the Chinese confinement (29, 138). Cultural stigma of mental health provides barriers for help-seeking outside, particularly in this vulnerable postpartum period (9, 94). Seeking help for emotional problems is a very new and challenging experience for many women in low-and middle-income countries, including urban China (8, 94).

1.9.1 Role of the Mother

This focus on the production of the 'perfect baby' is a rather common development, as Davis-Floyd portrays it to be a direct result of the combination of the technocratic emphasis on the baby-as-product, the multiplicity of new technologies available to assess fetal quality, and the powerful economic and legal incentives to use them (133). The focus on the 'perfect baby' can be perfectly seen in the results of the Chinese one-child policy (137). One of the consequences of the one-child policy to reassure the perfect baby is the extraordinarily high selected CS rates in China, an international comparison (139). Other related consequences are the financial and educational investments in the children of the one-child generation and the current lack of desire for a second child, due to the burden on the family's financial and time constraints (137).

1.10 CHINA'S MENTAL HEALTH CARE THEN AND TODAY

Different to the situation in the western countries, where large proportion of people with mental health disorders live on their own or in institutional settings (nursing homes, hospitals, outpatient facilities), in China over 90% of the people with major mental disorders live with family members (140). Affordable and accessible psychiatric treatment is lacking. Political, and economic factors, as well as philosophical traditions play a role in the determinations to establish a modern mental health care system in China. The anthropological overview of China's conceptualization of mental health by Chang and Kleinman (2002) (141) described that traditional Chinese theories of medicine did not consider mental disorders distinctly from physical disorders. In Chinese tradition, the roots of mental illness lie in the imbalance of the internal organs (141). Consequently, the attitude to treatment of mental disorders primarily was

a somato-psychic one, with emphasis on restoring physiological function and balance. The separation of mental disorders as independent field of study and treatment occur only in the late 1800s, when foreign missionaries established asylums for Chinese people with mental health disorders. During the first part of the twentieth century pervasive social disruption and war ceased developments in mental health care even further (141). In order for interventions to be beneficial to reduce mental health-related stigma cultural influences revealed by the Chinese population need to be considered (142). In 1948, there were only approximately 60 psychiatrists and five psychiatric hospitals with 1100 beds in all China, for a population of nearly 500 million people. Part of the official agenda during the founding of the People's Republic of China (1959) was to transform the social system, to improve growth. This resulted in a rapid increase in psychiatric beds all over the country grew to 19 times that of the pre-liberation period. Public order and its maintenance were central political priority and Russian mental health disorder concepts dictated the professional discourse.

1.10.1 During the Cultural Revolution

During the Cultural Revolution (1966–1976), psychiatry was unsettled in a broader sense than any other medical specialty. Mental health disorders and other forms of deviance were used as problems of wrong political dissidence and addressed by re-education, instead of psychiatric health care (143). Community mental health programs were mostly terminated during the Cultural Revolution (144, 145). Psychiatrists were forced into accepting that mental health disorders were wrong political thinking, not actual disorders. Psychiatrists were encouraged to promote traditional Chinese medicine's herbal cures, due to the ideological importance radical Maoists placed on traditional treatments. Psychiatrists further had to hide their Western training and relationships to avoid the labelling of foreign problem (141, 146, 147). These are important explanatory factors for the culturally specific stigma of mental health in Mainland China, the low rates of trained mental health professionals, the low rates of treatment seeking for mental health services, the concerns regarding confidentiality, beside the structural challenges, educational, financial, and access to treatment explanations for the large treatment gap in China.

1.10.2 The 1990s

Large hospital-based and profit-making models of mental health care service started to be questioned by psychiatrists. The Ministry of Health reconsidered approaches and attitudes for

mental health care. During (2002–2010) the first National Mental Health Plan was signed by the Ministries of Health, Civil Affairs, Public Security, and China Disabled Persons' Federation (CDPF) (148). Besides the focus on severe mental health disorders, symptoms reduction, rather than enhancement of quality of life and functional status (143, 149).

1.10.3 Current Situation

By 2025, research suggests that 39.6 million years of healthy life will be lost due to mental illnesses in China alone based on Disability Adjusted Life Years, or DALYs (150). Meanwhile, China by the end of 2010 had only 757 mental health facilities and approximately 20,480 psychiatrists, and is poor in prevention and rehabilitation of mental disorders (151). Already in 1999, the WHO World Health Report suggested that suicide was China's fourth most important public-health problem in terms of DALYs lost (152). In China, there are more suicide deaths among women than men. Suicide is the leading cause of death among the 15–34 years of age, accounting for 19% of all deaths. The rate in women was 25% higher than in men, mainly because of the large number of suicides in young rural women (153). These patterns are different from those reported in other parts of the world (154, 155). A large number of suicides would be averted in China, if 50% interventions coverage could be achieved, and therewith significantly reduce the impact of mental health disorders on the global burden of disease. (45). On May 1, 2013 the Congress of China endorsed the national mental health law (73, 156). It was initiated to counteract concerns on the stigma of mental illness and human rights violations in psychiatric hospitals in China, particularly in reference to involuntary admission (157). A main goal of the law is to expand access to mental health services by shifting the focus of services from specialized psychiatric hospitals in urban centers to general hospitals and community health clinics in both urban and rural communities (156). Despite a new National Mental Health Plan, mental health problems are stigmatized while understaffed outpatient facilities limit access to treatment (145, 158). Common mental health disorders account for greater proportion of mental burden in China, compared to more severe mental disorders, which consume most mental health resources (150, 151). This disparity is reflected in the Chinese treatment-seeking rate < 6% for CMD (37). Out of all individuals with any diagnosis of mental disorders, 91.8% of them never seek help (31). For psychotic disorders, 27.6% never sought help and 12.0% saw non-mental health professionals only (159). The lack of medical professionals, as well as the Chinese attitude and help-seeking behavior for CMD results in

treatment gap (136). WHO's Mental Health Gap Action Program (mhGAP) (30) recommends psychological treatments as first-line treatment for common non-psychotic mental disorders.

1.11 CHINESE SHIFT FROM ONE- TO TWO-CHILD POLICY

1.11.1 The One-Child Policy

The one-child policy was introduced in 1979 by the Chinese Government who considered population restraint of birth numbers as essential to lift China out of severe poverty caused by decades of economic mismanagement (160, 161). Between 1950 and 1970, the population had increased from 540 million to more than 800 million (161). In response, the government introduced the firstly voluntary “later-longer-fewer policy” in the 1970s, to encourage later childbearing, longer gaps between children, and fewer children. This policy led to a large fall in the total fertility rate from an estimated 5.9 births per woman in 1970, to 2.9 births per woman by 1979. Despite the clear indicator of a downward trajectory in fertility, the threats of overpopulation persisted. These fears are the base of the introduction of the one-child policy (162). The consequences of the one-child policy are omnipresent in the Chinese society, such as the debate around the effects of the one-child policy on the wellbeing of children. The effects have been characterized by a stereotype of parents and grandparents overly emphasizing and carrying for the only-child, creating spoiled, selfish, unsociable, and obese so-called little emperors (163). The evidence is however mixed. Studies controlling for confounders showed that only children have higher academic achievement, higher self-esteem, and greater confidence (164, 165). These study results emphasize contributions to potentially better health outcomes. These effects are partly attributed to families resources being directed towards the only child with overall beneficial effects on education and health (166). There is however also evidence for the contrary: studies in young adult soldiers have shown that soldiers with siblings were significantly more motivated, hard-working, obedient, sociable, and mentally stable than only children without experience of siblings (160).

The child policy shift in 2015, aimed to counterbalance the aging population, smaller number of labor force, and screwed sex ratio (167). Already by the late 1990s the combination of socioeconomic change and party-state effort had reduced China's once high fertility to below-replacement levels (168, 169). In 2000 the joint party and state decision authorized a significant change to the state-centric family and birth planning toward client-centered health services. In 2001 the Chinese reproductive policy begun to define rights where previously there were only

duties. The 2001 Law explicitly affirmed the right to reproduce (although only within the limits of birth policy) (170).

China's two-child policy significantly impacts the society, particularly women in reproductive age. It results in changes in health care, education, and influences China's economic growth (171). The impact of the child policy has lasting consequences for family structures, norms, and provide opportunity for new perspectives on family planning. Away from the one-child generation norm of four-two-one to a new four-two-two (172). The change in child policy raises concerns for women who have been under the one-child policy and mental health issues need to be addressed. The Chinese government was prepared to increase perinatal health care specialists, pediatricians, and mental health care professionals. During the one-child policy, women avoided using important gynecological and obstetric checkups, resulting in increased risk for mortality in women with pregnancies unapproved by the family planning institute (173). The two-child policy impacts the use of prenatal and obstetric care utilization, towards an increase in care-seeking behavior. More perinatal health care providers and services are needed to meet the surge in perinatal health care, due to the child policy shift (174, 175). In line with a United Nations calls call for gender equality, China's Gender Fund for Research and Advocacy investigated the impact of the two-child policy. Gender inequality and disadvantages for female employees are essential to be understood in relation to the child policy shift (176). The caretaking of two children puts a larger strain on women and the current concept of family internal caregiving might not be sufficient to meet the needs. Governmentally organized daycare taking systems would enable the couples to maintain in the labor market and to reduce the strain on grandparents, as caretakers for their grandchildren. In Shanghai the Municipal Commission of Health and Family Planning (177) provides parental leave, with a 128 days maternity and a 10 days paternity leave, in order encourage families to have a second child (177). The Chinese government has increased the perinatal health care services and granted 89 000 additional maternity hospital beds and aims to educate an additional 140 000 midwives and obstetricians (160).

1.11.2 Development of Two-Child Policy

Under the background of China's previous one-child policy, many pregnant women preferred caesarean delivery to avoid the potential risk of vagina delivery (178). The one-child policy is seen as a potential factor for China's high caesarean section rate. China's new two-child policy and women's shared fertility intention of having a second child, are external factors affecting women's decision making of mode of delivery (139). With the implementation of the two-child

policy, it is presumed that the age group of women at high risk of stillbirth might shift to older women (179). Several population-based studies showed that in women with previous caesarean delivery, the risk of unexplained antepartum stillbirth at or after 39 weeks' gestation was about double the risk of stillbirth or neonatal death from intrapartum uterine rupture (180). These high-risk pregnant women and women who have had a previous caesarean delivery will entail challenges for China's health care system (181). Despite the expected birth rate rise after the implementation of the two-child policy, the Chinese urban women's birth rates dropped. The Chinese government is now investing in strategies to encourage women to have more children and analyze the reasons for the low birth rates. Women's societal position and career security, as well as lack of role models are factors contributing to the choice of number of children (137). The effectiveness of the current two-child policy suggests that the threshold of fertility policy is between one and two children. Implying that even with a fertility policy liberalized to a three-child policy, the impact will not be substantial (182). Recent evidence showed that the role of the fertility policy is diminishing fast, and that fertility in contemporary China, as elsewhere, is socioeconomically determined (183).

The Chinese government is trying to promote women having a second child, particularly in urban areas such as Shanghai. Yet up until present, strategies have not been successful and they are urged to find solutions rapidly to counteract the aging society (137). However, in order to increase the number of children in China, fertility factors, related policies have to be initiated with immediate action. Especially, to reduce childbearing costs, in terms of female costs in order to influence fertility rates, such as reducing the cost of admission to kindergartens or nanny fees, birth special subsidies, extending the number of hours taught by the school (182, 184). Under the universal two-child policy, given the state-driven privatization of childcare services and the weakening of gender equity ideology (185). Women's fertility autonomy, in particular their ability to stop childbearing when they do not want any more children, has far-reaching implications for gender equality in urban China (186). This has been shown in a decrease in the birthrate after introduction of the two-child policy (137). Since the implementation of the two-child policy 2015 birth rates declined by 2 million the second consecutive year. China's population expanded by 0.38 percent last year. A rate comparable with western industrialized countries and Japan (187).

1.12 CHINESE POSTPARTUM CARE “DOING THE MONTH”

In Chinese tradition it is custom to do a postpartum practice of "confinement" or "doing-the-month". These traditional postpartum practices involve courteous social support and recognition of the status of motherhood. These practices have been recognized by anthropologists as protection from postpartum depression for both mothers of infants. It is clearly a firmly-integrated holistic set of practices deeply imbedded in Chinese culture (188). Three major reasons for Chinese women to carry out the confinement were identified. These are: curing the pregnancy-induced imbalance, preventing future illness, and preventing future misfortune to themselves and those with whom they interact (188, 189). The confinement practice has several aspects that could contribute to or are not successful in protecting the women against postpartum depression. These aspects include the generally weakened social support in modern society, conflict with a mother-in-law, and the experienced tension by modern women as they work to balance traditional with contemporary values (69). The confinement practices are intended to increase social and practical support for the mother and thereby intent to promote maternal mental and physical health (69). Doing the month involves a series of practices related to the maternal role, physical activity, maintenance of body warmth, and food consumption that are believed to restore maternal postpartum health and prevent future disease. Strengths of these practices include acknowledgment of the woman's societal and familial contribution to childbearing and the provision of consistent family support. There is concern for the effect of some practices upon both maternal physical and psychological health, particularly for postpartum depression (190).

Parents or parents-in-law highly influence new mothers to adhere to traditional practices (191-193). With rapid cultural, economic, and educational development in China, however, some urban and suburban women are now beginning to question and modify traditional postpartum practices (192, 194, 195). Traditionally mothers-in-law exercised significant power in Chinese households and had a major influence on the postpartum care of new mothers (29). Women experiencing postpartum depression reported conflict in attempting to conform to the Chinese tradition of being compliant and submissive wives, which is necessary to maintain family harmony while desiring to assert their modern values of individuality and independence (112, 137, 196).

1.13 CHINESE ANTENATAL HEALTHCARE

In China, maternity healthcare is an obstetrician-led model (175). Chinese obstetricians are the primary providers of antenatal care for all childbearing women (175), leading to an over medicalized and more expensive approach of providing such services (197). Midwives have a long history in China. They used to endure a sustained denigration from the male literati and later from the medical profession during dynastic China (198). Today, Chinese midwifery as a profession has been marginalized (199). Midwifery care was regarded as unprofitable and disposable, as it was perceived historically as a lower-class occupation. Pregnant women usually lack individualized continuity of care from midwives during the perinatal period. The marginalization of midwives, over medicalization, and the one-child policy led to high rates of cesareans, as data from WHO indicated. The prevalence of cesarean sections in the past 10 years in China was significantly higher than WHO's (200, 201) recommended proportion. The one-child policy might have contributed indirectly to this increase. Parents who can have only one child might opt for what is perceived to be the safest delivery option (201, 202). There is great concern about the growing proportion of women giving birth by caesarean section in China. As the proportion of caesarean deliveries continues to rise, the number of vaginal deliveries is becoming a less common proportion of total births in China, although midwives retain authority over normal birth in some settings (198). In some urban hospitals, caesarean section rates reached 100% (199). The high cesarean section rates are a call for the Chinese Government to enhance the quality of antenatal care for pregnant women who had one previous caesarean delivery, particularly for older parturient women (179). The child policy shift increased the number of births and raised the pregnant women with advanced age, therewith increased the risk for women with complicated pregnancies. Women with complications during pregnancy are known to be more vulnerable, because of higher level of average risk of adverse outcomes, resulting in greater physiological and psychological stress exposure (58).

2 RATIONAL OF THE THESIS

Perinatal mental health disorders are common and affect every 10th woman. They have long-term consequences for both mother and child, yet recognition and treatment in China is limited. Perinatal mental health disorders are therefore of importance for public health outcomes and long-term health of societies. Currently, there are no national guidelines for perinatal mental health screening and no national requirements for perinatal mental health interventions in China. In 2016 China legislated a new child policy, allowing couples to have two children, to counterbalance the ageing populations. The two-child policy has significant impact on multiple levels of society and health care infrastructure. To date, it is still not known how different groups view mental health problems, where women would seek help for perinatal mental health problems, and who they would trust and turn to. To improve long-term health outcomes of young women in urban China, it is essential to gain information from both professionals and women during the perinatal period regarding mental health care and suggestions to reduce the treatment gap.

2.1 PURPOSE

The overall aim of the thesis project was to explore how women and health care providers perceive mental health problems during the perinatal period in urban China.

1. Comprehend Chinese women's judgement, decision-making, and stress regarding a second child, in light of the two-child policy shift (I).
2. Investigate key informants' and women's perceptions of the acceptance for and awareness of perinatal mental health in China (II, III)
3. Understand Shanghai women's care-seeking behavior for common mental health disorders, perception and accessibility of health care, and to whom they disclose (IV).

3 MATERIAL AND METHODS

Four studies, with four different data collections are included in the thesis. The methods are shown in Table 1.

Table 1: Overview of Material and Method of all Papers

Paper	Approach	Focus	Participants	Point of data collection	Method of data collection	Method of analysis
I	Qualitative	Urban women's judgment and decision-making regarding a second child in light of the two-child policy.	37 Shanghai and Hangzhou women	August-September 2016	Semi-structured interviews	Content analysis
II	Qualitative	Key informant's perception of perinatal mental health care in urban China	15 key health care informants, public health professionals, policy makers	June 2018	Semi-structured interviews	Content analysis
III	Qualitative	Shanghai women's perception of perinatal mental health	16 Shanghai women with experience of pregnancy and/or childbirth	December 2018	Semi-structured interviews	Thematic Analysis
IV	Quantitative	Shanghai women's care-seeking behavior for perinatal mental health	487 Shanghai women with experience of pregnancy and/or childbirth	Spring 2019	Online survey	Descriptive statistics and comparative analysis

3.1 DESIGN AND DATA COLLECTION

The studies I, II and III included qualitative data analysis of interview material collected in urban China. The interviews in study I were completed with the aim to comprehend Chinese women's decision-making and stress surrounding a second child in light of the two-child policy introduced in 2016, and analyzed using content analysis. In order to gain insight in the health care professionals' conceptualization of perinatal mental health care services in urban China,

interviews in study II with key informants were conducted and analyzed using content analysis. The interviews in study III aimed to gain insight in Shanghai women's care-seeking behavior for mental health problems during the perinatal period and analyzed by means of thematic analysis. With the information and overview gained through the qualitative studies, a survey was developed to get a quantification of the results from the interview studies with health care professionals and Shanghai women. The online survey with Shanghai women provided valuable information on care-seeking behavior and to whom the women would disclose their perinatal mental health problems.

3.1.1 Study I

Urban Chinese women above 18 years, who spoke Mandarin Chinese, were invited to participate in the study. The participants were recruited through flyers on Hangzhou Normal University Campus and via *WeChat*, the Chinese primary social media platform. Social Work and Counseling master students from Hangzhou Normal University recruited the participants throughout August and December 2016. A 26-item interview guide was developed by the research team based on the pregnancy interview and suggestions by Slade (2003). It was tested by both American Chinese researchers at Columbia University as well as Hong Kong and Mainland Chinese women, and refined prior to the study. The interview questions addressed questions related to two-child policy, such as women's expectations and decision-making regarding a second child. Master students in Social Work and Counseling were introduced to the content of the interview guide and provided with supervision from the research team to conduct the interviews in the best manner. Informed consent was obtained from all participants. The qualitative study was set up as content analysis. The method was chosen with reference to the purpose of this study to investigate experiences.

3.1.2 Study II

15 Shanghai key informants in perinatal health, government representatives, medical staff (obstetricians, psychiatrists, midwives, nurses), and public health experts were interviewed on their perception on perinatal mental health in urban China. The 11-items interview guide on key people's perceptions and attitudes on CMD, especially in the perinatal period in China, was developed by the research team. It was tested on key informants and by Chinese members of research team prior to first interview. The informants were asked to provide their own perspective on different influential aspects on perinatal mental health care, governmental, societal, family, individual, and health care. All interviews were conducted in English.

Informed consent was obtained from all participants. Content analysis with inductive approach was chosen to gather the individuals' views unconditioned and neutral with regards to the topic.

3.1.3 Study III

16 Shanghai women were interviewed on their perceptions of perinatal health care services in urban China. The 9-items interview guide on Shanghai women's perceptions and attitudes on CMD, especially during the perinatal period in China, was developed by the research team. It was tested on Shanghai women by Chinese members of the research team, prior to the first interview.

Informed consent was obtained from all participants. Interviews were conducted in English, with Chinese translator. Thematic analysis with inductive approach was chosen to gather the individuals' views unconditioned and unprejudiced with regards to the topic.

3.1.4 Study IV

The survey was released in Spring 2019. The study-specific questionnaire was developed by the research team and based on the results from the qualitative research studies with key perinatal health professionals and Shanghai women in child bearing age, as well as prior research in childbirth and maternal health, using self-report questionnaires to get information about women's experiences in the perinatal period (204). The study-specific questionnaire was developed based on the literature and a previous interview study with 16 women (94). The use of a global mental health status retrospective 12-months assessment is globally used by WHO, using the International Diagnostic Interview (CIDI) (205, 206). A prevalence study of CMD in urban China by Shen and colleagues (2005) used the WHO CIDI for their evaluation of the urban Chinese mental health status. These self-ratings, next to the research group's qualitative interview outcomes, inspired the development of the online survey with 20 closed questions and one open-ended question (205). The closed questions were rated on a 1-5 Likert scale, including questions such as: What life events happened in the past 12 months that influenced their emotional or mental health status; If being pregnant or giving birth changed their mental health status; How they would resolve potential emotional problems or mental distress; and Who would be their first contact to resolve their emotional problems or mental distress. We asked the women to rate their mental health status during the past 12 months on a scale from 1 to 10, from "very bad" to "very good". This global measure of the women's mental health status was used to dichotomize the sample into two groups, based on their feelings of being mentally healthy or unhealthy. The dichotomization into a "healthy" and "unhealthy" group followed previous research using women's self-reports on pregnancy and birth outcomes (204).

The informants were recruited via Fudan University Redhouse Hospital, Shanghai Women's and Children's Health Center, and Chinese American Psychoanalytic Alliance (CAPA), by members of the listed institutions and research collaboration partners. The survey was sent out to the participating women via a *WeChat* survey. *WeChat* is a Chinese mobile messaging app, released in 2011. In its home market of China, *WeChat* is one of the leading social networks worldwide, placing fifth in number of active users. In 2018, *WeChat* had almost 1.1 billion monthly active users (207). *WeChat* requires its users to verify an account including personal information and verification. The extension and popularity of the app made it a very useful tool to reach the vast majority of the potential study participants and guaranteed the security of their personal information.

3.2 DATA ANALYSIS

3.2.1 Study I

The study was designed a content analysis and the method chosen to serve the purpose of investigating the women's experiences. All 37 interviews were conducted with urban Chinese women from Hangzhou and Shanghai. The women's average age was 29.5 years and all were well-educated. Rural areas were not included in the study, nor women post reproductive age. Transferability of the findings is difficult due to sample selection. The uniqueness of the study is its timing right after the initiation of the two-child policy. It apprehends the decision-making surrounding a second child, family choices, and its impact on women's career. Interview questions referred to women's concerns at an instance of a major societal shift. The restrictions to reproductive freedom as a consequence of the child policies have been controversially discussed at the United Nations and western societies (208-210). The analysis of the consequences of the child-policy shift with respect to women's decision-making regarding a second child is an important societal and public health discourse. The Chinese research team members received a training by project leaders to conduct the interviews and be self-aware of biases.

3.2.2 Study II

A qualitative study design with inductive content analysis approach was chosen, according to Elö and Kyngas (211). This qualitative research approach provides well-grounded and rich descriptions of processes in local contexts from the perspective of the informants. The number of 15 interviews was considered sufficient for the study aim and the material provided a unique insight into the Chinese health care system and attitudes of professionals in the perinatal health

care field on mental health services in in Shanghai. The interviewer is part of the research group and was specifically selected to conduct the interviews. In accordance with (211), the strategy to ensure trustworthiness of our content analysis started by choosing the best data collection method to answer our research questions. Content analysis was chosen because the data was collected by semi-structured interviews. We assured transferability by carefully selecting our interview participants according to our selection criteria. This enhances the opportunity to transfer the results to other urban Chinese contexts (212).

3.2.3 Study III

A qualitative research approach with inductive approach provides well-grounded and rich descriptions of processes in local Chinese contexts from the perspective of the informants (211). The number of 16 interviews was considered sufficient for the study aim and the material provided a unique insight into urban Chinese women's perceptions and attitudes towards perinatal mental health and care seeking-behavior. The interviewer and translator into Mandarin Chinese are part of the research group and were specifically selected to conduct the interviews. Thematic analysis was chosen to analyze the semi-structured interviews. In accordance (213) to ensure trustworthiness of the thematic analysis, we selected an optimal data collection method to answer our research questions.

3.2.4 Study IV

The online cohort survey in Shanghai included 20 closed questions related to women's perinatal and current mental health status, help-seeking behavior, and requests for mental health care. Statistical analysis was carried out using SPSS Statistics Version 25.0 (SPSS, Inc., Chicago, USA). Continuous variables were analyzed by means and standard deviations, and categorical variables were analyzed by number and frequency. Statistical significance was set at a p value < 0.05 . Binary logistic regression analysis was performed to identify the association between explanatory variables and overall mental health status dichotomized into *healthy* and *unhealthy*. The women's overall mental health statuses were estimated by a range from score 1 to 10. The overall mental health status was dichotomized into healthy and unhealthy with a cut off at 4, meaning that women scoring between 1 to 4 felt mentally unhealthy and women scoring 5 to 10 felt mentally healthy.

4 ETHICS

The studies included in the PhD thesis were all conducted according to the principles of Good Clinical Practice and have been approved by the ethical review board in Stockholm, Fudan University Public Health Department, and affiliated University ObGyn Hospital. Results were disseminated at national and international scientific conferences, published in peer-reviewed journals, and spread to the public through social media. According to the Declaration of Helsinki ethical guidelines, research must adopt and follow fundamental ethical principles. These ethical principles entail special respect and understanding of the individual and the population. The guidelines apply not solely to the study participants, but to all individuals whose health can be preserved or improved by applying the research results. The research conducted in this thesis has given consideration and followed the notion that the research should have a beneficial effect on the entire population. **Study I:** The two-child policy study was granted ethical approval from Fudan University, School of Public Health IRB #00002408. Participation was voluntary and discontinued at any time. Participants signed written consents. Ethical questions were asked, such as whether the interview could potentially harm the participating women and cause negative affect and memories. We consider it to be of minimal risk. The benefits outweigh the risks, due to gaining an understanding of the impact of the child policy shift for families and the society of the PRC on multiple levels. Due to the primary center of the Chinese society being the family, the child policy shift impacts all areas of society and has both short-term and long-term consequences on socio-cultural, political, public health, perinatal health, educational, as well as labor market aspects. **Study II & III:** The interview study with key people in perinatal health and women in Shanghai received ethical approval in Stockholm IRB #2018/1041-31 and at Fudan University, Redhouse Hospital IRB #2018-51. Participation was voluntary and participants signed informed consents. Ethical questions were asked, such as whether the interview could potentially harm the participating people and evoke negative affect in relation to the questions about perinatal mental health in China. We consider the advantage for research and education to outweigh the disadvantage and consider the insight in Chinese key peoples' perceptions of perinatal mental health in China important. **Study IV: Who do I turn to...?** The online survey with 500 women in Shanghai regarding mental health care-seeking behavior and disclosure received ethical approval in Stockholm IRB #2018/1041-31 and at Fudan University, Redhouse Hospital IRB #2018-51-X1. The ethical question thus asked was: Is it ethically justifiable to expose women to Shanghai for such a survey study? The advantage of including a survey study was that we had access to a larger data group of women

with mental health concerns, whom, in an anonymous area, are more willing to describe the situation they are in. The large amount of data could be a substitute for specific prevention, interventions, and allocation of resources in the form of education, staff, and easily accessible access to information. The disadvantage of web survey was that it could trigger negative memories of women, questions about reproductive freedom, and a child policy, as well as feel inconvenient to answer because of its political significance in China. Women were guaranteed that their answers were anonymous, participation is voluntary, and that they could discontinue at any stage of the study. However, the risk of this was considered to be small according to previous studies (137, 139).

5 RESULTS

The findings stress the need to improve professionals' and non-mental health professionals' mental health literacy in order to identify common mental health problems, take appropriate actions when needed, and provide well-founded support and advice to patients in need. Policies to support families and young mothers should put in place, and health professionals and community workers should be educated to provide psychosocial support.

5.1 STUDY I

The qualitative research study discovered main decision-making processes and factors contributing to Chinese women's reasoning of having a second child. The women's answers particularly underlined factors and necessary requirements, and less on the main decisions. The factors subsidizing their decision-making act as an initial stage towards a better understanding of the women's prerequisites. The study resulted in six themes and associated subthemes which evolved from the analysis: (1) *Women's status*, (2) *Career*, (3) *Challenges and benefits of two children*, (4) *One-child-policy generation*, (5) *Incentives for second child by the governmental support* (6) *Restrictions of reproductive freedom*. Women's decision-making on having a second child or not, is predisposed by these six areas. These considerations further emphasize the impact of the child policy on societal, perinatal health, and economic changes.

5.2 STUDY II

The experts' reports emerged with three themes. The first theme, *Perinatal mental health influenced by tradition*, describes family tradition affecting the perception of mental health in both society and the individual. *Causes and contributions of perinatal mental health*, refers to the rapidly changing country, vast economic growth and related stress that may contribute to mental health problems. Third main theme, *Existing and required resources*, shows the lack of professional training, staff, and resources available to provide adequate care for patients with mental health problems.

The theme *Perinatal mental health influenced by tradition* showed that the experts described how culture and traditions influenced the perception of mental health in general and perinatal health specifically. Due to the limited availability of treatment for both common and severe mental health disorders, the distinction between overall mental health and perinatal mental health problems was blurred. Many of the interviewees considered stigma a main issue hindering patients from seeking help. The dimensions of the stigma of MHP were shown in an informant's description of her patients' behaviors to avoid potential records.

The theme *Causes and contributions of perinatal mental health*, shed light on how the informants identified the inadequate health services for mental health care in China. It was common sense among experts to raise awareness of mental health and develop new policies. A vivid discourse took place around causes of MHP, such as requirements for women to maintain careers, family and beauty expectations. The experts also noted structural problems in the healthcare system. Several experts emphasized the importance of providing special attention to women's mental health throughout life and during times of vulnerability. Lack of awareness of MHP, especially during childbearing age, is causing significant problems for individuals and society at large. MHP, if chronic and not properly treated, will result in productivity losses. The theme *Existing and required resources* revealed the experts' understanding of the kind of services they considered most urgent. Creative suggestions were discussed regarding a lack of resources, the need for expanding proficiency, and the scope of health care providers. The experts collectively agreed that the perinatal health care services currently offered are not sufficient at all. Obstetricians have a patient flow of over 100 patients a day and because they have no time for conversations outside the routine physical checkups, would not mention mental health care. The experts mentioned the lack of professional staff and resources in mental health care services. The experts also discussed the necessity to educate health professionals about mental health, in order for them to be the first source of knowledge for pregnant women.

They pressed on the importance of informing women about mental health and encouraging them to seek support or treatment. It was frequently mentioned how health professionals play a crucial role in providing said information.

Table 2: Themes and Categories

Themes	Categories	Subcategories
Mental health problems influenced by tradition	1.) Attitudes / tradition regarding mental health care	Stigma Attitudes, society, people The month Don't talk about it Urban vs. rural Family Traditions
	2.) History / Politics and Society's impact on women's mental health and care	Cultural History 2-Child Policy Societal Problems
Societal changes contributing to perinatal mental health problems	3.) Consequences and causes of mental health problems in China	Sources and Causes Problems in Health Care
	4.) Relatives Support and impact on women's mental health	Mother/parents in law Husband Family
Existing and required resources	5.) Women's, environment's and hospital's resources	Solutions available Empowerment of women
	6.) Staff and resources: problem identified and suggestions for solutions	Suggestions for the government Staff and resources missing
	7.) Knowledge leads to increased awareness about mental health	Suggestions to educate health professionals Suggestions to improve (mental) health care

5.3 STUDY III

The women's statements emerged in three main themes: *Urban Chinese women's transition into motherhood*, *Family's support and struggle with tradition*, and *Modern society in the shade of the past*. Women stated the transition of generations as source of conflict and negative impact of mental health. Loneliness, not feeling understood, parental generation, and health care providers' illiteracy are gridlocks for providing access to care for urban Chinese women.

Under the theme *Urban Chinese women's transition into motherhood*, the Shanghai women described their experiences of transitioning into motherhood and discussed strategies and activities to improve their status quo. The women openly shared their challenges dealing with perinatal mental health problems, including causes for their problems, and whom to turn to for support. They described their need to take time on own and to take responsibility and action for themselves. The women took initiatives such as leaving the house earlier than parents or in-laws. Many women emphasized the importance of connecting with the outside world and returning to work. The women shared personal and acquaintances' stories of perinatal mental health problems in urban China. There was a sense of being left alone with the situation and a neglect of mental health awareness from family members. The women struggled with their role in between generations, as well as the loneliness and isolation they felt among family members. The women described how the histories of their own mothers and the desire to have a sibling affected them. They expressed fantasies and ideas surrounding family norms.

Throughout the theme *Family's support and struggle with tradition*, the women described China as a relationship-oriented society. Individuals have to reflect on their status cautiously and retain in interpersonal harmony. Harmony is related to personal and family happiness. In China, family is regarded as the most important entity. In the collectivistic understanding of an individual is defined by its relationships on all societal levels. In Chinese parenting, several generations care for the newborn infant. Especially, because of the one child-policy, all the attention of the grandparents and parents are put on the newborn. This collective parenting and involvement of several generations can result in collective anxiety around one child. All interviewed women agreed on the essentialness of the husband's support for the women's mental health. His involvement into childrearing and family dynamics was described as very important for their mental health wellbeing.

In the third theme, *Modern society in the shade of the past*, the women described how they were aware of the focus on physical rather than mental health care education in China. A glimpse of a shift from traditional perceptions of mental health towards a modern understanding and its impact on women's health was evident. Interviewees emphasized the importance of raising societal awareness of mental health problems. Initially focused on the Chinese discourse of mental health, the women later shifted to share their own attitudes and perceptions, highlighting the transition of their understanding of mental health in urban China.

5.4 STUDY IV

The online cohort survey resulted in 529 women successfully completing answers, out of which 487 women met inclusion criteria (Table 1). The participants' ages ranged from 19 to 57 years, with the average age of (35.15 ± 5.42) years. The majority of the Shanghai women were between 25 and 35 years (53.6%). The majority of the women had one child (77.6%), and almost all women (95.7%) had a university degree. The education level significantly differed between the healthy and unhealthy group ($p=0.002$) with the healthy group having a higher education, tertiary level (96.6%) compared to the unhealthy group (88.5%). The healthy group further earned significantly more ($p=0.024$), which could be expected, considering the higher education level of that group. There was a statistically significant association between age and mental health status ($p=0.013$). The age group between 25 and 35 years rated their mental health lower compared to the other age groups.

The vast majority of all the participating women (82.2%) would seek help from online resources and over 70% of the participants would seek help primarily at community health centers. The majority of the women trusted their friends and husband as the first contact to share their mental health problems. None of the participants would reach out for help to their mother-in-law. The mother-in-law was the person the women trusted the least and women with mental health problems distrusted their mothers-in-law to an even larger extent.

Participants with lower mental health status (score 1-4) considered that pregnancy/giving birth affected their mental health status more ($p=0.008$) (adj OR 2.59; 95%; 1.28-5.24). They further were significantly much less likely to seek help for their mental health problems ($p=0.003$) (adj OR 0.29; 95%; 0.13-0.66) and had a higher likelihood to seek help from professionals ($p=0.001$) (adj OR 2.98; 95%; 1.59-5.58) (Table 3).

The women primarily trusted their friends to seek help for their emotional problems and mental distress 181 (37.2%). The healthy women turned to their husbands more often 163 (37.5%), compared to the unhealthy group 13 (25%). The women in the unhealthy group sought significantly less help 11 (21.2%) compared to their healthy counterparts.

The majority of the women had a clear preference to primarily reach out to community health centers for their mental health problems 347 (71.3%). Their second choice was a general hospital for 56 (11.5%) of all women's answers. The choice to attend a mental health hospital 37 (7.6%) or an obstetric hospital 28 (5.7%) was comparable.

The Shanghai women had a high preference to access internet resources 403 (82.8%). The women had a clear preference for *WeChat* subscriptions 205 (42.1%) as form of online support.

The second choice was online consultations that a third 145 (29.8%) of all women would access, if available.

6 DISCUSSION

6.1 DISCUSSION OF RESULTS

The overall aim of the thesis project was to explore how women and health care providers perceive mental health problems and care seeking behavior during the perinatal period in urban China in the light of the two-child policy. The results will be discussed based on urban Chinese women's and key health care informants' perspective in the context of perinatal mental health care and care-seeking behaviour in urban China.

Women's societal status is an important factor with regards to their decision-making on a second child. The urban Chinese women considered gender inequality and access to women-centered health as an important concern for decisions regarding their reproductive life. Traditional and modern societal concepts and values are competing with each other. Women were torn between traditional domestic caretaking and family-centered duties vs career perspectives and related financial security of the woman's jobs (Study I). We found that Chinese women struggled with their transition into motherhood, tension within family and balancing tradition and modern society. Factors the women associated with their mental health status (Study III). The Shanghai women described the generation gap between their own generation and their parental generation, which manifests in frequent situations with the mother-in-law moving into the young couples' house and causing increased conflict potential (Study III). The key health informants described similar observations among their patients. Such as the number of grandparents on the NICU ward or the postpartum outpatient check-ups (Study II). In an overview of the overall mental health status of the 487 survey participants, the women from the one-child generation had significantly lower overall mental health status (Study IV).

6.1.1 The Child Policy and Mental Health

The implementation of the two-child policy may cause some potential risk for women's employment and career development, which makes them less likely to conceive a second child (Study I). These results were supported by the interviewed Shanghai women that were in the

majority not considering to have a second child (Study III). The results are further maintained by the recent birth rates in Shanghai, that after an initial rise because of the relaxation of the one-child policy, women with advanced maternal age gave birth to a second child. In 2016 the percentage of multiparous births rose due to the two-child policy (from 34.1% in 2012 to 46.7%) (214). Assisted fertilization and surrogate motherhood as a result of women above fertile age with a desire for a second child (215).

Despite the implementation of the two-child policy, the birthrates in Shanghai dropped however by 2 million in 2018. The second consecutive year of decline since China repealed the one-child policy in 2015, to a level lower than before the implementation of the two-child policy (187). China's population expanded by 0.38 per cent in 2018, a rate comparable with western European countries (216). The pace of population growth in 2018 was the slowest since 1961, when the country was struggling with the aftermath of a famine that killed about 40 million people (187). The interviewed women, members of the Chinese one-child generation described a sense of loneliness and isolation, lack of sibling to talk to, and the burden of taking care of several generations (Study III). The results of our survey support these women's experience. The one-child generation was proportionally suffering more from mental health problems, comparing to younger and older generations (Study IV). The mental health status of the one-child generation has been discussed in previous studies with similar results. A recent systematic review by Mu and colleagues 2019 and further studies by Xiong and colleagues (2011) found the one-child generation more frequently experienced PPD and anxiety (7, 26). The desire of a perfect baby continues to be reinforced as a result of the establish societal standards for singleton families (137). A consequences of the one-child policy to reassure the perfect baby is the extraordinarily high selected CS rates in China, comparing to international standards (139). In order to remain competitive parents to other invest a lot of financial capital into their children's education (Study I and Study III). The financial burden for each child is one of the main factors why urban families do not to consider a second child. The Chinese parents' emphasis on education has further consequences, such as 'birth tourism' to the US, for an easier entrance into the US education system, as has been described by health care professionals and Shanghai women (Study II and Study III). The birth tourism has mental health consequences on the Chinese women, that often are alone without their social network in the US, not accompanied by their husband, as one of the health care professionals reported on a case she supported via, WeChat calls (Study II). The practice of birth tourism and anchoring babies has been reported and is increasing for Chinese families considering this step (217). The burden on the one-child generation and their future children is complex and

multifaceted, with consequences on their mental health. The development of PPD in women from one-child families is an important public health concern (118).

6.1.2 Women's Trust to Share Mental Health Problems

The experts interviewed in study II stressed the necessity to involve the new fathers more, rather than the grandparents. Father involvement and the positive impact on the family's mental health is well-recognized in western societies, particularly Scandinavia (218, 219). Even in Japan with its long working hours, younger Japanese fathers have become more aware of the importance of paternal involvement to their families (220). The Japanese government is supporting father involvement to increase Japanese birth rate. The importance of father involvement in China was supported by the outcomes of the interviews with Shanghai women that emphasized the important role of an attentive and involved husband. The husband as a source of trust and mediator among the generations. A supportive husband was considered to be a protective factor to reduce the risk of developing perinatal depression, anxiety, and reduce conflicts with the parental generation, particularly the mother-in-law (Study III). The question of whom to trust regarding the mental health problems became even more important with regards to the limited number of children being born. The survey study highlighted further how clear the trust-distrust is manifested among the participants (Study IV). The mother-in-law as central cause of perinatal mental health problems was addressed both by the key health care informants (Study II), the interviews with Shanghai women (Study III), and resulted in a significant outcome in our survey (Study IV). Shanghai women, reported that they distrusted their mother-in-law significantly the most with regards to their mental health problems (Study IV). In addition, none of the women would trust their mother-in-law regarding their mental health problems. This is a striking outcome and goes along with the results from our interview studies (Study II & III) and are in line with previous research describing the role of the mother-in-law in China and her consequences for the new mothers' mental health (221, 222).

The majority of the women clearly preferred talking to their friends and their husband about their mental health problems. Results we found both in the interview study with Shanghai women (Study III) and the survey (Study IV) supporting each other. There was an interesting outcome in the survey; a significant difference in the "healthy" vs. "unhealthy" population with regards to trust. The unhealthy group had a significantly lower trust in their husbands comparing to the healthy group (Study IV). This could potentially be explained by the couple relationship, which was discussed in the interviews with Shanghai women (Study III). The women emphasized how a supportive husband was protective for their mental health and if the

husband was not present, their mental health would be considerably worse (Study III). The key health informants also stressed the importance to integrate and get the husbands engaged in the perinatal health care services. To emphasize on the young parents, the couple in both antenatal education and postnatal engagement with the infant (Study II). Similar results have been found in other studies, where couple relationship and social support of the partner was an important indicator for perinatal mental well-being (92).

6.1.3 Preference for Type of Professional Mental Health Care

A majority of the women in the survey (71.3%) emphasized that their preference for professional care would be to visit a community health center. Only a minority (11.5%) would attend a general hospital and an even smaller number visit a mental health hospital (7.6%) or an obstetric hospital (5.7%) (Study IV). These results are essential for resource allocation and training of both community care workers and medical staff at general hospitals. The findings follow the WHO Millennium Development Goals 4 and 5 emphasizing the importance for evidence-based research and clinical practice in perinatal mental health, in order to achieve the goals (8, 9).

The findings of key health informants stressing the need for community based “bottom up” (Study II) and the outcomes of the survey (Study IV) are supported by Patel and colleagues 2009 research “where there is no psychiatrist” and WHO “thinking healthy” approach on developing programs for community health workers to provide psychosocial support (25, 223). Emphasizing on the community level services and primary physicians, rather than focus education and resources on high professionalized tertiary hospitals. The Shanghai women would only in 5% of the cases visit a tertiary hospital (psychiatric or obstetric hospital respectively) for their mental health problems (Study IV). This is in line with previous research analyzing mental health literacy and stigma towards mental disorder among hospital staff (224).

Since a larger number of patients with CMD seek help in general hospitals, including the women in our survey (Study IV), medical staff at general hospitals should be trained to provide adequate diagnosis and care for patients with CMD. As Phillips and colleagues 2013 found that health professionals lack mental health literacy, causing underdiagnoses of CMDs and contribute to the unexpectedly high treatment gap in China (4, 36, 159). The current issues with mental health care services in China is the absence of specific efforts to systematically address mental health disorders, slow development of specialized training, treatment (45, 225). The development of mental health care services is left behind the vast modernization of other areas

of medical science and the rapid growth of the Chinese economy.

6.1.4 Organizational Aspects of Perinatal Mental Health Care

In Study II, the key health care professionals, policy makers, and public health professionals envisioned lack of resources and organizational barriers as causing factors for the deficiency of introducing accessible perinatal mental health care services. This interpretation of the ‘status quo’ of China’s mental health care services by the key informants, is in line with the ‘call for action’ by WHO and the Lancet Global Mental Health Group (33, 36). All informants in our studies, as well as the consumers, the Shanghai women highlight the urgent need for better access to mental health care resources (Study II and III). The suggestion and need to provide more comprehensive services on all levels of care, from community-based programs, to outpatient clinics, education and training of health care professionals in primary care facilities, and tertiary specialized hospitals is core to improve the mental health care in China and bridge the largest treatment gap for mental health services worldwide (5, 226, 227). The Lancet Global Mental Health commission proposes that the global mental agenda should be expanded from a focus on reducing the treatment gap to improving the mental health of whole populations and reducing the global burden of mental disorders by addressing gaps in prevention and quality of care (228). Principles of the Lancet Global Mental Health Committee are quality and prevention to reduce treatment gap. In addition, it is essential to include mental health in policy and guiding policies (229). It is pivotal to formulate policies designed to improve the mental health of populations, assuring universal access to appropriate and cost-effective services, including mental health promotion and prevention services (<https://www.who.int/whr/2001/en/>).

Through our survey (Study IV) we got a clear understanding of Shanghai women’s care-seeking behavior for perinatal mental health problems. We gained insight in the Shanghai women’s clear preference for community health care services and online resources or visits at general hospital facilities, much rather than attending tertiary hospitals. These are important findings, emphasizing the need for resource allocation with a ‘bottom up’ approach. Extending services in the community, educate community health workers and general hospital staff to provide psychosocial support and act as referral contacts to specialized centers. Such a bottom up approach is cost-effective and in-line with the women’s needs. An approach that has been proposed and encouraged by WHO ‘thinking healthy’ (223) and Patel and colleagues (2009) ‘where there is no psychiatrist’, emphasizing on the necessity to educate people in the community, to established low cost and accessible trained community health workers (25, 230).

The resource allocation for mental health disorders is put into mental health hospital, not a very effective way, since most people seek help primarily in the results for the survey and similar results also claimed by Britto and colleagues (2018) the Lancet Series (231).

6.1.5 Attitude Toward Internet Mental Health Care Services

The Shanghai women preferred online resources in over 80% of the cases (Study IV). This was one of the strongest and clearest finding in our survey study and emphasizes the significance for the government and policy makers to allocate resources to expand professional, hospital maintained online services to reassure high quality. With the current day's accessibility and dependency on technology, help-seeking behaviors tend to favor towards online resources. Due to the lack of treatment accessibility, perception and level of health professional illiteracy, and cultural stigma of CMD (73, 232, 233), professional online resources for mental health may benefit the urban China population (234). But while there may be a high need for these resources, there will be challenges with maintaining trustworthiness and accuracy online. It is also pertinent that these resources include the proper information for those who are truly in need of in-person acute mental health care. Referrals to mental health care in-person services must be guaranteed. By first addressing the issues surrounding common mental health, in urban China, these results may optimistically be translated to mental health care in rural China (3). Since mental health disorders in rural China are even higher than in urban China, yet accessible resources even more sparse (235). The notion that mental disorders are problems of industrialized and relatively richer parts of the world is simply wrong. The belief that rural communities, relatively unaffected by the fast pace of modern life, have no mental disorders is also incorrect. Recent analyses done by WHO show that neuropsychiatric conditions are rising particularly in rural areas (236). In China, there are more suicide deaths among women than men, with the highest prevalence in rural women aged 19 to 35 (153).

6.2 METHODOLOGICAL CONSIDERATIONS

6.2.1 Study I-III

The qualitative studies I-III were analyzed using content analysis, Systematic Text Condensation (STC), and thematic analysis (211, 213, 237). The data in all three studies was collected using semi-structured interviews developed by the research team. Prior to study initiation, the interviews were tested for compatibility with Chinese members of the research team and urban Chinese women.

Transferability was assured by carefully selecting the interview participants according to selection criteria (238). To ensure *trustworthiness* of content and thematic analysis (237) we selected an optimal data collection method to answer our research questions. The research team considered content and thematic analysis as appropriate expressive analysis of the interview data. While maintaining a responsible level of methodologic thoroughness, the approach provides reflexivity and feasibility.

Content and thematic analysis allowed for collaboration between authors to validate the data evaluation. The number of interviews in each study was considered sufficient for the study aims (212, 239). We considered to have met optimal sample depending on the purpose of the study, research questions, and richness of the data (240). The sample size was considered sufficient due to the richness of the data containing 45min to 90min long interviews and the homogeneity of the study participants (241).

Credibility was provided by a through descriptions of different analysis steps in the research procedure, from recruitment process to data analysis. Every step of the analysis (HL, EA, SES) was described and read interviews independently, used quotations to illustrate the themes and provide transparency (211). Each researcher analyzed the data independently and discussed the analysis until consensus was achieved. Content and thematic analysis allowed for cooperation among the authors, in order to validate the data analysis and emerging themes. All authors independently read the transcripts and later considered the compound themes to form final themes and subthemes, to achieve dependability. Continuous dialogues and discussions between authors were attained to ensure the results and conclusions being supported by the empirical data. To ensure credibility of the results, it was important to evaluate how well categories covered the data and identify similarities within and differences between categories (211). The data from the interviews truthfully represents the information that the participants provided and the interpretations of the data quotes exemplify the interviewees contributions (242). We strived for dependability by verifying consistency of the findings with the collected raw data (238).

Confirmability is a matter of the results and conclusions in a study being consistent with the purpose and not being based on the researcher's interpretations and understanding.

There are several strength and weaknesses with the studies. *Strength* include the specificity of the study population of study I-III can be interpreted a strength, due to the large number of women in urban areas, facing similar life situations. The child-policy shift is a unique and timely study, conducted shortly after the announcement of the two-child policy. It captures women's decision-making on getting pregnant with a second child, their considerations

regarding their career and family options, and concerns. The studies highlight the consequences of the child-policy on the maternal health care system, including mental health care, especially for the professional women in cities. The focus on an urban study sample could be considered a strength, due to the modernization and recognition of mental health in the urban citizens. Maternal mental health care receives growing attention primarily in the cities, due to access of information and services provided. Therewith one of the strengths of the studies I-III lies in the fact that the sample of respondents came from urban cities with similar geographical and socio-economic background that both are representative for being considerably affected by the two-child policy. Due to the urban study samples there is a possibility to include points of view of the transition of the child-policy right at its initiation. The urban Chinese women face different challenges with regards to the policy shift including family conflicts, as a consequence of limited housing space and multiple roles as mother and business women.

Limitations of the studies include *transferability* of the study outcomes needs to be addressed due to the homogenous population of well-educated Chinese women from urban cities. The study sample of Shanghai key informants can be considered as a limitation to transfer the results to more rural regions in China. This is a potential limitation of the studies, as it does not take rural areas into consideration and therewith not representational for the entire People's Republic of China.

The study population's high educational level and the focus on solely Shanghai women and health care professionals, policy makers, and public health professionals from Shanghai, may be considered as a limitation, at the same time it is representative for urban China. A growing population with increasing power in the economy of future China lives in an urban environment in a medium to large city. Due to the specific cultural situation, results cannot be transferred from urban to rural China.

The sampling technique is another limitation of the three studies. Using snowball technique of recruitment reduces the replication of the studies and may contribute to potential over- or underrepresentation of different participant groups. However, the urban study sample can at the same time be considered to enhance the opportunity to transfer the results to other urban contexts (212).

6.2.2 Study IV

The major strength of this study is its high number of respondents, increasing validity and reliability of the outcomes. The rigorous data collection provided a study sample of over 500 Shanghai women responded within the one-month long recruitment period. The study

outcomes generated a reliable source of information of the current situation of perinatal mental health care services and help-seeking behavior in Shanghai. We received detailed information about women's preferences for their care-seeking behavior when confronted with perinatal mental health problems. The large sample size, without missing data, provides generalizable results and important information for future policy planning, resource allocation, and training of health care professionals at different levels of care (232).

There are several limitations, firstly, our study population consisted of participants exclusively from Shanghai, limiting its generalizability to other groups of women in other urban as well as more rural areas. The limitation of exclusively focusing on a Shanghai sample is reducing reliability of the study outcomes to a larger population, yet Shanghai is a cosmopolitan city, with over 25 million inhabitants, the economic capital of China, a region of its own unique characteristics (58). Secondly, the socio-demographic characteristics of our study sample reviled highly educated women, with a wide age range among several generations from 19 to 57 years. The socio-demographic characteristics of our study can however be considered representative for urban Chinese population demographics. The validity of our study population is supported by similar study population characteristics in prior research in the field (117, 214). Thirdly, our study sample was collected using snow-ball technique. Snowball sampling is a non-probability sampling method. This data collection method limits the replication of the study, increases risk for selection bias, and therewith lowers the validity and reliability of the study data (243). It does not involve probability, such as simple random sampling, where the odds are the same for any particular participant being chosen. Rather, the researchers own judgment to choose participants is involved. Snow-ball sampling cannot guarantee a representative spread over the Shanghai population community, due to the aspects listed above. Snowball sampling has a major disadvantage, it makes it impossible to determine the sampling error or make inferences about populations based on the obtained sample (243, 244). Reason for choice of snowball sampling in our study was the challenge, near impossibility to find sufficient participants, as well as the increased risk for selection bias. Fourthly, the self-constructed questionnaire, lacks prior validation and therewith limits the methodological rigor. It was however essential to develop a tool that would take the attitudes, beliefs and customs about pregnancy and child- birth in the Chinese culture into consideration. The specific characteristics of the Chinese health care systems, health care professionals, and material resources differ widely across the countries, as do the pathways to both mental health and maternity care (245). Using an already established instrument would not have made it possible to make meaningful comparison and interpret the results.

Furthermore, although we attempted to control some of the confounding factors, we were still possibly unable to identify all the additional confounders affecting women's help seeking behavior for mental health problems.

To use a global mental health status retrospective 12-months assessment is internationally used by WHO, using the International Diagnostic Interview (CIDI) (205, 206). A prevalence study of CMD in urban China by Shen and colleagues (2005) used the WHO CIDI for their evaluation of the urban Chinese mental health status. These self-rating, next to the research group's qualitative interview outcomes inspired the development of the survey (205).

The global measure of the women's mental health status was used to dichotomize the sample into two groups, regarding their feeling of being mentally healthy or bad well-being. The dichotomization into a "healthy" and "bad well-being" group followed previous research using women's self-report on pregnancy and birth outcomes (204). The global score of mental health status is a within subject even-related approach, a sensitive method of assessing perceived psychosocial distress (246). Though a composite value approach (102) or a method tracking mood-based differences in biological trajectories over the perinatal period (247), and not using a global score such as ours, may be needed to characterize the co-variation of mood and help-seeking behavior. Despite these limitations, the strengths of the study include the notably large sample size, that representing and reflecting the urban Shanghai women accurately. The age range further provides a wide spectrum of concepts and attitudes towards help seeking behavior from different generations of women.

6.3 CONCLUSION AND IMPLICATIONS

Perinatal mental health in Shanghai is a crucial example of the future direction of mental health provision in China, including the extension of public mental health reform and population control policy reform. The results of this thesis may create a significant contribution to the studies of mental health in urban China—a field still in its infancy despite the size and complexity of the country.

Discounting the relatively small sample and focus on Shanghai women, our results provide epidemiological information on the state of mental health in China, which has hitherto been limited. Basic data on many mental disorders, populations, or regions are still missing. Our studies provide insight into the current situation in Shanghai and attempt to close a knowledge gap in mental health care in China. It provides novel information regarding urban Chinese

women's current mental well-being, care-seeking behavior, and preference for the type of professional care for mental health problems. The studies gained insight into the social support systems of urban Chinese women, primarily including friends and their husbands. Our results highlight the situation and challenges of the Chinese one-child generation including higher levels of psychological vulnerability.

Our insights may facilitate training opportunities for health professionals and community workers, by targeting policy and decision-makers to increase awareness of perinatal mental health problems. Healthcare providers need to identify women at risk of developing common mental health disorders during the perinatal period so that tailored interventions focusing on increased support from family, friends, community health workers, and clinicians can be introduced in a timely manner.

Considering the high demand and clear preference for online mental health services among younger Chinese pregnant women and new mothers, it would be appropriate to allocate resources to support expanding web-based services and integrating them in primary care. Together with peer support, this could bridge the gap in accessibility to mental healthcare, especially for common mental disorders. Strengthening familial and social support systems is cost-effective and may have a synergistic positive effect on perinatal mental health.

6.4 FURTHER RESEARCH

This thesis focused on women's experiences of perinatal mental health in urban China.

From a public health perspective, there is much to be accomplished in reducing the burden of mental disorders in China. Further research is needed regarding Shanghai women's care-seeking behavior for mental health problems during the perinatal period, what kind of services the women would seek, and whom they would trust and distrust.

Research focusing on women from the one-child generation is important as they face specific challenges and are at higher risk for developing mental health disorders. The unique family structures of the one-child generation have to be considered with regards to social support. More research on fathers' and husbands' central role and their social support is pivotal. There is an urgency to conduct research on online resources. Investigate type and access, quality, as well as large demand of online resources. Research on internet services is important to promote high quality of services and reach more people in need. At last research and knowledge on

mental health with regards to stigma is important due to its gridlock effect to access and provide proper care.

Online resources and their benefits to address the urgent need for mental health care services should be researched, in order to develop cost-effective, largely accessible services that reach a large population, and are in line with the modern society, and women's needs.

7 ACKNOWLEDGEMENTS

Firstly, I would like to express my whole-hearted gratitude to my supervisor Professor Helena Lindgren, for her incredible support, for believing in me, for allowing me to spread my wings and supporting my first steps towards becoming an independent researcher. Helena was always there for me both as a teacher, mentor, and friend. I am likewise enormously grateful towards my co-supervisor Dr. Ewa Andersson for her enthusiasm, positive energy and home baked cakes powering us through many days of gritty analysis. To Professor Ding Yan, who stepped above and beyond her comfort zone to realize our collaboration project and thus making this thesis possible. To my mentors Professor Christine Anzieu for her insights on analysis, encouragement and insights in academic cultural barriers. To Professor Birgitta Wickberg for many fascinating discussions, readings, and input to manuscripts and grant applications. To Professor Kyllike Christensson, who is a great inspiration and a wonderful support during our research travels to Shanghai. Heartfelt thanks to Professor Pamela Meersand for your wise words and sharp analytic interpretation of my journey. To Professor Xu Biao for cultural bridging and for introducing me to many vital Shanghai contacts. To Professor Liping Zhu for her support to grant me access to study participants and other connections. Thank you to Ms. Du Li from the Shanghai Women's and Children's health Center for her support to coordinate and provide access to patients. To Ms. Shih-Chien Fu's support as translator and research assistant in Shanghai. To Ms. Gu Chunyi, as a fellow researcher and friend. To the hard-working master students from Fudan University Ms. Qian Shuhua and Ms. Qi Fang.

Thank you to my close friend and obstetrician Dr. Zhou Qiongjie for all her support. A special thank you goes to Ms. Geneviève Appenzeller for our stimulating discussions, support and for being a Swiss female role model. A great thank you and in gratitude to Ms. Nicole Pang and Ms. Mandy Hsu, for their tremendous support and engagement in proofreading my thesis. To Professor Ganesh Acharya for being a great mentor, for supporting me in challenging situations, always considerate and helpful, and for accepting me for my postdoctoral work. To Professor Maria Masucci for serving as an inspiration and for our experiences in the Karolinska Institute International Committee. To the Department of Women's and Children's Health and the Division of Reproductive Health at Karolinska Institute. To Fudan University Obstetrics and Gynecology Hospital. Special thoughts, and appreciation go to all the Shanghai women and key informants participating in my thesis project.

This thesis is dedicated to the memory of my late grandfather Dr. André Bodmer. I will never forget our many talks about life and everything else. He knew me better than I knew myself. He foresaw me in medical research long before I did. He gave me the courage pursue an academic career, to move to New York by myself, further my education. By moving to Stockholm to pursue my PhD, I met the love of my life, my now husband Cheng. I remember it as if it happened yesterday. In Chinese, it's called 'yuanfen' to meet a person from far away in your nearest proximity. His way of encouraging me and getting the most positive side of me to flourish has been quintessential for not only my doctoral studies, but life and happiness in general. He took on the legacy of my grandpa to continuously give me all the confidence and stimulation I need to strive. To my husband Cheng for his incredible support, patience, for believing in me, for cooking me many late-night dinners. For being my partner in life and for making me the best me.

In addition, I am enormously grateful to my beloved grandma Helen, who always has wise words to cheer me up in difficult situations. To my parents Sabine and Thomas, for providing me with the best of upbringings and continuous support. To my sister Ariane and my brother Serge for always being there for me and keeping me grounded. To my parents-in-law Li and Ning for their support, generosity, and hospitality.

A great thank you to all my friends from all over the world, for lovely distractions from the academic world through coffees, dinners, yoga, and outdoor runs.

And lastly, my thanks to the Swiss chocolate industry for fueling my body, mind, and soul during this fantastic journey.

8 APPENDIX

8.1.1 Appendix I: Questionnaire Study I

China Child Policy Interview (CCPI)

The China Child Policy Interview (CCPI) 26-item semi-structured interview on the pregnant woman's relationship and fantasies to her child, her own parents and her partner, the woman's anticipations to motherhood and questions related to the decision-making of having a second-child are discussed. Emphasis is put on different aspects of decision-making with regards to the child policy shift and its impact on families. Further questions concerning psychological health, family dynamics with respect to childcare, domestic vs. labor work, and financial considerations are discussed.

Before we get started, could you give me a bit of an overview of your family situation, where you're living, whom you're living with? Do you have siblings? Do you have children? Do you both work?

Ok, thank you for this overview.

1. China has changed its policy, with regards to how many children a family can have. How does **the policy shift affect you as a woman**?
2. Does the policy shift impact your **decision-making** on whether to get children, and if so to getting one or two children?
3. Can you imagine yourself having more than one child?
4. Do you have any preference on if the child is a girl or a boy?
5. What other aspects do you take into consideration, with respect to your **family planning**?
6. Which aspects do you consider most important in your decision on whether to have one or two children in your family?

Prompts:

- A) Inter-family situation
- B) Social aspects (i.e. status, social bias of age)
- C) School competitiveness
- D) Financial situation
- E) Career
- F) One-child policy generation
- G) Medical aspects (i.e. age)
- H) Governmental incentives for second child (i.e. parental leave)
- I) Education (education payment and the ability to help children in school)
- J) others

A) Inter-Family Situation

7. Who will be included in the decision-making on a second child in the family?
8. What are the **expectations of the maternal and paternal parents** on how many children you should have?

9. Who will **care for second the child**?

B) Social Aspects

10. How important is the **social status** of having a second child?

11. What do you see as the pro /cons of having a second child?

C) School Competition

12. What are your thoughts around school competition and having two children?

D) Financial Situation

13. What are the **financial concerns** regarding the second child?

E) Career

14. How do you consider your **career** will change with regards to the number of children?

15. Are you concerned about the changes in your career?

F) One Child-Policy Generation

16. Does being a child from the **one-child-policy generation** influence your decision-making?

17. When you were a child, did you wish yourself siblings?

18. How does it affect you that people around you **choose to only have one child**?

- Does that have an impact on your own decision on the number of children you want?
- Do you see it as an advantage for your children in future to be two children?
- or a disadvantage for them because you cannot dedicate the same amount of time to them?

19. How did you experience giving birth when knowing it's the only time in life you will experience it?

20. Did you / will you breastfeed your child?

G) Medical Aspects

21. How does you think about the age of a woman to get her second child?

- do you think **age** has an impact on your decision-making?

22. Would your consider **invitro fertilisation (IVF) treatment** to get a second child?

- if so, do you think the government should financially support IVF treatments?

H) Governmental Incentives for Second Child

23. How could the government support you in having a second child (i.e. parental leave)?

24. What do you think about the restriction by the government on the amount of children you are allowed to have?

25. How do you experience these restrictions, fees, and incentives for single-child families during the one-child-policy?

26. Would you like to add anything more on your position as a woman in China, faced with the child policy shift?

8.1.2 Appendix II: Questionnaire Study II

Understanding of Mental Health Issues surrounding childbirth

The Perinatal Mental Health Interview is a 11-item semi-structured interview on **key people's and uniparous women's perception, opinion, and experience on mental health, especially in the perinatal period in China**. Emphasis is put on different aspects of mental health in China from a governmental, societal, family, individual, and health care perspective. The interview will take approximately 20-30min.

Before we get started, could you give me a bit of an overview of your professional identity?

Understanding of mental health issues and psychiatric disorders surrounding child birth in China

1. Could you please describe Chinese people's attitude to mental health?
2. What is your personal understanding of mental health in China today?
3. What do you consider causes mental health problems in women (probe causes awareness, etiology, of each condition)?
4. How often do you encounter pregnant women with mental health problems?

Health service response

5. Have you've been involved in policy making, teaching/ training or intervention programs for pregnant women?
6. What health services should be provided for women with mental health problems (i.e. What would provide happiness in women?)?
7. Do you think the local services are adequate and satisfactory for the (detection, prevention and management) of maternal mental health problems?
8. What are the difficulties and opportunities of maternal mental health treatment in China?
9. Who should be responsible for education and clinical training of mental health for health care professionals?

Family

10. What are the expectations of the father, grandparents in the treatment of maternal mental health?

Stigmatization

11. How do you experience stigmatization of mental health in China?

8.1.3 Appendix III: Questionnaire Study III

Understanding of Mental Health Issues surrounding childbirth

Overview of your current life situation?

- Age

Married/living together/living with partner/living with family/other

- Do you have a workplace/are you working now. If not, are you studying/on sick leave/unemployed/ other reason

Year in school?

Ok, thank you for this overview.

Understanding of mental health issues and problems/ psychiatric disorders surrounding childbirth in Shanghai, China

1. Describe how you would define not feeling mentally healthy related to childbirth?
(prompt what this means to you...can give examples)
2. Have you ever heard that some pregnant women or new mother have mental problems?
If yes, what kind of problems you heard?
3. Have you experienced not feeling well or having mental health problems?
4. When a woman is emotionally unwell during pregnancy and the post-partum period, what do you think can be done to help her? [What can be done to help you Probe for health/help seeking behavior]
5. **Where would you turn to seek help for mental health problems?
(Who would you trust? How easy accessible is it? Do you have experience of someone you know that sought help?)**
6. What do you think that other people, such as friends, colleagues, would think if you had mental health problems?
7. What will the family think about this? Such as the husband, parents-in-law?
8. What suggestions do you have for improving health care for these mental health concerns?
9. What do you think is the impact of the restricted child policy on women's mental health?

8.1.4 Appendix IV: Questionnaire Study IV

Survey Mental Health Care in Urban China

1. How would you describe your overall mental health status in the past 12 months?
(Likert Scale 1-10, very good=10 to very bad=1)
2. What things or events happened in the past 12 months that influenced your emotional or mental health status? (a. pregnancy, b. birth, c. marriage d. divorce, e. death in family, f. career change, g. exam, h. unemployment, i. sickness in family, j. other)
3. Did being pregnant or giving birth change your mental health status? **Yes/no**
4. How would you resolve your potential emotional problems or mental distress? Seek help from a. family (a1 husband, a2 siblings, a3 mother, a4 father, a5 mother in laws, a6 father in law, a7 other relatives), b. Friends, c. Medical doctor/general practitioners, d. psychiatrist e. psychologist f. Community health worker g. Nurse h. Hospital i. Other j. I would not seek help
5. Which would be your **first contact** to resolve your emotional problems or mental distress? a. family (a1 husband, a2 siblings, a3 mother, a4 father, a5 mother in laws, a6 father in law, a7 other relatives), b. Friends, c. Medical doctor/ general practitioners, d. psychiatrist e. psychologist f. Community health worker g. Nurse h. Hospital i. Other.
6. Who would you **trust** to talk to about your emotional problems or mental distress? a. family (a1 husband, a2 siblings, a3 mother, a4 father, a5 mother in laws, a6 father in law, a7 other relatives), b. Friends, c. Medical doctor/ general practitioners, d. psychiatrist e. psychologist f. Community health worker g. Nurse h. Hospital i. Other.
7. Who would you **not trust** and not ask for help? a. family (a1 husband, a2 siblings, a3 mother, a4 father, a5 mother in laws, a6 father in law, a7 other relatives), b. Friends, c. Medical doctor/ general practitioners, d. psychiatrist e. psychologist f. Community health worker g. Nurse h. Hospital i. Other
8. Have you **ever sought** help for emotional problems or mental distress from any mental health professionals (e.g., psychiatrists, psychologists, psychotherapists, social workers)? (**Yes:** a. psychiatrists, b. psychologists, c. psychotherapists, d. social workers, e. other) **No**
9. **If not, have you ever thought of seeking help** from these mental health professionals? Yes/No Comments:

10. Do you know of anyone (friend, relative etc) who has suffered from emotional problems or mental distress? Yes/No
11. Do you know of anyone (friend, relative etc) who sought professional help for emotional problems or mental distress? Yes/No
12. If mental health related services are to be provided in your residential neighborhood or the nearby area, what kind of **services do you expect** to have? (a. General hospital, b. Mental health hospital, c. Obstetric hospital, d. Community health center with mental health specialist e. other, specify___)
13. If mental health related services are to be provided via the Internet, would you access them and about what kind of online help you would like to achieve a. wechat subscription b. wechat group c. QQ group d. online consultation e. other, specify___
14. Any other thoughts or suggestions that you have about mental health related services? Open question

9 REFERENCES

1. Whiteford HA, Degenhardt L, Rehm J, Baxter AJ, Ferrari AJ, Erskine HE, et al. Global burden of disease attributable to mental and substance use disorders: findings from the Global Burden of Disease Study 2010. *The Lancet*. 2013;382(9904):1575-86.
2. Xu J, Wang J, Wimo A, Qiu C. The economic burden of mental disorders in China, 2005-2013: implications for health policy.(Report). *BMC Psychiatry*. 2016;16(137).
3. Li J, Rose N. Urban social exclusion and mental health of China's rural-urban migrants – A review and call for research. *Health and Place*. 2017;48:20-30.
4. Saraceno B, van Ommeren M, Batniji R, Cohen A, Gureje O, Mahoney J, et al. Barriers to improvement of mental health services in low-income and middle-income countries. *The Lancet*. 2007;370(9593):1164-74.
5. Flisher A, Lund C, Patel V, Saxena S, Thornicroft G, Tomlinson M. Scale up services for mental disorders: a call for action. *The Lancet*. 2007;370(9594):1241-52.
6. Roderic B. A Concise History of World Population. *Canadian Studies in Population*. 2014;41(1-2):215-6.
7. Stein A, Netsi E, Lawrence PJ, Granger C, Kempton C, Craske MG, et al. Mitigating the effect of persistent postnatal depression on child outcomes through an intervention to treat depression and improve parenting: a randomised controlled trial. *The Lancet Psychiatry*. 2018;5(2):134-44.
8. Fisher JRW, de Mello MC, Izutsu T, Tran T. The Ha Noi Expert Statement: recognition of maternal mental health in resource-constrained settings is essential for achieving the Millennium Development Goals. *International Journal of Mental Health Systems*. 2011;5(1):2-
9. Fisher J, Cabral de Mello M, Patel V, Rahman A, Tran T, Holton S, et al. Prevalence and determinants of common perinatal mental disorders in women in low- and lower-middle-income countries: a systematic review. *Bull World Health Organ*. 2012;90(2):139G-49G.
10. Howard LM, Piot P, Stein A. No health without perinatal mental health. *The Lancet*. 2014;384(9956):1723-4.
11. Kumar R, Robson KM. A prospective study of emotional disorders in childbearing women. *The British Journal of Psychiatry*. 1984;144(1):35-47.
12. Marks MN, Wieck A, Checkley SA, Kumar R. Contribution of psychological and social factors to psychotic and non-psychotic relapse after childbirth in women with previous histories of affective disorder. *Journal of Affective Disorders*. 1992;24(4):253-63.
13. Ballard C, Davies R. Postnatal depression in fathers. *International Review of Psychiatry*. 1996;8(1):65-71.
14. Stein A, Pearson RM, Goodman SH, Rapa E, Rahman A, McCallum M, et al. Effects of perinatal mental disorders on the fetus and child. *The Lancet*. 2014;384(9956):1800-19.
15. Glover V, O'Connor TG. Effects of antenatal stress and anxiety: Implications for development and psychiatry. *The British journal of psychiatry : the journal of mental science*. 2002;180:389.
16. Edhborg M, Nasreen H-E, Kabir Z. Impact of postpartum depressive and anxiety symptoms on mothers' emotional tie to their infants 2–3 months postpartum: a population-based study from rural Bangladesh. *Official Journal of the Section on Women's Health of the World Psychiatric Association*. 2011;14(4):307-16.
17. Walker S, Wachs T, Meeks Gardner J, Lozoff B, Wasserman G, Pollitt E, et al. Series, Child development in developing countries. *Child development: risk factors for adverse outcomes in developing countries. Child: Care, Health and Development*. 2007;33(4):502-

18. Larsson B, Karlström A, Rubertsson C, Hildingsson I. The effects of counseling on fear of childbirth. *Acta Obstetrica et Gynecologica Scandinavica*. 2015;94(6):629-36.
19. O'Connor T, Monk C, Burke A. Maternal Affective Illness in the Perinatal Period and Child Development: Findings on Developmental Timing, Mechanisms, and Intervention. *Current Psychiatry Reports*. 2016;18(3):1-5.
20. Howard LM, Molyneaux E, Dennis CL, Rochat T, Stein A, Milgrom J. Non-psychotic mental disorders in the perinatal period. *Lancet*. 2014;384(9956):1775-88.
21. Dennis CL, Ross LE, Grigoriadis S. Psychosocial and psychological interventions for treating antenatal depression. *The Cochrane database of systematic reviews*. 2007(3):CD006309.
22. McManus B, Nugent J. A Neurobehavioral Intervention Incorporated into a State Early Intervention Program is Associated with Higher Perceived Quality of Care Among Parents of High-Risk Newborns. *Official Publication of the National Council for Community Behavioral Healthcare*. 2014;41(3):381-9.
23. Dunkel Schetter C, Tanner L. Anxiety, depression and stress in pregnancy: implications for mothers, children, research, and practice. *Current Opinion in Psychiatry*. 2012;25(2):141-8.
24. Glover V. Prenatal stress and its effects on the fetus and the child: possible underlying biological mechanisms. *Adv Neurobiol*. 2015;10:269-83.
25. Patel V, Thornicroft G. Packages of Care for Mental, Neurological, and Substance Use Disorders in Low- and Middle-Income Countries: PLoS Medicine Series. *PLoS Medicine*. 2009;6(10):e1000160.
26. Grote N, Bledsoe S. Predicting Postpartum Depressive Symptoms in New Mothers: The Role of Optimism and Stress Frequency during Pregnancy. *Health & Social Work*. 2007;32(2):107-18.
27. Burns A, O'Mahen H, Baxter H, Bennert K, Wiles N, Ramchandani P, et al. A pilot randomised controlled trial of cognitive behavioural therapy for antenatal depression.(Clinical report). *BMC Psychiatry*. 2013;13(1).
28. La Marca-Ghaemmaghami P, Ehlert U. Stress During Pregnancy: Experienced Stress, Stress Hormones, and Protective Factors. *European Psychologist*. 2015;20(2):102-19.
29. Wong J, Fisher J. The role of traditional confinement practices in determining postpartum depression in women in Chinese cultures: A systematic review of the English language evidence. *Journal of Affective Disorders*. 2009;116(3):161-9.
30. Refugees. WHOaUNHCF. mhGAP Humanitarian Intervention Guide (mhGAP-HIG): clinical management of mental, neurological and substance use conditions in humanitarian emergencies. Geneva: WHO Press; 2015.
31. Liu J, Ma H, He YL, Xie B, Xu YF, Tang HY, et al. Mental health system in China: history, recent 210 service reform and future challenges. *World Psychiatry*. 2011;10(3):210-6.
32. Patel V, Prince M. Global mental health. *JAMA, The Journal of the American Medical Association*. 2010;303(19):1976.
33. Sayers J. The World Health Report 2001; Mental health: New Understanding, New Hope. (Books & Electronic Media). *Bulletin of the World Health Organization*. 2001;79(11):1085.
34. Mathers CD, Samet J, Loncar D. Projections of Global Mortality and Burden of Disease from 2002 to 2030. *PLoS Medicine*. 2006;3(11):e442.
35. Kohn R, Saxena S, Levav I, Saraceno B. The treatment gap in mental health care. *World Health Organization Bulletin of the World Health Organization*. 2004;82(11):858-66.
36. Chisholm D, Flisher AJ, Lund C, Patel V, Saxena S, Thornicroft G, et al. Scale up services for mental disorders: a call for action. *Lancet (London, England)*.

2007;370(9594):1241.

37. Demyttenaere K, Bruffaerts R, Posada-Villa J, Gasquet I, Kovess V, Lepine JP, et al. Prevalence, Severity, and Unmet Need for Treatment of Mental Disorders in the World Health Organization World Mental Health Surveys. *JAMA*. 2004;291(21):2581-90.
38. Kakuma R, Minas H, van Ginneken N, Dal Poz MR, Desiraju K, Morris JE, et al. Human resources for mental health care: current situation and strategies for action. *The Lancet*. 2011;378(9803):1654-63.
39. Gavin IN, Gaynes NB, Lohr NK, Meltzer-Brody NS, Gartlehner NG, Swinson NT. Perinatal Depression: A Systematic Review of Prevalence and Incidence. *Obstetrics & Gynecology*. 2005;106(5, Part 1):1071-83.
40. Byatt N, Xiao R, Dinh K, Waring M. Mental health care use in relation to depressive symptoms among pregnant women in the USA. *Official Journal of the Section on Women's Health of the World Psychiatric Association*. 2016;19(1):187-91.
41. Geier ML, Hills N, Gonzales M, Tum K, Finley PR. Detection and treatment rates for perinatal depression in a state Medicaid population. *CNS spectrums*. 2015;20(1):11.
42. O'Hara MW, Swain AM. Rates and risk of postpartum depression—a meta-analysis. *International Review of Psychiatry*. 1996;8(1):37-54.
43. World development indicators [Internet]. World Bank. 2005 [cited 21.03.2019]. Available from: <http://data.worldbank.org/data-catalog/world-development-indicators>.
44. Hendrick V, Altshuler L, Strouse T, Grosser S. Postpartum and nonpostpartum depression: differences in presentation and response to pharmacologic treatment. *Depression and anxiety*. 2000;11(2):66.
45. Prince M, Patel V, Saxena S, Maj M, Maselko J, Phillips MR, et al. No health without mental health. *The Lancet*. 2007;370(9590):859-77.
46. Stewart RC, Umar E, Kauye F, Bunn J, Vokhiwa M, Fitzgerald M, et al. Maternal common mental disorder and infant growth – a cross-sectional study from Malawi. *Maternal & Child Nutrition*. 2008;4(3):209-19.
47. Posner J, Cha J, Roy AK, Peterson BS, Bansal R, Gustafsson HC, et al. Alterations in amygdala–prefrontal circuits in infants exposed to prenatal maternal depression. *Translational Psychiatry*. 2016;6(11):e935.
48. O'donnell KJ, Bugge Jensen A, Freeman L, Khalife N, O'connor TG, Glover V. Maternal prenatal anxiety and downregulation of placental 11 β -HSD2. *Psychoneuroendocrinology*. 2012;37(6):818-26.
49. Monk C, Georgieff MK, Osterholm EA. Research Review: Maternal prenatal distress and poor nutrition – mutually influencing risk factors affecting infant neurocognitive development. Oxford, UK2013. p. 115-30.
50. Perry DF, Ettinger AK, Mendelson T, Le H-N. Prenatal depression predicts postpartum maternal attachment in low-income Latina mothers with infants. *Infant Behavior and Development*. 2011;34(2):339-50.
51. Locke RL, Lagasse LL, Seifer R, Lester BM, Shankaran S, Bada HS, et al. Effects of prenatal substance exposure on infant temperament vary by context. 2016;28(2):309-26.
52. Smith M, Shao L, Howell H, Lin H, Yonkers K. Perinatal Depression and Birth Outcomes in a Healthy Start Project. *Maternal and Child Health Journal*. 2011;15(3):401-9.
53. Cox JL, Holden JM, Sagovsky R. Detection of postnatal depression. Development of the 10- item Edinburgh Postnatal Depression Scale. *The British journal of psychiatry : the journal of mental science*. 1987;150:782.
54. Wisner KL, Parry BL, Piontek CM. Postpartum Depression. *The New England Journal of Medicine*. 2002;347(3):194-9.
55. Lau Y, Wong D, Chan K. The utility of screening for perinatal depression in the

- second trimester among Chinese: a three-wave prospective longitudinal study. *Official Journal of the Section on Women's Health of the World Psychiatric Association*. 2010;13(2):153-64.
56. Dipietro JA, Costigan KA, Sipsma HL. Continuity in self-report measures of maternal anxiety, stress, and depressive symptoms from pregnancy through two years postpartum. *Journal of Psychosomatic Obstetrics & Gynecology*. 2008;29(2):115-24.
 57. Parsons CE, Young KS, Rochat TJ, Kringelbach ML, Stein A. Postnatal depression and its effects on child development: a review of evidence from low- and middle-income countries. *British Medical Bulletin*. 2012;101(1):57-79.
 58. Zhao Y, Kane I, Mao L, Shi S, Wang J, Lin Q, et al. The Prevalence of Antenatal Depression and its Related Factors in Chinese Pregnant Women who Present with Obstetrical Complications. *Archives of Psychiatric Nursing*. 2016;30(3):316-21.
 59. Vigod SN, Wilson CA, Howard LM. Depression in pregnancy. *BMJ*. 2016;352.
 60. Excellence NifHaC. Antenatal and postnatal mental health: clinical management and service guidance. In: CG192.) Cg, editor. 2018.
 61. Kozinszky Z, Dudas RB. Validation studies of the Edinburgh Postnatal Depression Scale for the antenatal period. *Journal of Affective Disorders*. 2015;176(2):95-105.
 62. Jones I, Chandra PS, Dazzan P, Howard LM. Bipolar disorder, affective psychosis, and schizophrenia in pregnancy and the post-partum period. *The Lancet*. 2014;384(9956):1789-99.
 63. Excellence NifHCa. Smoking: stopping in pregnancy and after childbirth. (PH 26.) 2010.
 64. Excellence NifHCa. Weight management before, during and after pregnancy. (PH 27.) 2010.
 65. Excellence NifHCa. NICE pathways for common mental disorders in primary care. 2013.
 66. Excellence NifHCa. Domestic violence and abuse: multi-agency working. (PH 50.) 2014.
 67. Milgrom J, Gemmill AW. Identifying Perinatal Depression and Anxiety : Evidence-Based Practice in Screening, Psychosocial Assessment and Management. Chicester: Chicester: John Wiley & Sons, Incorporated; 2015.
 68. Qian Y-R, Yan, X. Prevalence of postpartum depression in China: a systematic analysis. *J Pract Nurs*. 2013;29:1-3.
 69. Wong J, Fisher J. The role of traditional confinement practices in determining postpartum depression in women in Chinese cultures: a systematic review of the English language evidence. *J Affect Disord*. 2009;116(3):161-9.
 70. Mu T-Y, Li Y-H, Pan H-F, Zhang L, Zha D-H, Zhang C-L, et al. Postpartum depressive mood (PDM) among Chinese women: a meta-analysis. *Archives of Women's Mental Health*. 2019;22(2):279-87.
 71. Galea S, Uddin M, Koenen K. The urban environment and mental disorders: Epigenetic links. *Epigenetics*. 2011;6(4):400.
 72. Virupaksha H, Kumar A, Nirmala B. Migration and mental health: An interface. *Journal of Natural Science, Biology and Medicine*. 2014;5(2):233-9.
 73. Chen HH, Phillips MR, Cheng H, Chen QQ, Chen XD, Fralick D, et al. Mental health law of the People's Republic of China.(Special article)(Law overview). *Shanghai Archives of Psychiatry*. 2012;24(6):305.
 74. Wisner KL, Chambers C, Sit DKY. Postpartum Depression: A Major Public Health Problem. *JAMA*. 2006;296(21):2616-8.
 75. Gorman JM. Comorbid depression and anxiety spectrum disorders. *Depression and Anxiety*. 1996;4(4):160-8.
 76. Lydsdottir LB, Howard LM, Olafsdottir H, Thome M, Tyrfinngsson P, Sigurdsson

- JF. The mental health characteristics of pregnant women with depressive symptoms identified by the Edinburgh Postnatal Depression Scale. *The Journal of clinical psychiatry*. 2014;75(4):393.
77. Brunton RJ, Dryer R, Saliba A, Kohlhoff J. Pregnancy anxiety: A systematic review of current scales. *Journal of Affective Disorders*. 2015;176:24-34.
 78. Buist A, Gotman N, Yonkers KA. Generalized anxiety disorder: Course and risk factors in pregnancy. *Journal of Affective Disorders*. 2011;131(1-3):277-83.
 79. Heron J, Amp, Apos, Connor TG, Evans J, Golding J, et al. The course of anxiety and depression through pregnancy and the postpartum in a community sample. *Journal of Affective Disorders*. 2004;80(1):65-73.
 80. Vesga-López O, Blanco C, Keyes K, Olfson M, Grant BF, Hasin DS. Psychiatric Disorders in Pregnant and Postpartum Women in the United States. *Archives of General Psychiatry*. 2008;65(7):805-15.
 81. Faisal-Cury A, Rossi Menezes P. Prevalence of anxiety and depression during pregnancy in a private setting sample. *Archives of Women's Mental Health*. 2007;10(1):25-32.
 82. Nasreen HE, Kabir ZN, Forsell Y, Edhborg M. Prevalence and associated factors of depressive and anxiety symptoms during pregnancy: A population based study in rural Bangladesh. *BMC Women's Health*. 2011;11(1):22-.
 83. American Psychiatric A, American Psychiatric Association. Task Force on D-I. Diagnostic and statistical manual of mental disorders : DSM-IV-TR. 4. ed. / text revision. ed. Washington, DC: Washington, DC : American Psychiatric Association; 2000.
 84. Huizink AC, Mulder EJH, Robles de Medina PG, Visser GHA, Buitelaar JK. Is pregnancy anxiety a distinctive syndrome? *Early Human Development*. 2004;79(2):81-91.
 85. Poikkeus LP, Saisto LT, Unkila-Kallio LL, Punamaki LR, Repokari LL, Vilksa LS, et al. Fear of Childbirth and Pregnancy-Related Anxiety in Women Conceiving With Assisted Reproduction. *Obstetrics & Gynecology*. 2006;108(1):70-6.
 86. Neill Epperson C, Ballew J. Postpartum Depression: A Common Complication of Childbirth. Hendrick V, editor. Totowa, NJ: Totowa, NJ: Humana Press; 2006. 41-81 p.
 87. Patel V, Rodrigues M, Desouza N. Gender, Poverty, and Postnatal Depression: A Study of Mothers in Goa, India. *American Journal of Psychiatry*. 2002;159(1):43-7.
 88. Nielsen D, Videbech P, Hedegaard M, Dalby J, Secher NJ. Postpartum depression: identification of women at risk. *BJOG: An International Journal of Obstetrics & Gynaecology*. 2000;107(10):1210-7.
 89. Beck TC. Predictors of Postpartum Depression: An Update. *Nursing Research*. 2001;50(5):275-85.
 90. Eberhard-Gran M. Depression in connection with parturition. *Nedstemthet og depresjon i forbindelse med fødsel*. 2011;40(1).
 91. Milgrom J, Gemmill AW, Bilszta JL, Hayes B, Barnett B, Brooks J, et al. Antenatal risk factors for postnatal depression: A large prospective study. *Journal of Affective Disorders*. 2008;108(1):147-57.
 92. Dennis CL, Ross L. Women's perceptions of partner support and conflict in the development of postpartum depressive symptoms. *Journal of Advanced Nursing*. 2006;56(6):588-99.
 93. Dennis C-L. Psychosocial and psychological interventions for prevention of postnatal depression: systematic review. *BMJ*. 2005;331(7507):15.
 94. **Schwank S**, Andersson E, Wickberg B, Ding Y, Lindgren H. When a new mother becomes mentally unhealthy, it's everyone's problem: Shanghai Women's Perceptions on Perinatal Mental Health Problems. *International Journal of Women's Health*. 2019:Manuscript.
 95. Kendall-Tackett K. A new paradigm for depression in new mothers: the central

role of inflammation and how breastfeeding and anti-inflammatory treatments protect maternal mental health. *International Breastfeeding Journal*. 2007;2(6):6.

96. Warner R, Appleby L, Whitton A, Faragher B. Demographic and obstetric risk factors for postnatal psychiatric morbidity. *The British journal of psychiatry : the journal of mental science*. 1996;168(5):607.

97. Webster J, Linnane JW, Dibley LM, Pritchard M. Improving antenatal recognition of women at risk for postnatal depression. *Australian and New Zealand Journal of Obstetrics and Gynaecology*. 2000;40(4):409-12.

98. Treloar SA, Martin NG, Bucholz KK, Madden PAF, Heath AC. Genetic influences on post-natal depressive symptoms: findings from an Australian twin sample. *Psychol Med*. 1999;29(3):645-54.

99. Wang Y-Y, Li H, Wang Y-J, Wang H, Zhang Y-R, Gong L, et al. Living with parents or with parents-in-law and postpartum depression: A preliminary investigation in China. *Journal of Affective Disorders*. 2017;218:335-8.

100. Monk C. 2.3 Using Epigenetics to Understand How Distress During Pregnancy Impacts Fetal Behavioral Outcomes. *Journal of the American Academy of Child & Adolescent Psychiatry*. 2016;55(10):S86-S7.

101. Monk C, Fifer WP, Myers MM, Bagiella E, Duong JK, Chen IS, et al. Effects of maternal breathing rate, psychiatric status, and cortisol on fetal heart rate. *Developmental Psychobiology*. 2011;53(3):221-33.

102. Doyle C, Werner E, Feng T, Lee S, Altemus M, Isler JR, et al. Pregnancy distress gets under fetal skin: Maternal ambulatory assessment & sex differences in prenatal development. *Developmental Psychobiology*. 2015;57(5):607-25.

103. Glover V, O'connor TG, O'donnell K. Prenatal stress and the programming of the HPA axis. *Neuroscience and Biobehavioral Reviews*. 2010;35(1):17-22.

104. Kajantie E. Fetal Origins of Stress-Related Adult Disease. *Annals of the New York Academy of Sciences*. 2006;1083(1):11-27.

105. Furu K, Kieler H, Haglund B, Engeland A, Selmer R, Stephansson O, et al. Selective serotonin reuptake inhibitors and venlafaxine in early pregnancy and risk of birth defects: population based cohort study and sibling design. *BMJ : British Medical Journal*. 2015;350(8008).

106. Nörby U, Forsberg L, Wide K, Sjörs G, Winbladh B, Källén K. Neonatal Morbidity After Maternal Use of Antidepressant Drugs During Pregnancy. *Pediatrics*. 2016;138(5).

107. Sujan AC, Rickert ME, A. Oberg S, Quinn PD, Hernandez-Diaz S, Almqvist C, et al. Association between serotonergic antidepressant use during pregnancy and autism spectrum disorder in children.(Report). *JAMA, The Journal of the American Medical Association*. 2017;317(15):1553.

108. Hayes RM, Wu P, Shelton RC, Cooper WO, Dupont WD, Mitchel E, et al. Maternal antidepressant use and adverse outcomes: a cohort study of 228,876 pregnancies. *American Journal of Obstetrics and Gynecology*. 2012;207(1):49.e1-.e9.

109. Lau Y, Keung DWF. Correlates of depressive symptomatology during the second trimester of pregnancy among Hong Kong Chinese. *Social Science & Medicine*. 2007;64(9):1802-11.

110. Lee DTS, Yip ASK, Leung TYS, Chung TKH. Ethnoepidemiology of postnatal depression. *British Journal of Psychiatry*. 2004;184(01):34-40.

111. World Health O. The world health report 2001 mental health : new understanding, new hope. Geneva: Geneva : World Health Organization; 2001.

112. Lee, D. Y, A., Leung, T., Chung, T. Identifying women at risk of postnatal depression: prospective longitudinal study. *Hong Kong Medical*

Journal. 2000a;6:349-54.

113. Patel V, A. Kleinman, and B. Saraceno. Protecting the Human Rights of People with Mental Illnesses: A Call to Action for Global Mental Health. . New York: Oxford University Press.

114. Zhu WX, Lu L, Hesketh T. China's excess males, sex selective abortion, and one child policy: analysis of data from 2005 national intercensus survey. *BMJ*. 2009;338.

115. Loo KK, Luo X, Su H, Presson A, Li Y. Dreams of Tigers and Flowers: Child Gender Predictions and Preference in an Urban Mainland Chinese Sample During Pregnancy. *Women & Health*. 2009;49(1):50-65.

116. Lee DT, Yip SK, Chiu HF, Leung TY, Chan KP, Chau IO, et al. Detecting postnatal depression in Chinese women. Validation of the Chinese version of the Edinburgh Postnatal Depression Scale. *The British journal of psychiatry : the journal of mental science*. 1998;172:433.

117. Hua J, Zhu L, Du W, Du L, Luo T, Wu Z. Infant's sex, birth control policy and postpartum well-being: a prospective cohort study in Shanghai, China. *BMJ Open*. 2016;6(10).

118. Xiong R, Deng A, Wan B, Liu Y. Prevalence and factors associated with postpartum depression in women from single-child families. *Int J Gynaecol Obstet*. 2018;141(2):194-9.

119. Tseng W-S, Kuotai T, Hsu J, Jinghua C, Lian Y, Kameoka V. Family planning and child mental health in China: the Nanjing Survey. *American Journal of Psychiatry*. 1988;145(11):1396-403.

120. Yeh YC, St John W, Venturato L. Doing the month in a Taiwanese postpartum nursing center: an ethnographic study. *Nurs Health Sci*. 2014;16(3):343-51.

121. style="margin-bottom:12.0pt pcM, text-align:justify, line-height:, 115%, mso-pagination:none, mso-layout-grid-align:none, et al. *Foundations of Chinese Psychology*. New York, NY: Spriger; 2011.

122. Cottine C. Role Modeling in an Early Confucian Context. *Journal of Value Inquiry*. 2016;50(4):797-819.

123. Schwank S, Andersson E, Fu S-C, Wickberg B, Ding Y, Lindgren H. Who do I turn to...? Shanghai women's care-seeking behavior and disclosure on mental health. Manuscript. 2019.

124. Larun L LA, Wiik IN, Mørland B. Svangerskap og psykisk helse. *Kvinneres psykiske helse i forbindelse med svangerskap og første året etter fødsel*. In: Røttingen J-A, editor. p. 2 – 2005.

125. Wonderling D, Sawyer L, Fenu E, Lovibond K, Laramée P. National Clinical Guideline Centre cost-effectiveness assessment for the National Institute for Health and Clinical Excellence. *Annals of internal medicine*. 2011;154(11):758.

126. Robertson E, Grace S, Wallington T, Stewart DE. Antenatal risk factors for postpartum depression: a synthesis of recent literature. *General Hospital Psychiatry*. 2004;26(4):289-95.

127. Andersson L, Sundström-Poromaa I, Bixo M, Wulff M, Bondestam K, Åström M. Point prevalence of psychiatric disorders during the second trimester of pregnancy: A population-based study. *American Journal of Obstetrics and Gynecology*. 2003;189(1):148-54.

128. McMahon CA, Boivin J, Gibson FL, Hammarberg K, Wynter K, Saunders D, et al. Pregnancy-specific anxiety, ART conception and infant temperament at 4 months postpartum. *Human Reproduction*. 2013;28(4):997-1005.

129. Hart R, McMahon CA. Mood state and psychological adjustment to pregnancy. *Archives of Women's Mental Health*. 2006;9(6):329-37.

130. Swallow B, Lindow S, Masson E, Hay D. Psychological health in early

- pregnancy: relationship with nausea and vomiting. *Journal of Obstetrics and Gynaecology*. 2004;24(1):28-32.
131. Watson JP, Elliott SA, Rugg AJ, Brough DI. Psychiatric disorder in pregnancy and the first postnatal year. *The British journal of psychiatry : the journal of mental science*. 1984;144:453.
132. Austin M-P. Marcé International Society position statement on psychosocial assessment and depression screening in perinatal women. *Best Practice & Research Clinical Obstetrics & Gynaecology*. 2014;28(1):179-87.
133. Davis-Floyd RE. The technocratic body: American childbirth as cultural expression. *Social Science & Medicine*. 1994;38(8):1125-40.
134. Avotri JY, Walters V. "You just look at our work and see if you have any freedom on earth": Ghanaian women's accounts of their work and their health. *Social Science & Medicine*. 1999;48(9):1123-33.
135. Australian Government Department of Health, 2013. National Perinatal Depression Initiative. [Internet]. Australian Government Department of Health. 2013. Available from: <https://www.health.gov.au/internet/main/publishing.nsf/Content/mental-perinat>.
136. Schwank SL, H., Wickberg, B., Ding, Y. Andersson, E. Perinatal Mental Health in China: Views of key health system informants in Shanghai – A Qualitative Study. *Journal of Reproductive and Infant Mental Health*. . *Public Health Journal*. 2019:submitted.
137. Schwank SE, Gu C, Cao Z, Andersson E, Jiang H, Ding Y, et al. China's child policy shift and its impact on Shanghai and Hangzhou women's decision-making. *Int J Womens Health*. 2018;10:639-48.
138. Stern G, Kruckman L. Multi-disciplinary perspectives on post-partum depression: An anthropological critique. *Social Science & Medicine*. 1983;17(15):1027-41.
139. Gu C, Zhu X, Ding Y, Setterberg Simone X, Wang H, Tao Y, et al. A qualitative study of nulliparous women's decision making on mode of delivery under China's two-child policy. *Midwifery*. 2018;62:6-13.
140. Drew P. *Chinese Families in the Post-Mao Era*. New York: Taylor & Francis Ltd.; 1998. p. 255-7.
141. Chang DF, & Kleinman, A. Growing pains: mental health care in a developing China. . *The Yale-China Health Journal*. 2002;1:85–98.
142. Xu X, Li X-M, Zhang J, Wang W. *Mental Health-Related Stigma in China*. Taylor & Francis; 2018. p. 126-34.
143. Pearson V. *Mental health care in China: state policies, professional services, and family responsibilities*. . London: Gaskell; 1995.
144. Liu J, Ma H, He YL, Xie B, Xu YF, Tang HY, et al. Mental health system in China: history, recent service reform and future challenges. *World Psychiatry*. 2011;10(3):210-6.
145. Zhang M, Yan, H. Community rehabilitation, and prevention and treatment work for psychoses in Shanghai. *Shanghai Arch Psychiatry*. 1990;2:114-8.
146. Chang DF, Xu, Y., Kleinman, A., and Kleinman, J. Rehabilitation of schizophrenia patients in China: The Shanghai Model In A. Cohen AK, and B. Saraceno, editor. New York: Kluwer; 2002.
147. Lee S, Kleinman, A. Psychiatry in its political and professional contexts: A response to Robin Munro. . *The Journal of the American Academy of Psychiatry and the Law*. 2002;30:1-6.
148. Ministries of Health PS, Civil Affairs, and CDPF. National Mental Health Plan

2002-2010. 2001.

149. Xing-Yuan G, Sheng-Lan T. Reform of the Chinese health care financing system. *Health policy*. 1995;32(1):181-91.
150. Charlson FJ, Baxter AJ, Cheng HG, Shidhaye R, Whiteford HA. The burden of mental, neurological, and substance use disorders in China and India: a systematic analysis of community representative epidemiological studies. *The Lancet*. 2016;388(10042):376-89.
151. Liu C, Chen L, Xie B, Yan J, Jin T, Wu Z. Number and characteristics of medical professionals working in Chinese mental health facilities.(Original article)(Author abstract). *Shanghai Archives of Psychiatry*. 2013;25(5):277.
152. Health W, Organization. *The World Health Report*. Geneva World Health Organization; 1999.
153. Phillips MR, Li X, Zhang Y. Suicide rates in China, 1995-99. *Lancet (London, England)*. 2002;359(9309):835.
154. Phillips MR, Yang G, Zhang Y, Wang L, Ji H, Zhou M. Risk factors for suicide in China: a national case-control psychological autopsy study. *The Lancet*. 2002;360(9347):1728-36.
155. Qin P, Mortensen PB. Specific characteristics of suicide in China. *Acta Psychiatrica Scandinavica*. 2001;103(2):117-21.
156. Phillips MR. Can China's new mental health law substantially reduce the burden of illness attributable to mental disorders? *The Lancet*. 2013;381(9882):1964-6.
157. Shao Y, Wang J, Xie B. The first mental health law of China. *Asian Journal of Psychiatry*. 2015;13:72-4.
158. Thornicroft G, Mehta N, Clement S, Evans-Lacko S, Doherty M, Rose D, et al. Evidence for effective interventions to reduce mental-health-related stigma and discrimination. *The Lancet*. 2016;387(10023):1123-32.
159. Phillips MR, Zhang JX, Shi QC, Song ZQ, Ding ZJ, Pang ST, et al. Prevalence, treatment, and associated disability of mental disorders in four provinces in China during 2001-05: an epidemiological survey. *Lancet*. 2009;373(9680):2041-53.
160. Zeng Y, Hesketh T. The effects of China's universal two-child policy. *The Lancet*. 2016;388(10054):1930-8.
161. Hesketh T, Zhu WX. The one child family policy: the good, the bad, and the ugly. *BMJ (Clinical research ed)*. 1997;314(7095):1685.
162. Hesketh T, Lu L, Xing ZW. The Effect of China's One- Child Family Policy after 25 Years. *The New England Journal of Medicine*. 2005;353(11):1171-6.
163. Cheng TO. China's little emperors: Medical consequences of China's one-child policy. *International Journal of Cardiology*. 2013;168(6):5121-5.
164. Yang J. China's one-child policy and overweight children in the 1990s. *Social Science & Medicine*. 2007;64(10):2043-57.
165. Hesketh T, Qu JD, Tomkins A. Health effects of family size: cross sectional survey in Chinese adolescents. *Archives of Disease in Childhood*. 2003;88(6):467.
166. Rosenzweig MR, Zhang J. Do Population Control Policies Induce More Human Capital Investment? Twins, Birth Weight and China's "One-Child" Policy. *Review of Economic Studies*. 2009;76(3):1149-74.
167. Cameron L, Erkal N, Gangadharan L, Meng X. Little emperors: behavioral impacts of China's One- Child Policy. *Science (New York, NY)*. 2013;339(6122):953.
168. Lavelly W. First Impressions from the 2000 Census of China. *Population and Development Review*. 2001;27(4):755-69.
169. Merli MG, Smith HL. Has the Chinese Family Planning Program Been Successful in Changing Fertility Preferences? *Demography*. 2002;39(3):557-72.
170. Winckler EA. Chinese reproductive policy at the turn of the millennium: dynamic

- stability. *Population and Development Review*. 2002;28(3):379.
171. Qinglin J. Consultative Conference People's Daily Online2007 [Available from: http://www.bjreview.com/NPC&CPPCC2009/2007-02/28/content_181386.htm].
172. Zhao Y. The impact of the family planning policy on family structure. *Reading Digest*. 2016:114.
173. Ni MH, Rossignol MA. Maternal Deaths among Women with Pregnancies Outside of Family Planning in Sichuan, China. *Epidemiology*. 1994;5(5):490-4.
174. Gu C, Zhang Z, Ding Y. Chinese midwives' experience of providing continuity of care to labouring women. *Midwifery*. 2011;27(2):243-9.
175. Gu C, Wu X, Ding Y, Zhu X, Zhang Z. The effectiveness of a Chinese midwives' antenatal clinic service on childbirth outcomes for primipare: A randomised controlled trial. *International Journal of Nursing Studies*. 2013;50(12):1689-97.
176. Nations U. Case studies in population policy: China. Department of International Economic and Social Affairs. 1988.
177. Family SMCoHa, Institute P. Shanghai Municipal Commission of Health and Family Planning Institute 2017 [Available from: <http://www.wsjsw.gov.cn/wsji/>].
178. Liang H, Fan Y, Zhang N, Chongsuvivatwong V, Wang Q, Gong J, et al. Women's cesarean section preferences and influencing factors in relation to China's two-child policy: a cross-sectional study. *Patient preference and adherence*. 2018;12:2093-101.
179. Ye F, Huang J. Antenatal care for women in their second pregnancies in China. *The Lancet Global Health*. 2016;4(5):e303-e.
180. Smith GCS, Pell JP, Bobbie R. Caesarean section and risk of unexplained stillbirth in subsequent pregnancy. *The Lancet*. 2003;362(9398):1779-84.
181. Cheng P, Duan T. China's new two-child policy: maternity care in the new multiparous era. *BJOG: An International Journal of Obstetrics & Gynaecology*. 2016;123(S3):7-9.
182. Liu J, Liu T. Two-child policy, gender income and fertility choice in China. *International Review of Economics and Finance*. 2018.
183. Zheng B. Population ageing and the impacts of the universal two-child policy on China's socio-economy. *Economic and Political Studies*. 2016;4(4):434-53.
184. Bloom D, Canning D, Fink G, Finlay J. Fertility, female labor force participation, and the demographic dividend. *Journal of Economic Growth*. 2009;14(2):79-101.
185. Ji Y, Wu X, Sun S, He G. Unequal Care, Unequal Work: Toward a more Comprehensive Understanding of Gender Inequality in Post-Reform Urban China. *A Journal of Research*. 2017;77(11):765-78.
186. Qian Y, Jin Y. Women's Fertility Autonomy in Urban China: The Role of Couple Dynamics Under the Universal Two-Child Policy. *Chinese Sociological Review*. 2018;50(3):275-309.
187. Hancock T, Xueqiao W. China birth rate declines as childcare costs deter families. *Financial Times*. 2019.
188. Pillsbury BLK. "Doing the month": Confinement and convalescence of Chinese women after childbirth. *Social Science and Medicine Part B Medical Anthropology*. 1978;12(C):11-22.
189. Tung W-C. Doing the Month and Asian Cultures: Implications for Health Care. *Home Health Care Management & Practice*. 2010;22(5):369-71.
190. Liu YQ, Maloni JA, Petrini MA. Effect of Postpartum Practices of Doing the Month on Chinese Women's Physical and Psychological Health. *Biological Research for Nursing*. 2014;16(1):55-63.
191. Gao LL, Chan SWC, You L, Li X. Experiences of postpartum depression among

- first-time mothers in mainland China. *Journal of Advanced Nursing*. 2010;66(2):303-12.
192. Holroyd E, Twinn S, Yim IW. Exploring Chinese Women's Cultural Beliefs and Behaviours Regarding the Practice of "Doing the Month". *Women & health*. 2005;40(3):109-23.
193. Strand MA, Perry J, Guo J, Zhao J, Janes C. Doing the month: rickets and postpartum convalescence in rural China. *Midwifery*. 2009;25(5):588.
194. Liu N, Mao L, Sun X, Liu L, Chen B, Ding Q. Postpartum practices of puerperal women and their influencing factors in three regions of Hubei, China. *BMC public health*. 2006;6:274.
195. Raven Joanna H, Chen Q, Tolhurst Rachel J, Garner P. Traditional beliefs and practices in the postpartum period in Fujian Province, China: a qualitative study. *BMC Pregnancy and Childbirth*. 2007;7(1):8.
196. Chan SWC, Levy V, Chung TKH, Lee D. A qualitative study of the experiences of a group of Hong Kong Chinese women diagnosed with postnatal depression. *Journal of Advanced Nursing*. 2002;39(6):571-9.
197. Segovia I. The midwife and her functions by level of care. *International Journal of Gynecology & Obstetrics*. 1998;63(1):S61-S6.
198. Harris A, Belton S, Barclay L, Fenwick J. Midwives in China: 'jie sheng po' to 'zhu chan shi'. *Midwifery*. 2009;25(2):203-12.
199. Cheung NF. Chinese midwifery: the history and modernity. *Midwifery*. 2009;25(3):228-41.
200. Lumbiganon P, Laopaiboon M, Gülmezoglu AM, Souza JP, Taneepanichskul S, Ruyan P, et al. Method of delivery and pregnancy outcomes in Asia: the WHO global survey on maternal and perinatal health 2007–08. *The Lancet*. 2010;375(9713):490-9.
201. Feng W, Cai Y, Gu B. Population, Policy, and Politics: How Will History Judge China's One-Child Policy? *Population and Development Review*. 2013;38(Supp.1):115-29.
202. Feng XL, Wang Y, An L, Ronsmans C. Cesarean section in the People's Republic of China: current perspectives.(Report). *International Journal of Women's Health*. 2014;6(1):59.
203. Slade A. Parental reflective functioning: An introduction. *Attachment & Human Development*. 2005;7(3):269-81.
204. Schytt E, Hildingsson I. Physical and emotional self-rated health among Swedish women and men during pregnancy and the first year of parenthood. *Sexual & Reproductive Healthcare*. 2011;2(2):57-64.
205. Shen Y-C, Zhang M-Y, Huang Y-Q, He Y-L, Liu Z-R, Cheng HUI, et al. Twelve-month prevalence, severity, and unmet need for treatment of mental disorders in metropolitan China. *Psychol Med*. 2006;36(2):257-67.
206. WHO. The WHO World Mental Health (WMH) Survey Initiative. p. <https://www.hcp.med.harvard.edu/wmh/>.
207. Number of monthly active WeChat users from 4th quarter 2011 to 4th quarter 2018 (in millions) [Internet]. 2019. Available from: <https://www.statista.com/statistics/255778/number-of-active-wechat-messenger-accounts/>.
208. Greenhalgh S, Bongaarts J. Fertility policy in China: future options. (evaluation of one child policy; alternative options). *Science*. 1987;235:1167.
209. The L. What to expect for China's health in the future. *The Lancet*. 2017;389(10066):226-.
210. The L. The two-child policy in China: what to expect? *The Lancet*. 2013;382(9907):1758.
211. Elo S, Kyngas H. The qualitative content analysis process. *Journal of Advanced Nursing*. 2008;62(1):107-15.

212. Moretti F, van Vliet L, Bensing J, Deledda G, Mazzi M, Rimondini M, et al. A standardized approach to qualitative content analysis of focus group discussions from different countries. *Patient Education and Counseling*. 2011;82(3):420-8.
213. Braun V, Clarke V. Using thematic analysis in psychology. *Qualitative Research in Psychology*. 2006;3(2):77-101.
214. Liang J, Mu Y, Li X, Tang W, Wang Y, Liu Z, et al. Relaxation of the one child policy and trends in caesarean section rates and birth outcomes in China between 2012 and 2016: observational study of nearly seven million health facility births. *BMJ*. 2018;360.
215. 2019 [cited 07.06.2019]. Available from: <https://www.cdc.gov/nchs/>.
216. United Nations DoEaSA. Population Division. *World Population Prospects: The 2017 Revision, DVD Edition*. ; 2017.
217. Rothman B. *Surrogate Motherhood and the Politics of Reproduction*. Thousand Oaks: SAGE PUBLICATIONS, INC.; 2008. p. 264.
218. Andersson E, Norman Å, Kanlinder C, Plantin L. What do expectant fathers expect of antenatal care in Sweden? A cross-sectional study. *Sexual & Reproductive Healthcare*. 2016;9:27-34.
219. Andersson E, Small R. Fathers' satisfaction with two different models of antenatal care in Sweden – Findings from a quasi-experimental study. *Midwifery*. 2017;50:201-7.
220. Ishii-Kuntz M. Work Environment and Japanese Fathers' Involvement in Child Care. *Journal of Family Issues*. 2013;34(2):250-69.
221. Bener A, Gerber LM, Sheikh J. Prevalence of psychiatric disorders and associated risk factors in women during their postpartum period: a major public health problem and global comparison.(ORIGINAL RESEARCH)(Report). *International Journal of Women's Health*. 2012;4:191.
222. Deng A-W, Xiong R-B, Jiang T-T, Luo Y-P, Chen W-Z. Prevalence and risk factors of postpartum depression in a population-based sample of women in Tangxia Community, Guangzhou. *Asian Pacific Journal of Tropical Medicine*. 2014;7(3):244-9.
223. Organization WH. *Thinking healthy: a manual for psychosocial management of perinatal depression*. Geneva: WHO Press; 2015.
224. Gong AT, Furnham A. Mental health literacy: Public knowledge and beliefs about mental disorders in mainland China. *PsyCh Journal*. 2014;3(2):144-58.
225. Zhou Y, Zhou R, Li W, Lin Y, Yao J, Chen J, et al. Controlled trial of the effectiveness of community rehabilitation for patients with schizophrenia in Shanghai, China.(Original research article)(Report). *Shanghai Archives of Psychiatry*. 2015;27(3):167.
226. Eaton J, McCay L, Semrau M, Chatterjee S, Baingana F, Araya R, et al. Scale up of services for mental health in low-income and middle-income countries. *The Lancet*. 2011;378(9802):1592-603.
227. Lee PT, Henderson M, Patel V. A UN summit on global mental health. *The Lancet*. 2010;376(9740):516-.
228. Patel V, Saxena S, Lund C, Thornicroft G, Baingana F, Bolton P, et al. The Lancet Commission on global mental health and sustainable development. *The Lancet*. 2018.
229. Hancock M. Prevention, detection, intervention: the big wins for mental health. *The Lancet*. 2018;392(10157):1499-500.
230. Patel V. The future of psychiatry in low- and middle-income countries. *Psychol Med*. 2009;39(11):1759-62.
231. Britto PR, Lye SJ, Proulx K, Yousafzai AK, Matthews SG, Vaivada T, et al. Nurturing care: promoting early childhood development. *The Lancet*. 2017;389(10064):91-102.
232. Chen J. Some People May Need it, But Not Me, Not Now: Seeking Professional

- Help for Mental Health Problems in Urban China. *Transcultural Psychiatry*. 2018;55(6):754-74.
233. Fatimah J-B, Nancy E. Stigma and intersectionality: a systematic review of systematic reviews across HIV/AIDS, mental illness, and physical disability. *BMC Public Health*. 2018;18(1):1-19.
234. Mehta N, Clement S, Marcus E, Stona AC, Bezborodovs N, Evans-Lacko S, et al. Evidence for effective interventions to reduce mental health-related stigma and discrimination in the medium and long term: systematic review. *The British journal of psychiatry : the journal of mental science*. 2015;207(5):377.
235. Huang Y, Wang Y, Wang H, Liu Z, Yu X, Yan J, et al. Prevalence of mental disorders in China: a cross-sectional epidemiological study. *Lancet Psychiatry*. 2019;6(3):211-24.
236. The World Health Report 2001 [Internet]. 2001 [cited 11.06.2019]. Available from: https://www.who.int/whr/2001/en/whr01_ch1_en.pdf?ua=1.
237. Malterud K. Systematic text condensation: A strategy for qualitative analysis. *Scandinavian Journal of Public Health*. 2012;40(8):795-805.
238. Elo S, Kääriäinen M, Kanste O, Pölkki T, Utriainen K, Kyngäs H. Qualitative Content Analysis: A Focus on Trustworthiness. *SAGE Open*. 2014;4(1).
239. Sandelowski M. Sample size in qualitative research. *Research in Nursing & Health*. 1995;18(2):179-83.
240. Graneheim UH, Lundman B. Qualitative content analysis in nursing research: concepts, procedures and measures to achieve trustworthiness. *Nurse Education Today*. 2004;24(2):105-12.
241. Burmeister E, Aitken LM. Sample size: How many is enough? *Australian Critical Care*. 2012;25(4):271-4.
242. Polit DF. *Nursing research : generating and assessing evidence for nursing practice*. 10th ed. ed. Beck CT, editor. Philadelphia: Philadelphia : Wolters Kluwer; 2016.
243. Tenhouten WD. Site Sampling and Snowball Sampling - Methodology for Accessing Hard-to-reach Populations. *Bulletin de Méthodologie Sociologique*. 2017;134(1):58-61.
244. *Snowball Sampling*. Springer Publishing Company; 2010.
245. Oates MR, Cox JL, Neema S, Asten P, Glangeaud-Freudenthal N, Figueiredo B, et al. Postnatal depression across countries and cultures: a qualitative study. *British Journal of Psychiatry*. 2004;184(S46):s10-s6.
246. Giesbrecht GF, Campbell T, Letourneau N, Kaplan BJ. Advancing gestation does not attenuate biobehavioural coherence between psychological distress and cortisol. *Biological psychology*. 2013;93(1):45.
247. Kane HS, Dunkel Schetter C, Glynn LM, Hobel CJ, Sandman CA. Pregnancy anxiety and prenatal cortisol trajectories. *Biological Psychology*. 2014;100(1):13-9.