

Faculty of Cognitive Sciences and Human Development

Evaluating the Applicability of Cognitive Behavioral Therapy and Positive Psychotherapy in Treating Physical, Psychological and Social Aspects among Postpartum Women with Depression in China

ZHENG SHIYU

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Evaluating the Applicability of Cognitive Behavioral Therapy and Positive Psychotherapy in Treating Physical, Psychological and Social Aspects among Postpartum Women with Depression in China

ZHENG SHIYU

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DECLARATION

I declare that the work in this thesis was carried out in accordance with the regulations of Universiti Malaysia Sarawak. Except where due acknowledgements have been made, the work is that of the author alone. The thesis has not been accepted for any degree and is not concurrently submitted in candidature of any other degree.

……

Signature 

Name: ZHENG SHIYU

Matric No: 23010093

Faculty of Cognitive Sciences and Human Development

Universiti Malaysia Sarawak

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ABSTRACT

Postpartum Depression (PPD) poses a significant public health challenge for women, affecting a large number annually. This study aims to evaluate the applicability of Cognitive Behavioural Therapy (CBT) and Positive Psychotherapy (PPT) for postpartum depressed women in China in physical (insomnia, fatigue), psychological (hope, rumination thinking) and social (perceived social support) aspects. Following an ethical review, purposive sampling was conducted to collect 260 samples from Guiyang Maternal and Child Health Hospital, Bijie Maternal and Child Health Hospital, and Qingzhen Maternal and Child Health Hospital. Participants included mothers experiencing depression within 0-8 weeks postpartum. Inclusion criteria included possession of at least a middle school diploma, a diagnosis of postpartum depression (indicated by a Beck Depression Inventory score above 13), voluntary participation, adherence to group rules, and non-usage of psychotropic medications. Exclusion criteria comprised suicidal ideation, a professional background in psychology or counselling, prior experience with similar treatments, serious illness, and disability. The study used the Quasi-Experimental design (Pretest-Posttest Control Group Design) to measure the difference between the experimental and control groups. Experiment 1 was designed to evaluate the applicability of CBT in physical (insomnia, fatigue), psychological (hope, rumination thinking) and social (perceived social support) aspects. Experiment 2 aimed to evaluate the applicability of PPT in physical (insomnia, fatigue), psychological (hope, rumination thinking) and social (perceived social support) aspects. The study process followed the sequence of participant screening, pretest, treatment, and posttest. The treatment modules were CBT and PPT. Instruments included the Chinese version of the Beck Depression Inventory (BDI-II-C) and the Integrative Dimensions Questionnaire (IDQ), which encompassed

various parts: the Chinese versions of the Insomnia Severity Index (ISI-C), Fatigue Scale (FS-14-C), Herth Hope Index (HHI-C), Rumination Response Scale (RRS-C), and Multidimensional Scale of Perceived Social Support (MSPSS-C). The intervention plans are divided into CBT module and PPT module, and each module contains three treatments, once a week. Each session takes 2.5 hours to complete a specific theme. All modules and instruments were examined in the pilot study with good reliability, fidelity and validity. Research data underwent cleaning, normality tests, homogeneity of variance tests, descriptive statistics, and inferential statistics. The results indicated: a) CBT improved insomnia, fatigue, ruminative thinking, and perceived social support but was ineffective for hope; PPT was effective in improving fatigue, ruminative thinking, hope, and perceived social support but was ineffective for insomnia. b) CBT was more effective than PPT in reducing rumination, while PPT was superior in increasing perceived social support. In conclusion, CBT and PPT have distinct advantages in addressing insomnia, fatigue, hope, rumination thinking and perceived social support. The counsellor should select the applicable treatment model to address the physical, psychological and social difficulties. This study contributes to the integration and development of CBT and PPT theories within Chinese culture and offers a credible reference for health workers and psychological practitioners in providing targeted interventions for postpartum depressed women. Future studies could evaluate the long-term treatment results of these variables, incorporating additional treatment models and variables for broader research insights.

Keywords: Cognitive behavioral Therapy, Positive Psychotherapy, Postpartum Depression, Applicability, Insomnia, Fatigue, Hope, Ruminative Thinking, Perceived Social Support

Menilai Kebolehgunaan Terapi Tingkah Laku Kognitif dan Psikoterapi Positif dalam Merawat Aspek Fizikal, Psikologi dan Sosial dalam Kalangan Wanita Selepas Bersalin yang Mengalami Kemurungan di China

ABSTRAK

Depresi Postpartum (PPD) merupakan cabaran kesihatan awam yang signifikan bagi wanita, yang memberi kesan kepada sejumlah besar individu setiap tahun. Kajian ini bertujuan untuk menilai kebolehgunaan Terapi Tingkah Laku Kognitif (CBT) dan Psikoterapi Positif (PPT) bagi wanita yang mengalami depresi selepas bersalin di China dari aspek fizikal (insomnia, keletihan), psikologi (harapan, pemikiran ruminatif) dan sosial (sokongan sosial yang dirasai). Selepas semakan etika dijalankan, persampelan bertujuan telah digunakan untuk mengumpulkan 260 sampel dari Hospital Kesihatan Ibu dan Anak Guiyang, Hospital Kesihatan Ibu dan Anak Bijie, dan Hospital Kesihatan Ibu dan Anak Qingzhen. Peserta terdiri daripada ibu yang mengalami depresi dalam tempoh 0 hingga 8 minggu selepas bersalin. Kriteria inklusi termasuk memiliki sekurang-kurangnya sijil tamat sekolah menengah, didiagnosis mengalami depresi postpartum (berdasarkan skor Beck Depression Inventory melebihi 13), penyertaan secara sukarela, pematuhan kepada peraturan kumpulan, dan tidak menggunakan ubat psikotropik. Kriteria pengecualian merangkumi idea untuk membunuh diri, latar belakang profesional dalam bidang psikologi atau kaunseling, pengalaman terdahulu dengan rawatan yang serupa, penyakit serius, dan ketidakupayaan. Kajian ini menggunakan reka bentuk Kuasi-Eksperimen (Reka Bentuk Pra-Ujian dan Pasca-Ujian Kumpulan Kawalan) untuk mengukur perbezaan antara kumpulan eksperimen dan kumpulan kawalan. Eksperimen 1 direka bentuk untuk menilai kebolehgunaan CBT dalam aspek fizikal (insomnia, keletihan), psikologi (harapan, pemikiran ruminatif), dan sosial (sokongan sosial yang dirasai).

Eksperimen 2 bertujuan untuk menilai kebolehgunaan PPT dalam aspek yang sama. Proses kajian mengikut urutan saringan peserta, pra-ujian, rawatan, dan pasca-ujian. Modul rawatan yang digunakan adalah CBT dan PPT. Instrumen yang digunakan termasuk versi Cina Beck Depression Inventory (BDI-II-C) untuk saringan peserta, serta Soal Selidik Dimensi Integratif (IDQ), yang merangkumi pelbagai komponen: versi Cina Indeks Keterukan Insomnia (ISI-C), Skala Keletihan (FS-14-C), Indeks Harapan Herth (HHI-C), Skala Respons Ruminasi (RRS-C), dan Skala Multidimensi Sokongan Sosial yang Dirasai (MSPSS-C). Pelan intervensi dibahagikan kepada modul CBT dan modul PPT, dan setiap modul mengandungi tiga sesi rawatan, dijalankan sekali seminggu. Setiap sesi mengambil masa 2.5 jam untuk menyelesaikan tema tertentu. Semua modul dan instrumen telah diuji dalam kajian rintis dan menunjukkan kebolehpercayaan, kesetiaan pelaksanaan, dan kesahan yang baik. Data kajian telah melalui proses pembersihan, ujian kenormalan, ujian keseragaman varians, analisis statistik deskriptif dan statistik inferens. Hasil kajian menunjukkan: a) CBT berkesan dalam meningkatkan insomnia, keletihan, pemikiran ruminatif dan sokongan sosial yang dirasai, tetapi tidak berkesan untuk harapan; manakala PPT berkesan dalam meningkatkan keletihan, pemikiran ruminatif, harapan dan sokongan sosial yang dirasai, tetapi tidak berkesan untuk insomnia. b) CBT lebih berkesan berbanding PPT dalam mengurangkan pemikiran ruminatif, manakala PPT lebih berkesan dalam meningkatkan sokongan sosial yang dirasai. Sebagai kesimpulan, CBT dan PPT masing-masing mempunyai kelebihan tersendiri dalam menangani masalah insomnia, keletihan, harapan, pemikiran ruminatif dan sokongan sosial yang dirasai. Kaunselor harus memilih model rawatan yang paling sesuai untuk menangani kesukaran fizikal, psikologi dan sosial yang dihadapi oleh peserta. Kajian ini menyumbang kepada integrasi dan pembangunan teori CBT dan PPT dalam konteks budaya Cina serta menyediakan

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Kata Kunci: *Terapi Tingkah Laku Kognitif, Psikoterapi Positif, Depresi Postpartum, Keberkesanan, Insomnia, Keletihan, Harapan, Pemikiran Ruminatif, Sokongan Sosial yang Dirasai*

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LIST OF ABBREVIATIONS

BCH	Bijie Maternal and Child Health Care Hospital
BDI-II	Beck Depression Inventory Version 2
BDI-II-C	Beck Depression Inventory, 2nd Edition (Chinese version)
CBT	Cognitive Behavioral Therapy
DSM-IV	Diagnostic and Statistical Manual of Mental Disorders, 4th Edition
DSM-V	Diagnostic and Statistical Manual of Mental Disorders, 5th Edition
FS-14	Fatigue Scale-14
FS-14-C	Fatigue Scale-14 (Chinese version)
GCH	Guiyang Maternal and Child Health Care Hospital
HHI	Herth Hope Index
HHI-C	Herth Hope Index (Chinese version)
I-CVI	The Content Validity of the Items
IDQ	Integrated Dimension Questionnaire
ISI	Insomnia Severity Index
ISI-C	Insomnia Severity Index (Chinese version)
LDR	Labor-Delivery-Recovery Unit
MSPSS	Multidimensional Scale of Perceived Social Support
MSPSS-C	Multidimensional Scale of Perceived Social Support (Chinese version)
PMH	Positive Mental Health
PPD	Postpartum Depression
PPT	Positive Psychotherapy
PSS	Perceived Social Support
PTSD	Post Traumatic Stress Disorder
QCH	Qingzhen Maternal and Child Health Care Hospital

RRS	Rumination Response Scale
RRS-C	Rumination Response Scale (Chinese version)
RT	Ruminative Thinking
S-CVI	The Content Validity of the Scale
UNIMAS	Universiti Malaysia Sarawak

CHAPTER 1

INTRODUCTION

1.1 Overview

Postpartum depression is a major public health problem affecting hundreds of millions of women worldwide. The study aims to evaluate applicability of CBT and PPT in treating physical (insomnia, fatigue), psychological (hope, ruminative thinking) and social (perceived social support) aspects among Chinese women with postpartum depression. The chapter covers the background, problem statement, research questions and objectives, etc.

1.2 Background of Study

Pregnancy and childbirth are important events in a woman's life. Often, people may think that all the risks are over after a woman gives birth, but there are still many crises waiting for them.

On the one hand, after childbirth, some women experience different postpartum complications or physical troubles. For example, women over 35 years of age are prone to postpartum complications and those over 40 years of age are at high risk of hospital admission (Wen et al., 2021). In severe cases, postoperative haemorrhage, postpartum hypertension and puerperal infections may lead to postpartum death. Additionally, delivery can leave women with postpartum obesity and pregnancy stretch marks. This issue is extremely prevalent. In various television commercials, postpartum women are represented as having postpartum fat, sagging breasts, and stretch marks. Such depictions may lead to increased psychological stress and emotional discomfort among them.

On the other hand, women experience increasing pressure to fulfill their responsibilities towards their families and careers. While taking care of themselves, they also have to care for their babies. In some low-income families, women often have no choice but to return to work immediately after childbirth to ensure that their families' daily expenses are met. Consequently, they must juggle multiple roles, trying to embody the idealized image of motherhood. This pressure can profoundly impact women's identity and role development, exacerbating the burden experienced by new mothers. Mercan and Tari (2021) confirmed that social stress can negatively affect postpartum care, breastfeeding, and even the neurological functioning of a woman's brain (Menard et al., 2017). This highlights the vicious cycle of stress that prevents women from regaining their health while compelling them to endure more difficulties. Fortunately, positive concern and support from healthcare professionals, family members, colleagues, and friends provide some degree of emotional support for postpartum women as they navigate both physical and social challenges. However, in modern society, it is undeniable that everyone must bear significant pressure and heavy workloads. Unconditional care and attention have become luxuries in today's interpersonal interactions. Listening and understanding have gradually transformed into the simplest yet most challenging skills for everyone. Physical distress, life stress, and interpersonal pressures increasingly suffocate postpartum women, leaving them feeling isolated and helpless. They find themselves trapped in a reality where they cannot receive adequate care from others while simultaneously unable to relinquish their social roles. This environment creates an opportunity for postpartum depression to take hold and exert control over these vulnerable women.

Postpartum depression (PPD) is a mood disorder that occurs in women after giving birth, characterized by symptoms such as low mood, irritability, lack of energy, loss of

appetite, diminished interest in life, and insomnia (Baattaiah et al., 2023; Ashour et al., 2023). Several data sets illustrate the prevalence and scope of postpartum depression. For instance, a report in Spain indicated that 7% of postpartum mothers contemplate suicide within the first eight months, with 62% to 70% experiencing depressive episodes (Gelabert et al., 2020). A meta-analysis of 128 studies from seven databases found the global prevalence of PPD to be 27.6%, with a perinatal prevalence of depression at 26.3% (Al-Abri et al., 2023). In China, the prevalence of postpartum depression varies across cities, ranging from 9.7% to 14.2% or 9.4% to 27.4% (Abulaiti et al., 2022; Guo et al., 2021), with even higher rates observed in economically disadvantaged areas (Tao et al., 2018). These data underscore that postpartum depression is a significant public health problem in China and other countries.

Society must pay significant attention to the mental health of women during the postpartum period. Unfortunately, some studies from Western countries have shown that as many as half of the individuals suffering from postpartum depression go unscreened and undiagnosed by healthcare professionals (Mughal et al., 2022; Liu-Zarzuela et al., 2023). The alarming contrast between the high prevalence of postpartum depression and the low detection rate is concerning. In China, the situation may be even more severe. The country's mental health counseling industry is inadequately unregulated, characterized by regional disparities in service availability, insufficient public awareness, and high costs (Li & Hong-ya, 2018). As a result, many individuals in need of psychological services cannot access help and may even develop distrust towards mental health counseling and therapy. The study takes place in Guizhou Province, which is considered economically and educationally underdeveloped compared to more affluent areas of China. The potential population suffering from PPD in Guizhou could be substantial, and the gap between the

demand for and supply of mental health services may be even more pronounced. Therefore, it is vital to conduct a study to address this serious issue and to promote the dissemination of mental health knowledge and techniques among local postpartum depressed women.

Counseling, as a important means of psychological intervention, plays a variety of preventive, health-promoting, and therapeutic roles. For women in the postpartum period, counseling can help reduce risk factors associated with their well-being, enhance individual social support and psychological resilience, and promote a healthy physical and mental state. The treatment has a rich history spanning over a century, during which hundreds of theories and technical approaches have emerged, integrating insights from medical, sociological, philosophical, pedagogical, and other disciplines. Among these, Cognitive Behavioral Therapy (CBT) and Positive Psychotherapy (PPT) are two influential and widely used treatment models. CBT aims to help participants modify distorted perceptions and maladaptive behaviors through theories and techniques. In contrast, PPT views clients as individuals with inherent self-help capabilities, empowering them to utilize their real-world abilities and resources to resolve psychological conflicts. Both models are relatively effective and have demonstrated positive outcomes in antidepressant treatment across various populations. However, their application in addressing the physical, psychological and social aspects of postpartum depression among women is still in its early stages and requires further research to evaluate their applicability.

CBT and PPT can be conducted in either individual or group counseling forms. As early as the 1940s and 1950s, group counseling was recognized as a concise, efficient, and interaction-promoting therapeutic approach. This form allows counselors to assist more individuals in need within a limited time frame, while each participant has the opportunity

to gain new experiences and develop meaningful connections in a supportive atmosphere. Therefore, the number of counselors engaged in group counseling in the United States has steadily increased since the 1950s, leading to a wealth of clinical research outcomes (Yalom, 2020). In contrast, the development of group counseling in China has been relatively late. It began to gain traction in Chinese universities around the year 2000 and gradually expanded into other fields (Ran & Hu, 2023). Within just over two decades, group counseling has become widely used in educational institutions at all levels, yielding positive results and research findings. However, its application in areas beyond education, such as among postpartum depressed women, remains uncommon (Liping & Chunhan, 2014). Moreover, Chen et al. (2020) found that pregnant women exhibited a higher level of acceptance and better participation in group counseling compared to those receiving case management alone. This indicates that group counseling within a maternal context may be more acceptable and beneficial. In other words, selecting the group counseling may be a good choice.

In summary, the various challenges faced by postpartum women and the high prevalence of PPD should not be underestimated. CBT and PPT are widely recognized as effective treatment models, but their application in the form of group counselling has only recently begun to emerge in less developed regions of China among the postpartum depression population. Therefore, to effectively address this challenge, the study evaluates the applicability of CBT and PPT for postpartum depressed women by addressing their needs and difficulties at the physical, psychological and social aspects.

1.3 Problem Statement

Postpartum depression is a very serious health problem that is often ignored by society (Abulaiti et al., 2022; Mughal et al., 2022; Liu-Zarzuela et al., 2023). Consequently, it is crucial for researchers to provide counseling or treatment to help improve PPD and protect women's rights. The study aims to evaluate the applicability of CBT and PPT in addressing physical, psychological and social aspects among postpartum women with depression in China. The importance of this issue can be demonstrated in three points.

Insufficient or contradictory evidence in treating depression

The evidence supporting the use of CBT and PPT for treating depression is insufficient or contradictory, making it difficult to assess their applicability on the physical, psychological and social aspects of postpartum depressed women. More research and evidence are needed to establish their efficacy.

CBT combines theories and techniques from cognitive and behavioral schools of thought. A meta-analysis of 20 studies demonstrated that CBT has a favorable effect on perinatal depression, showing better outcomes in the CBT group compared to a control group (Huang et al., 2018). With advances in internet technology, internet-based CBT has also shown promising results, providing accessible services to women in metropolitan, rural, and remote areas (Milgrom et al., 2016; Loughnan et al., 2019). These findings suggest that CBT can play a significant role in treating depression, with a variety of forms and applications. However, some evidence indicates that CBT is not universally effective and may only result in minor improvements for certain symptoms (Tack & Tuller, 2023; Fang et al., 2020). Huang et al. (2018) noted that the evidence for both short-term and long-term CBT at home, as well as internet-based and telephone-based treatments, remains

limited and unconvincing. Pettman et al. (2023) emphasized the need to interpret these results cautiously and recommended further studies to evaluate CBT outcomes across different healthcare settings. Given these uncertain statements and conflicting findings, additional research is needed to improve CBT in the treatment of postpartum depression.

PPT for depression suffers from the same situation. Some studies have shown that PPT has a favourable treatment effect on depression and improves participants' quality of life (Arora & Sharma, 2018; Carr, 2021). This suggests that PPT is a good treatment for depression. However, Corno et al. (2019) concluded that PPT is still in the exploratory stage in the field of maternal mental health and more evidence is needed to enrich it. Therefore, PPT needs more evidence to support the treatment of depression, especially for the often-overlooked population of postpartum women with depression. Expanding the evidence base helps different experts to reach a consensus on CBT and PPT for postpartum depression.

Lack of multidimensional assessment on treatment models

Previous studies (Amani et al., 2021; Barat et al., 2020) have focused on individual indicators, without evaluating these indicators within a broader, comprehensive context. This approach has limited our understanding of the treatment model's detailed characteristics and its true effectiveness. For instance, participants may show changes in depression scores after receiving CBT or PPT, but not experience improvements in physical, psychological and social aspects, or even no change in certain areas. This highlights the limitations of single-indicator evaluations. Therefore, this study employs a broader and more diverse range of indicators that encompass common symptoms or behaviors of depression, representing the physical, psychological and social dimensions of

postpartum depression. No prior study has simultaneously focused on all three aspects or the five specific variables: insomnia, fatigue, rumination, hope, and perceived social support. This comprehensive design enables a detailed evaluation of treatment applicability, making the study's findings particularly valuable and informative for scholars and counselors.

Lack of evidence in treating various aspects

The study categorized the symptoms of postpartum depression into physical, psychological and social aspects, further dividing them into five specific variables: insomnia, fatigue, hope, ruminative thinking, and perceived social support, to assess participants' changes. However, the evidence supporting the applicability of CBT and PPT in addressing these aspects is limited.

These indicators were selected because insomnia and fatigue are common physical symptoms among individuals with postpartum depression (Stewart & Vigod, 2016; Zhu et al., 2012; Guo et al., 2022; Jian et al., 2021) and should be prioritized. Additionally, hope, ruminative thinking, and perceived social support are strongly linked to depression and serve as crucial indicators for reflecting changes or predicting depression (Ritschel et al., 2022; Kaleta & Mróz, 2020; Wang, S. et al., 2020; Jandrić et al., 2021; Applebaum et al., 2014; Leonard et al., 2020). However, there is insufficient evidence to confirm that CBT and PPT effectively improve insomnia, fatigue, hope, rumination, and perceived social support. For instance, Verma et al. (2022) highlighted the scarcity of studies focused on insomnia and fatigue in postpartum depressed women. Similarly, although ruminative thinking is closely linked to depression, existing research has not demonstrated that CBT or PPT effectively reduces them (Petrosanec, 2022; Layous, 2023). Many such examples

exist for the other variables. Thus, the current evidence does not support the conclusion that CBT and PPT are applicable treatment models in treating physical, psychological and social aspects among postpartum depressed women.

Based on the above points,the study concluded that it is important to evaluate the applicability of CBT and PPT on physical (insomnia, fatigue), psychological (hope, rumination thinking) and social aspects (perceived social support) among postpartum depressed women in China.The independent variables of the study are the groups (CBT group, PPT group, CBT control group, PPT control group), while the dependent variables consist of physical aspects (insomnia, fatigue), psychological aspects (hope, ruminative thinking) and social aspects (perceived social support). The Instruments that measured the dependent variables were the Integrated Dimensions Questionnaire (IDQ), which includes the Chinese versions of several scales: the Perceived Social Support Scale (MSPSS-C), the Herth Hope Index (HHI-C), the Fatigue Scale (FS-14-C), the Insomnia Severity Index (ISI-C), and the Rumination Response Scale (RRS-C).

1.4 Research Gaps

For the research question, there are the following research gaps to be improved in this study.

Empirical gap

Researchers have identified several limitations in previous studies examining the effectiveness of CBT and PPT as treatments for postpartum depression. Evidence indicates that CBT can effectively reduce symptoms of depression (Ray et al., 2020; Sarfan et al., 2023), but its benefits can vary among individuals and may not address all dimensions of depression (Tack & Tuller, 2023; Fang et al., 2020). Notably, the effectiveness of CBT in

improving physical symptoms, such as insomnia and fatigue, remains inconclusive, with some studies yielding contradictory results (Vink, 2020). Therefore, further investigation is needed to clarify CBT's impact on these physical aspects.

Although PPT shows promise for treating depression (Arora, 2018; Carr, 2021), evidence for its effectiveness in postpartum depression is limited. Further research is needed to identify the populations that benefit most from PPT and to evaluate its impact on the physical, psychological, and social dimensions of postpartum depression (Corno et al., 2019). Evidence for its role in reducing rumination is also scarce; while some studies indicate potential benefits (Hoppen, 2021; Layous, 2023), its applicability—particularly in postpartum populations—requires further empirical confirmation. Additionally, PPT may be particularly valuable for fostering positive psychological resources, potentially leading to improved physical health outcomes, such as reduced stress levels and enhanced sleep (Kubzansky, 2018; Tafoya, 2018). This connection highlights the potential for future studies to evaluate PPT's effects on insomnia and fatigue.

Finally, although psychotherapy has been shown to enhance social support (Swartz et al., 2020; Barnett, 2023), it remains unclear whether CBT and PPT can significantly impact perceived social support among postpartum women. In short, there is considerable potential to enhance the empirical evidence in these above aspects.

Methodological gap

The researchers found that previous studies have analyzed the effect of the independent variable (type of psychotherapy) on various dependent variables, such as depression, well-being, and motor functioning. For instance, Geschwind et al. (2019) examined the differences between active cognitive therapy and traditional cognitive

therapy, focusing on indicators like positive affect, optimism, subjective well-being, and mental health. Similarly, Luo et al. (2021) assessed the effectiveness of cognitive behavioral therapy on mood disorders, sleep, fatigue, and quality of life among individuals with Parkinson's disease. These examples indicate that while some studies have concentrated on multiple dependent variables, they differ from and lack the breadth of our study.

In contrast to CBT, PPT treatment tends to focus on fewer dependent variables, with most physical indicators being related to cognitive behavioral therapy (Lin et al., 2023). This may be due to many counselors not recognizing that PPT can also impact the physical aspects of participants' well-being. Some research has shown that positive mental health can contribute favorably to physical health (Kubzansky et al., 2018). However, it remains unclear whether PPT can effectively improve specific physical indicators or other aspects of health.

In summary, research is increasingly shifting from focusing solely on one primary psychological indicator (e.g., depression or anxiety) to examining multiple related indicators. This study offers a richer and more thorough exploration of dependent variables than previous research, as it addresses the physical, psychological and social aspects of postpartum depressed women. Currently, there is no research specifically evaluating the applicability of CBT and PPT in treating the physical (insomnia and fatigue), psychological (hope and ruminative thinking) and social (perceived social support) aspects. This gap indicates a significant opportunity to explore the multidimensional effects of CBT and PPT in culturally specific postpartum populations.

Sample gap

Some studies found that psychotherapy can improve hope, but the study sample was non-postpartum depressed women (Salamanca-Balen et al., 2021), and although some counsellors conducted group psychotherapy for postpartum depressed women, the clients were not Chinese postpartum women, let alone the sample in Guizhou Province (Davoodabadi-Farahani et al., 2022). Therefore, the study is conducive to enriching the research scope and the research sample, as well as promoting the study in the region.

1.5 Objectives

The general objective of this study is:

To evaluate the applicability of CBT and PPT in treating physical, psychological and social aspects among postpartum women with depression in China.

The specific objectives of this study are:

i. To evaluate the applicability of CBT in treating the physical aspect (insomnia, fatigue) of postpartum depression.

ii. To evaluate the applicability of CBT in treating the psychological aspect (hope, ruminative thinking) of postpartum depression.

iii. To evaluate the applicability of CBT in treating the social aspect (perceived social support) of postpartum depression.

iv. To evaluate the applicability of PPT in treating the physical aspect (insomnia, fatigue) of postpartum depression.

v. To evaluate the applicability of PPT in treating the psychological aspect (hope, ruminative thinking) of postpartum depression.

vi. To evaluate the applicability of PPT in treating the social aspect (perceived social support) of postpartum depression.

1.6 Research Questions

i. Is CBT applicable in treating the physical aspect (insomnia, fatigue) of postpartum depression?

ii. Is CBT applicable in treating the psychological aspect (hope, ruminative thinking) of postpartum depression?

iii. Is CBT applicable in treating the social aspect (perceived social support) of postpartum depression?

iv. Is PPT applicable in treating the physical aspect (insomnia, fatigue) of postpartum depression?

v. Is PPT applicable in treating the psychological aspect (hope, ruminative thinking) of postpartum depression?

vi. Is PPT applicable in treating the social aspect (perceived social support) of postpartum depression?

1.7 Research Hypotheses

The alternative hypotheses of this study are:

H_{a1}: CBT is the applicable treatment model in treating the physical aspect (insomnia) among postpartum women with depression in China.

H_{a2}: CBT is the applicable treatment model in treating the physical aspect (fatigue) among postpartum women with depression in China.

H_{a3}: CBT is the applicable treatment model in treating the psychological aspect (hope) among postpartum women with depression in China.

H_{a4}: CBT is the applicable treatment model in treating the psychological aspect (rumination thinking) among postpartum women with depression in China.

H_{a5}: CBT is the applicable treatment model in treating the social aspect (perceived social support) among postpartum women with depression in China.

H_{a6}: PPT is the applicable treatment model in treating the physical aspect (insomnia) among postpartum women with depression in China.

H_{a7}: PPT is the applicable treatment model in treating the physical aspect (fatigue) among postpartum women with depression in China.

H_{a8}: PPT is the applicable treatment model in treating the psychological aspect (hope) among postpartum women with depression in China.

H_{a9}: PPT is the applicable treatment model in treating the psychological aspect (rumination thinking) among postpartum women with depression in China.

H_{a10}: PPT is the applicable treatment model in treating the social aspect (perceived social support) among postpartum women with depression in China.

1.8 Conceptual and Operational Definition

The conceptual and operational definitions are described as follows:

1.8.1 Postpartum Depression

Conceptual definition

Depression is a group of symptoms that manifest as a persistently low mood due to various factors. Postpartum Depression (PPD) is a mood disorder that occurs after a woman has given birth, characterized by symptoms such as sadness, fatigue, feelings of neglect, decreased interest in the baby, loss of appetite, and sleep disturbances. This presentation is similar to that of general depression, leading to PPD often being classified as a subtype of depression (Sharma, 2021). PPD has a high prevalence during the puerperium (the eight weeks following delivery), and its duration can extend to a year or more (Enyidah & Nonye-Enyidah, 2022; Giallo et al., 2018). Thus, postpartum depression is typically defined as a type of depression that occurs within one year after delivery, with a particularly high prevalence during the puerperium (Nguyen et al., 2023). Currently, screening for postpartum depression is conducted using standardized scales and clinical assessments. This study focuses on women experiencing postpartum depression within 0-8 weeks postpartum at three hospitals.

Operational definition

The study uses the Chinese version of the Beck Depression Inventory (BDI-II-C) to measure the participants' depression levels. It is identical to BDI-II in content and

presentation. The BDI-II is a modified version of the original BDI. It was reformulated by Beck based on the DSM-IV and has better reliability and validity relative to the initial BDI. BDI-II contains 21 items on a four-point scale and is appropriate for people aged 13 and above (Hubley, 2021). It is one of the popular instruments for measuring depression.

1.8.2 Insomnia

Conceptual definition

Sleep plays a crucial role in restoring energy and strength, allowing individuals to complete mental activities that were not finished while awake. Typically, humans experience a rhythmic alternation between wakefulness and sleep every 24 hours. However, some individuals experience abnormal patterns of sleep and wakefulness, putting them at risk for developing sleep disorders. One of the most common sleep disorders is insomnia.

Insomnia is defined as a subjective experience in which individuals feel they are obtaining insufficient sleep, leading to difficulties in their daytime social functioning. This condition arises despite having suitable opportunities and conditions for sleep, resulting in ongoing challenges in falling asleep or staying asleep. Insomnia can significantly affect an individual's day-to-day functioning and overall quality of life (American Psychiatric Association, 2013).

Insomnia can be classified based on its duration into three categories: acute insomnia, which lasts less than 4 weeks; short-term insomnia, which lasts from 4 weeks to 6 months; and long-term insomnia, which lasts more than 6 months. Additionally, it can be categorized by its etiology into primary insomnia, which occurs without a clear cause or persists after potential causes have been ruled out, and secondary insomnia, which is a consequence of physical illness, mental disorders, substance abuse, or other factors.

Common symptoms of insomnia include difficulty falling asleep, frequent awakenings during the night, early morning awakenings with an inability to return to sleep, recurrent nightmares, and a continuous sensation of dreaming. Individuals suffering from insomnia often report experiencing low energy levels during the day and increased sensitivity to external noises and light. They may also experience headaches and delayed reaction times (Riemann et al., 2022). As a result, insomnia can have a profound impact on both physical and mental functioning throughout the day, affecting various aspects of life including work, studies, and overall quality of life.

Operational definition

Insomnia can be assessed in several ways, either by using biological instruments such as electroencephalography or using scales. The study uses the Chinese version of the Insomnia Severity Index (ISI-C) to measure the participants' insomnia. This instrument is a clinical scale used to subjectively assess insomnia over two months. The ISI contains seven items, each rated on a five-point scale (0 to 4). The options are none, mild, moderate, severe, and extremely severe. Higher scores indicate more severe insomnia. The total score is 28 points. Seven points is the absence of insomnia, eight to fourteen points is light insomnia, fifteen to twenty-one points is moderate insomnia and twenty-two points or more is severe insomnia. (Burak & Keskin, 2023).

1.8.3 Fatigue

Conceptual definition

Fatigue can be defined as a subjective experience characterized by feelings of weakness, lack of motivation, and exhaustion, encompassing both physical fatigue and mental fatigue (Barbosa et al., 2023; Phillips, 2015).

Physical fatigue refers to a feeling of weakness characterized by difficulty or inability to initiate actions and decreased endurance for physical activity. It can be categorized into acute fatigue, sub-acute fatigue, and chronic fatigue. Fatigue often results from the depletion of hormones, neurotransmitters, or essential life-sustaining substances. Additionally, conditions such as fever, infections, anemia, depression, sleep disorders, and pregnancy are strongly associated with fatigue. These underlying causes can often be identified through imaging, biochemical tests, and neurological examinations.

Mental fatigue is a state of reduced motivation, often linked to stress and emotional strain. It may be accompanied by feelings of sadness or anxiety. Like physical fatigue, mental fatigue can arise from internal or external demands that exceed available resources. Brunton et al. (2021) defined fatigue as a subjective experience characterized by overwhelming and chronic weariness, along with a reduced capacity for both physical and mental labor that is not alleviated by rest. For example, military personnel often face extreme conditions during combat and training. Exhaustion, low energy intake, and lack of sleep can lead to physical fatigue, while the stress of combat can induce significant mental fatigue. Both factors can severely impact the combat performance of military personnel (Weeks et al., 2010). It can be seen that fatigue is a complex interaction of biological and psychosocial factors.

Operational definition

The Chinese version of the Fatigue Scale (FS-14-C) was employed in the study to quantify the intensity of fatigue symptoms, evaluate clinical efficacy, and screen for cases of fatigue. This version is identical to the original FS-14, which consists of 14 fatigue-related questions. Following principal component analysis, the 14 items were

categorized into two groups: one reflecting physical fatigue (items 1-8) and the other reflecting mental fatigue (items 9-14). Participants were asked to respond to the questions based on the content of the scale and their personal experiences, answering "yes" or "no" to score 1 or 0 respectively. Items 10, 13, and 14 were scored in reverse order. The total fatigue score is calculated as the sum of the physical fatigue score and the mental fatigue score. Physical fatigue can be scored from 0 to 8, mental fatigue from 0 to 6, resulting in a total score range of 0 to 14. A higher total score indicates more severe fatigue (Yan et al., 2022; Pan, 2022).

1.8.4 Hope

Conceptual definition

The study adopts Snyder's concept, which defines hope as a positive psychological state characterized by an individual's expectations and beliefs about the future, particularly their confidence in achieving goals and overcoming challenges. It consists of three primary components: goals, path thinking, and motivational thinking/agent (Snyder, 2002). Among these, Path thinking represents the cognitive aspect of hope, referring to the strategies and plans for reaching a goal. A study indicates that individuals with high levels of hope are better equipped to form feasible plans and identify alternative routes than those with lower levels of hope (Pleeging et al., 2021). This highlights the link between hope and cognition, demonstrating how strong hope can foster diverse and effective solution strategies. Motivational thinking pertains to the drive to execute these strategies, highlighting an individual's capacity to achieve desired goals based on established pathways. This component plays a crucial role in goal pursuit.

This definition emphasizes hope as a cognitive set, including a cognitive orientation and a positive motivational state. It arises from the interplay between pathways (goal-oriented plans) and motivation (goal-directed energy) in the pursuit of success. Individuals with high hopes typically demonstrate perseverance in overcoming setbacks and view these challenges as opportunities for growth. In contrast, those with lower levels of hope may not adopt such a positive perspective when confronted with difficulties. This illustrates that hope can significantly influence motivation, future orientation, and positive thinking.

Operational definition

The study utilized the Chinese version of Herth's Hope Index (HHI-C) to assess the hope levels of postpartum depressed women. The HHI is a measurement instrument based on Dufault and Martocchio's multidimensional theory of hope (Feldma et al., 2023). Designed by Kaye Herth in 1991, the HHI aims to clearly measure the level of hope in clinical populations using a concise set of indicators and items. It encompasses three dimensions: positive attitudes, positive behaviors, and intimacy, which measure aspects such as positive readiness and expectations, behavioral and affective components, and self-other interconnectedness, respectively. The instrument consists of 12 questions, rated on a four-point scale from 1 (completely disagree) to 4 (completely agree). Higher total scores indicate higher levels of hope. The HHI has been widely translated into several languages and has been psychometrically tested in many countries, with its reliability found to be acceptable in numerous studies (Nayeri et al., 2020).

1.8.5 Ruminative Thinking

Conceptual definition

Ruminative thinking (RT) refers to a psychological response in which an individual experiences negative events and adopts a pessimistic cognitive attitude, leading to repetitive and persistent thinking about thoughts, events, and emotions. The individual becomes deeply immersed in this state without employing constructive thought processes. It is characterized by its repetitive and intrusive nature, which hinders problem-solving (Boyes et al., 2016; Parthi & Kaur, 2022). From this perspective, ruminative thinking is viewed as a stable trait that is closely related to negative emotions, often referred to as trait rumination. Research has shown that trait rumination can predict mental health outcomes, particularly its impact on depression (Verhallen et al., 2022; Williams, McKenney, & Gotham, 2021). Therefore, this study utilizes this explanation.

It should be noted that some scholars view rumination as a state, known as state rumination. This perspective is essentially a consequence of the failure to achieve goals and the experience of setbacks (Mollaahmetoglu et al., 2021). When individuals ultimately achieve their goals or abandon them and alter their perceptions, the ruminative thinking ceases. However, whether state rumination or trait rumination, both highlight the excessive negative thinking individuals engage in when confronted with adverse life events or emotional experiences. Thus, the different classifications do not significantly affect the understanding of this concept.

Operational definition

The study used the Chinese version of the Rumination Response Questionnaire (RRS-C) to measure RT. It is the same as the original Rumination Response Questionnaire

(RRS), which was developed based on Nolen-Hoeksema's Response Style Theory (Nolen-Hoeksema,1993). The RRS-C is divided into three categories: symptomatic rumination, introspective rumination, and obsessive meditation, comprising a total of 22 items. Participants respond using a four-point Likert scale to indicate frequency (1 = never, 2 = sometimes, 3 = often, 4 = always). The total score is calculated by summing the item scores, with a possible range from 22 to 88. Higher scores indicate greater ruminative thinking (Han & Yang, 2009).

1.8.6 Perceived Social Support

Conceptual definition

Social support involves providing spiritual and material resources to help vulnerable groups overcome challenges related to survival and development. It encompasses various forms of support, specifically categorized into economic support, informational support, emotional support, and instrumental support (Phiri et al., 2023). Another classification divides social support into perceived social support and received social support (Jolly et al., 2021).

Perceived social support (PSS) refers to the material and psychological support an individual realistically perceives from friends, family, and society when in need (Grey et al., 2020). It represents the emotional experience of feeling respected, understood, and supported, functioning as a subjective emotional perception (Eagle, 2018). In contrast, received social support focuses on the actual quantity and quality of support obtained in reality. Some studies suggest that PSS is more closely related to mental health and better reflects the degree of support felt than received social support (Li et al., 2021; Riahi et al.,

2011). Consequently, this study emphasizes perceived social support to assess participants' awareness of external support.

Operational definition

The Multidimensional Scale of Perceived Social Support (Chinese version), known as MSPSS-C, was used to assess PSS. The original scale, developed by Zimet et al. (1988), includes three dimensions: family support, friend support, and support from others. The MSPSS-C consists of 12 items, each rated on a seven-point Likert scale. The total score indicates the individual's level of perceived social support: scores from 12 to 36 represent low support, 37 to 60 indicate medium support, and 61 to 84 reflect high support. Higher scores correspond to greater levels of social support perceived by the participants.

1.9 Scope of Research

In southwestern China, Guizhou is a province with a diverse ethnic composition, home to 48 ethnic minority groups. Compared to most provinces in China, Guizhou faces challenges such as a challenging geological environment, an underdeveloped industry, and generally low levels of education among its residents. Additionally, inadequate healthcare and education systems contribute to a high prevalence of postpartum depression.

The fertility system in Guizhou tends to be more traditional than in other provinces, with many locals aspiring to have more sons and larger families (Wang & Chi, 2017). The area's relatively underdeveloped economic base and low productivity levels shape the division of labor within families post-marriage. Men are typically involved in direct production work, which allows them to share in the production's fruits and achieve higher economic wealth, thus granting them a higher status within the family. Conversely, postpartum women often take on auxiliary roles, managing household responsibilities and

childbirth. Even capable women might not escape these family roles by pursuing careers; they frequently have to work while managing family duties. This patriarchal backdrop in marriage and childbearing places significant social and life pressures on most postpartum women in Guizhou Province.

Moreover, "left-behind women" is prevalent in Guizhou, where men migrate for work for long times, leaving women to live alone at home. These women often lack sufficient economic reserves and educational qualifications, making it difficult to escape their challenging situations. Research indicates that postpartum depression levels among these left-behind women are significantly higher than their non-left-behind counterparts, with some responding to family pressure by drowning female babies while keeping male babies to bolster productivity (Zhong & Yao, 2012). This highlights that compared to most other provinces, postpartum women in Guizhou bear greater stress and risk.

The study considers the region's specific characteristics when selecting treatment theories and designing the program of activities. Participants were selected from Guiyang Maternal and Child Health Hospital (GCH), Bijie Maternal and Child Health Hospital (BCH), and Qingzhen Maternal and Child Health Hospital (QCH) in Guizhou, China. They were typically women who sought hospital services within 8 weeks postpartum (puerperium). Those whose scores exceeded 13 on the Chinese version of the Beck Depression Inventory (BDI-II-C) were identified as the postpartum depressed population.

1.10 Research Significance

Theoretical Significance

This study helps to identify the differences and characteristics of CBT and PPT in treating postpartum depression, thus finding applicability for different aspects. This

provides a theoretical basis for the application of CBT and PPT. Additionally, the study offers an example of combining different treatment theories, further enriching the evidence for CBT and PPT in addressing physical, psychological and social aspects.

Practical Significance

The study contributes to providing a group counseling template for CBT and PPT in treating postpartum depression. This not only facilitates the development of policies for women's welfare but also serves as a reference for other counselors. Moreover, the study helps to alleviate the mental health problems of postpartum depressed women in Guizhou Province, thereby improving the quality of life of women with postpartum illness.

1.11 Ethical Concern

The study has been approved by the UNIMAS Human Research Ethics Committee (ref: UNIMAS/TNC(PI)/09 – 65/02 (85)).

Informed Consent: Postpartum depressed women are informed that they participate in a research study involving a free three-week counseling program. The counselor explains the study's nature, purpose, and potential risks. For example, participants are informed that the CBT and PPT therapy group operates as a closed group, and they are expected to commit to the program without dropping out at will, except under special circumstances, which should be communicated in advance.

Confidentiality: The research instruments collect participants' nicknames, medical record numbers, and other personal information. The researcher maintains strict confidentiality, ensuring that personally identifiable or sensitive information of the participants is not disclosed. All data collected will be used solely for this study.

Risk Assessment: The program is held in a hospital setting, with a doctor present to ensure the safety of postpartum women. The treatment program will not involve strenuous activities or risky behaviours and techniques. If any participant feels unwell during the sessions, immediate medical attention is available.

Follow-up: At the end of the treatment, the counselor provides them with the results of their inventory tests. This feedback helps participants practice the techniques more effectively. In collaboration with the hospital doctor, the counselor offers all group members, including those in the control group, a free online postpartum care coaching session. This ensures that control group members also have access to some professional assistance.

Maximization of Benefits: This study provides significant value to both participants and society as a whole. The benefits of the treatment are expected to enhance the health and well-being of postpartum women, while also fostering harmony and stability within families and the broader community.

1.12 Chapter Summary

This chapter provides a comprehensive overview of the background, research questions, objectives, hypotheses, key concepts, scope, research gaps, significance of the study, and ethical considerations. It aims to present the basic assumptions and directions of the study clearly to relevant researchers. The primary goal of this study is to evaluate the applicability of CBT and PPT for postpartum depressed women in China, focusing on physical aspects (insomnia and fatigue), psychological aspects (hope and ruminative thinking) and social aspects (perceived social support). This research can assist counselors in selecting accurate and effective treatment strategies for postpartum women while also

raising awareness within the government and society about the mental health of postpartum women, ultimately fostering a more equitable and harmonious environment.

In the next chapter, the study introduces the literature review, theories, theoretical framework, and conceptual framework to present the available evidence and foundational concepts related to this study.

CHAPTER 2

LITERATURE REVIEW

2.1 Overview

This chapter describes knowledge related to group counselling, the primary psychotherapeutic approach and theories of group counseling, the living conditions of postpartum women, and group counseling to treat the physical, psychological and social aspects, etc. This is a more comprehensive coverage of what is directly related to the topic. Following this, the chapter describes the theoretical frameworks and conceptual frameworks involved in the study. Finally, the researcher summarizes the core contents and key points in the chapter.

2.2 Mental Health Counselling and Psychotherapy

To begin with, the study elaborates on the concepts of mental health counseling and psychotherapy to reduce ambiguity. Both counseling and therapy are processes that assist clients in resolving their emotional distress. Mental health counseling refers to professional activities where trained counselors establish a supportive relationship with participants. Utilizing psychological theories and techniques, counselors help clients understand themselves, overcome psychological distress, realize their full personal potential, and foster personal growth (American Counseling Association, 2021; Nagarajan & Yuvaraj, 2019; Nor, 2020). This type of counseling typically occurs in a non-clinical setting, focusing on helping individuals address problems and challenges in their daily lives. Psychotherapy derives from a Greek term that signifies serving people and healing the psyche and soul of the patient. Rogers and Carmichael (1942) argued that psychotherapy

involves establishing a strong therapeutic alliance between professional therapists and their clients within a specific procedure and setting. The application of relevant theories and techniques in psychotherapy is linked to the patient's physiological, psychological, and behavioral changes, ultimately aiming to eliminate or alleviate psychosomatic symptoms.

Psychotherapy is a common psychiatric treatment for individuals with psychological disorders. Therapists may employ counseling techniques, corrective methods, and even elements of physical therapy. In contrast to counseling, therapists are more actively engaged with patients, focusing on assessing, diagnosing, and treating severe mental disorders. This therapeutic process can extend over months or even years and requires a high level of practitioner involvement (American Psychological Association, 2020; Canadian Psychological Association, 2018). While counseling and therapy differ in certain respects, their similar goals and techniques indicate that they share much in common, to the extent that their implementation stages and utilized techniques are nearly identical.

Rogers (1942) also explored the relationship between counseling and psychotherapy, stating, *"There is a tendency to use the word counseling for the more casual and superficial interviews, while the word psychotherapy is reserved for the deeper, longer-term, sustained interactions and touches of personality. Although there may be reasons for this distinction, successful counseling is indistinguishable from successful psychotherapy."* This observation highlights the inherent similarities between counseling and therapy. In summary, this study regards mental health counseling and psychotherapy as closely related concepts that can be used interchangeably and equivalently.

2.3 Major Counselling and Psychology Theories

This section first introduces the major psychotherapeutic approaches, outlining the theoretical background of the counseling field and explaining the rationale for selecting CBT and PPT in this study. Subsequently, the section presents the theoretical foundations of the study, which inform the therapeutic strategies and techniques used in CBT and PPT to address the physical, psychological, and social distress experienced by women with postpartum depression. The interconnections and functions of these theories will be further elaborated in Theoretical Framework 2.10.

2.3.1 Major Theoretical Approaches in Counselling

Around the world, there are many famous counselling approaches, whose therapeutic perspectives and theoretical doctrines have profoundly influenced the development of counselling and have given an attempted explanation of different psychological problems. This section presents the four most influential therapeutic approaches: Psychoanalytic, Behavioral, Cognitive, and Humanistic.

Psychoanalytic Approach

Psychoanalytic approach was founded by Freud, an Austrian psychiatrist, in the late 19th century. Through his extensive work with patients suffering from hysteria and neurosis, Freud developed a series of ideas about psychological functioning, development, and abnormalities, known as classical psychoanalytic theory. As therapeutic perspectives and techniques evolved, new branches such as ego psychology and self-psychology emerged. Today, psychoanalysis offers a comprehensive theory rooted in early experiences, clinical records, and field observations. It provides a deep, rich explanation of the causes of psychological problems and relevant therapeutic strategies.

Psychoanalysis has been controversial, notably since 1972 when some scholars levied significant criticisms against it (Virgilio, 2022). The main points of contention centered on the rationality and scientific validity of its concepts and theories. However, in recent years, empirical studies have increasingly confirmed that psychoanalytic theories can provide substantial benefits to participants, including regulating and normalizing brain functions (Hartmann, 2020). There is also empirical evidence supporting unconscious processes, attachment, and developmental theories, which are considered scientifically grounded (Ulberg, 2018). As such, despite ongoing controversy, psychoanalysis is gaining acceptance.

Counselors skilled in psychoanalysis can access and address participants' unconscious conflicts and contradictions. Through analysis, counselors help participants identify the underlying unconscious issues, bringing them to conscious awareness and transforming unconscious processes into conscious ones, thereby alleviating symptoms. However, this approach often requires extended treatment and depends heavily on the counselor's experience and the participant's cooperation, making it challenging to manage and implement practically. Consequently, relying solely on psychoanalysis may present difficulties and be unsuitable for women with postpartum depression due to the prolonged duration of treatment.

Behavioral Approach

In a fast-paced society, new mothers have limited time for self-care, making long-term counseling less suitable for this population. Thus, our study does not employ psychoanalysis. Behaviorism, which emerged in 1913, reached its scientific pinnacle through a series of behavioral experiments. Various scholars developed behavioral learning

theory at different times, focusing on development through reward, punishment, and imitation. Behaviorism comprises classical conditioning, operant conditioning and social learning theories, which later formed the foundation of behavioral therapy.

Behavioral therapy involves creating specific situations and procedures to help participants gradually eliminate abnormal behaviors and develop new adaptive behaviors through learning and training. It offers a structured and scientific approach with substantial experimental support (Chey et al., 2021; Van & Tripp, 2020), enabling participants to achieve positive outcomes in a relatively short time. However, behavioral therapy is less effective for addressing ambiguous issues that are not easily quantifiable, such as a lack of interest in life or uncertainty about future planning. These problems are better addressed through cognitive therapy.

Cognitive Approach

Cognitive therapy is a set of short-term treatments to change a person's thoughts and beliefs. It focuses on helping individuals with psychological issues to alter their negative perceptions of people and situations, thereby resolving their problems. Cognitive therapy is widely used not only in treating mental illnesses but also in educating the general public to improve health awareness and adherence. It is supported by substantial evidence, such as studies showing that both mindfulness-based cognitive therapy and cognitive therapy can enhance self-management of symptoms associated with recurrent depression and help individuals develop metacognitive skills to manage distressing thoughts and emotions (Farb et al., 2018). Additionally, cognitive therapy has been shown to be effective for individuals with dementia, offering a promising approach to reversing

cognitive disorders in older adults (Carrion, 2018). These findings suggest that cognitive therapy holds significant potential for the future of mental health treatment.

Nowadays, cognitive therapy and behavioral therapy are continually merging and evolving, leading to the development of the Cognitive Behavioral Therapy (CBT) model. This approach integrates features of both therapies and has become one of the most well-known forms of integrated treatment. Its short-term, standardized, and precise efficacy makes it well-suited for many populations. Accordingly, this study focuses on the application of CBT in women with postpartum depression.

Humanistic Approach

Humanistic psychology emphasizes the study of human nature, growth, potential, the meaning of existence, and self-actualization. This school of thought has profoundly impacted counseling, psychotherapy, educational reform, and organizational management. Its main figures include Maslow and Rogers. Maslow viewed mental illness differently from previous psychologists, considering it a "deprivation illness" stemming from unmet needs. A study linking unsatisfied needs, mental health, and coping suggests that fulfilling these needs is crucial for mental health and successful adaptation (Zainal, 2022). Therefore, humanistic therapists encourage clients to understand themselves, fulfill basic needs, and address maladaptive needs to promote healing.

Rogers advanced a "person-centered" approach, emphasizing that a counselor's genuine, unconditional positive concern fosters an environment where clients can freely express themselves, understand their experiences, and achieve holistic change (Hamovitch, 2018). With the evolution of humanistic psychology, positive psychology emerged, emphasizing a positive orientation and becoming a core component of modern humanistic

thought. Positive psychology focuses on human strengths, studying positive psychological traits and tapping into potential. It incorporates techniques from physiology, brain science, and other fields to enhance its lasting influence. As a result, new treatments have emerged, positive psychotherapy (PPT), also called Positive Psychological Interventions. PPT begins with human developmental possibilities and abilities and makes it easily accepted by participants. Moreover, The idea of a supportive environment that PPT proposed helps ease participants' life pressures. These advantages enhance the attractiveness of the therapy in different populations.

In summary, given time constraints, the characteristics of the therapeutic approach, the type of psychological issues, and the researcher’s interests, this study focuses on CBT and PPT to address the physical, psychological and social problems faced by women with postpartum depression.

2.3.2 Theoretical Foundations of the Study

The theoretical foundations of this study are grounded in the principles of CBT and PPT, including Rational Emotive Behavior Therapy (ABC Model), Glasser's Theory of Reality Therapy, Resilience Theory, Social Role Theory (Gender Role) and social Learning Theory. These theories serve as important guides for both counselors and participants.

For counselors, Cognitive Behavioral Therapy is a problem-oriented approach that focuses on addressing the client’s issues. The Rational Emotive Behavior Therapy (ABC Model) and Glasser's Theory of Reality Therapy offer counselors valuable perspectives and strategies for treating depression. These therapeutic approaches center on modifying participants' cognitions and behaviors, such as eliminating negative thoughts and

encouraging realistic actions. Conversely, Positive Psychotherapy is resource-oriented, focusing on harnessing participants' strengths and resources to facilitate problem-solving. In this context, Resilience Theory and Social Role Theory (Gender Role) provide strategies for counselors to enhance the resources of postpartum women, such as fostering gender awareness and promoting autonomy. Additionally, Social Learning Theory emphasizes the importance of interaction and communication within the group, allowing participants to learn from shared experiences. Collectively, these theories equip counselors with ideas, techniques, and approaches essential for implementing the treatment goals of both CBT and PPT. They also facilitate the design of treatment modules tailored to the goals, requirements, and priorities of CBT and PPT.

For participants, these theories serve as essential therapeutic tools to facilitate improvements across various aspects, including perceptions, self-awareness, behaviors, positive resources, and interpersonal interactions. This study used these theories to address the physical, psychological and social disturbances experienced by women with postpartum depression.

Rational Emotive Behavior Therapy (ABC Model)

Albert Ellis was a prominent counselor in the 1950s who employed a proactive, directive approach to help clients resolve their issues across emotional and behavioral dimensions. This therapeutic model, known as Rational Emotive Behavior Therapy (REBT), involves a comprehensive analysis of the causes and mechanisms underlying psychological disorders. In particular, the ABC model embodies its important therapeutic ideas and strategies.

In the ABC Model, A stands for activation events, which include current situations encountered by the client, as well as thoughts, feelings, behaviors, or past memories. Essentially, any stimuli that can trigger changes in the client are considered activation events. B represents the client's beliefs, which encompass their awareness and evaluation of these activation events. These beliefs can be rational or irrational; the client's adherence to irrational beliefs often serves as the root cause of their emotional distress. C refers to the various cognitions, emotions, and behaviors that follow activation events, essentially representing the outcomes of the stimulus. The Rational Emotive Behavior Therapy (ABC Model) posits that clients' cognitive, emotional, and behavioral responses are influenced by their belief systems, indicating that there is a relationship between A and C through B. In other words, it is through the B factor that A can truly impact the client (Dryden, 2023). This illustrates the significant role that belief systems play in shaping the psychological experiences of clients.

A person experiencing depression often holds irrational beliefs about the external world, which can lead to distorted emotions and behaviors. An effective counseling approach involves challenging these irrational beliefs to help clients develop healthier cognitions and learn to live more rationally. Common techniques used in this process include questioning, rationality homework, relinquishing self-evaluation, exploring alternative choices, de-catastrophizing, and providing demonstrations. The Rational Emotive Behavior Therapy (ABC Model) has become one of the most widely utilized theories among counselors, therapists and social workers.

Glasser's Theory of Reality Therapy

Glasser's Theory of Reality Therapy, commonly referred to as Reality Therapy, is grounded in control theory, which posits that individuals can take responsibility for their lives, behaviors, feelings, and thoughts. This approach is problem-centered and takes a realistic and rational stance toward problem-solving. It emphasizes thinking and behavior, focusing on the present and future rather than dwelling on the past, and values "how" over "why." Glasser contended that psychoanalysis does not effectively teach self-responsibility; instead, it often encourages individuals to cling to the past and blame others. In contrast, Reality Therapy underscores the client's responsibility and strengths, prioritizing current behaviors and assisting clients in developing clear plans for change, as well as implementing those plans in practice. Reality Therapy also highlights the importance of the client's strengths and potential, helping to foster a sense of identity. As a representative cognitive-behavioral theory, Reality Therapy has made significant contributions to psychotherapy by addressing the issue of personal responsibility that many other schools of thought have overlooked.

Common therapeutic techniques used in Reality Therapy include coaching, providing information, contracting, compensating, and assigning homework (Ebadi et al., 2020; Lojk, L. & Lojk, B., 2020). This study focuses on employing techniques related to Reality Therapy to help new mothers stay present and address the key conflicts and challenges they face at this stage. The central principles of this approach encourage individuals to accept their behaviors and take positive responsibility for them, ultimately empowering them to live more positively.

Resilience Theory

In the 1950s, several North American psychologists observed that not all children born into families with mental illness developed mental health issues or developmental disorders, as had been indicated in earlier studies. Some children remained well-adjusted, emotionally healthy, and resilient. As a result, scholars began to focus more on the positive psychological phenomenon of resilience, defined as the ability to overcome difficulties in the face of risk. Resilience refers to an individual's capacity to revert to competent behavioral patterns that existed prior to a stressful event. Individuals exhibiting resilience can maintain healthy psychological functioning after experiencing setbacks. This process involves the way an individual interacts with their environment and reflects the ability to accumulate knowledge, insight, and virtues while facing challenges.

Resilience Theory focuses on harnessing the client's protective factors, which primarily include external support, intrinsic strengths, and efficacy factors. First, external support factors encompass a strong sense of right and wrong, realistic expectations, a supportive environment, and opportunities for meaningful engagement. These elements form the foundation of resilience, as they ensure that participants receive adequate social support and resources. Second, intrinsic strengths include self-acceptance, a strong sense of self-esteem and self-worth, and the ability to maintain a positive outlook. Third, efficacy factors refer to an individual's skills in interpersonal communication, emotional management, and problem-solving. These three factors are interrelated and influence one another (Lakioti & Stalikas, 2020). Resilience doesn't occur in a vacuum. Resilience Theory views it as the result of intersecting circumstances and conditions. The more resilience promoting factors that are present in an individual and their environment, the more resilient they are. Therefore, counselors can promote resilience by enhancing external

support, fostering intrinsic strengths, and developing efficacy skills. They guide participants to fully explore their social support networks and effectively utilize these resources to address current challenges, thereby maintaining both physical and mental health while bolstering their ability to cope with stress.

Social Role Theory (Gender Role)

Social Role Theory addresses gender differences and similarities in social behavior, with a key concept being the gender role. The concept of gender role emerged from the American feminist movement in the 1970s and is used to illustrate the distinctions between social and biological sexes. According to Social Role Theory, gender roles are not innate but are acquired through social influences, including family, education, and mass media. This process of socialization shapes individuals' understanding of their gender roles.

As early as 1949, Beauvoir asserted in her book that "*women are not born, but are made. No physical, psychological, or economic destiny can define the image of woman within society"* (Marcus, 2020). This illustrates the uniqueness of women. Gender differentiation is continually shaped at the cultural level, with society imposing distinct expectations on men and women. Men are typically expected to achieve success in public spheres, such as politics, economics, and culture, while women are often defined as caregivers and nurturers of children within the private sphere. This gender-differentiated culture is prevalent worldwide. Over time, men and women construct distinctions between the sexes by internalizing and performing different gender roles through learning and practice. This process of construction signifies an evolution in gender definitions. Gender is therefore defined as a sociocultural combination that shapes the division of roles, social expectations, and behavioral norms. It encompasses a set of norms, expectations, and

behavioral patterns associated with biological gender that are socially acquired by both genders.

Gender roles encompass a broader societal perspective on women's rights and needs, giving rise to two dominant gender perspectives during the process of modernization. The first is the traditional view, which emphasizes a male-dominated, female-assisted division of labor within the family. In this framework, women may hold jobs but are still expected to prioritize family life, often taking on a larger share of domestic work and childcare. The second is the modern view, which highlights the equal participation of both men and women in family responsibilities, with women actively pursuing development in all areas. Social Role Theory supports this modern perspective as an alternative to traditional views. While it acknowledges the biological differences between women and men, it asserts that women should not be dependent on men and possess the ability to think rationally in both their personal and professional lives. Men and women are entitled to the same dignity and rights, and neither should be marginalized. To foster attention to women's rights and needs, society must move away from traditional views and embrace the differences between men and women without hostility. When women pursue the lives they desire, greater possibilities for their futures will emerge. The emphasis on equal rights and opportunities for both men and women is a core value underpinning Social Role Theory (Lancaster & Di, 1997; Eagly & Wood, 2016).

Additionally, it is important to note that the gender role perspective is closely linked to and intersects with Feminist Theory. Both frameworks emphasize the significance of women's rights and status; however, Feminist Theory operates at a macro level, focusing on addressing issues of inequality and discrimination that women face in

social, economic, and political spheres while advocating for societal equality (Allen, 2023). In contrast, Social Role Theory examines gender-related phenomena within society, including gender identity, gender expression, and gender roles. It posits that gender is a socially constructed concept that encompasses not only biological differences but also societal expectations and norms surrounding gender. This theory is more focused on the individual level, making it particularly useful for counselors. It enables them to implement techniques and strategies aimed at reducing gender stereotypes and enhancing women's awareness of their potential and opportunities for development.

Social Learning Theory

Social Learning Theory is based on the behaviorist theory, which emphasises that human behaviour, thoughts and feelings are influenced not only by direct experience, but also by indirect experience. Human behaviour can be interpreted as the result of a continuum of cognitive, behavioral and environmental factors, with reciprocity. The core elements of this theory include observational learning and imitation, the importance of cognition, and alternative reinforcement.

Observational learning refers to learning by observing the behaviour and outcomes of others, and the acquisition of new behaviors and responses without receiving reinforcement in person. Of course, imitation is selective, and adapting to the behaviour of role models is an important learning tool. People are not passive, so mechanical and observational learning cannot take place without the support of cognitive skills. Therefore, cognition is very important in the learning process. Bandura emphasizes that behavior can be reinforced through both appreciation and punishment. "Reinforcement" promotes the development of positive behavior, and it can be obtained by observing the outcomes of

others' actions—this is known as alternative reinforcement. These concepts provide valuable insights for counselors in group counseling settings. Firstly, counselors and therapists should encourage group members to share their experiences and interactions, seeking role models and allowing members to observe, learn, and grow from each other. Through this process, group members can learn more adaptive behaviors through osmosis. Secondly, the group itself serves as a repository of alternative reinforcement. Members not only observe a variety of behaviors but also witness the consequences of these behaviors, thereby making full use of alternative learning (Rumjaun & Narod, 2020). Thus, this theory helps counselors emphasize the importance of communication, modeling, and observation in group counseling to foster positive changes in participants.

2.4 Group Counselling

Group counseling is a important form of counseling and psychotherapy that offers support and guidance in a group setting. The counselor assembles a group based on the participants' shared issues. Group members collaborate to address common problems through discussion, training, and guidance. Over several sessions, members inspire one another, offer mutual support and encouragement, and gain a deeper understanding of their own and others' thoughts, enhancing social adaptability. Over time, this method effectively promotes participants' personality development. In essence, it can be considered a form of intervention that combines elements of prevention, development and treatment.

Modern counseling first emerged in the United States, rooted in several key movements: the psychometric movement, the career counseling movement, the decline of psychoanalysis, and the rise of humanistic thinking and the mental health movement. These developments helped bring counseling and therapy into the public consciousness,

providing a source of psychometric and standardised treatments for counsellors and an opportunity to reduce the stigma of mental illness. The birth and rapid development of group counseling were influenced not only by these movements but also by other significant figures and the broader context of the time. This has led to the following features and advantages of group counselling.

Serving a large number of participants

In the early 20th century, an American doctor named J.H. Pratt pioneered group counseling when medical conditions hindered the effective treatment of patients with lung diseases. These patients faced fear, ostracism, and discrimination due to the contagious nature of their illness. In 1905, J.H. Pratt formed a group of 20 hospitalized pulmonary patients who met once or twice a week, engaging in lectures, discussions, and sharing personal stories. J.H. Pratt educated patients about their illness and treatment, encouraging resilience and addressing both physical and mental maladjustments. Within the group, members actively engaged in discussions, offered emotional support, inspired each other, and collectively faced their illness and reality with optimism. This innovative approach attracted significant attention at the time (Pratt, 1945), and as a result, J.H. Pratt is recognized as a pioneer of group counseling and therapy. The aftermath of the Second World War saw a massive population loss and widespread psychological disorders among soldiers and civilians. The demand for mental health services outstripped the available supply of mental health workers. In this context, group counseling emerged as an essential strategy, capable of helping a large number of individuals in a relatively short time.

Meeting diverse needs

Another key figure in the development of group counseling was Kurt Lewin. He believed that interpersonal sensitivity and the understanding and acceptance of others could be enhanced through training. Under his guidance, the Group Dynamics Research Center established a site for group interpersonal training. This initiative aimed to help participants improve interpersonal perceptions, adjust their behaviors, and boost productivity and quality of life (Lewin, 1947; Burnes, 2017).

Once sensitivity training was introduced, it quickly gained traction and was widely implemented in corporate management, government organizations, and educational institutions. It became an important milestone in the evolution of group counseling. Following its introduction in 1947, educators and counseling professionals in Japan, the United States, and Europe recognized its effectiveness. This recognition spurred the development of interpersonal workshops, which focused on experiential learning and psychological growth. These groups provided regular individuals with opportunities for personal development and improvement.

As counseling practices evolved, a wide array of group counseling, such as analytic behavioral therapy, group behavioral therapy, and mindfulness, emerged in the United States during the 1970s and 1980s. These groups played significant roles across various domains, including counseling, industry, nursing, and education. Group counseling is no longer limited to individuals with psychological issues; it also addresses the challenges of modern society. Participants range from those experiencing distress to individuals seeking to enhance the health, happiness, and richness of their lives.This demonstrates that group counseling is an effective and economical treatment form. Initially applied to patients, it

gradually expanded across various fields, gaining public acceptance. It is conceivable that group counseling could be effectively used to support women with postpartum depression, offering them valuable assistance.

2.4.1 Structure and Types of Groups

Regardless of counselling form, effective group counseling consists of several structural elements, which can be categorized into internal and external components.

Internal elements are the core components that constitute a group, including members, the leader, goals, agreements, and the content of activities. To ensure the smooth operation of counseling, the leader must focus on these aspects and employ appropriate methods to guide the group. Group leadership behavior can be divided into two orientations: relationship orientation and work orientation. In relationship orientation, the leader actively listens, demonstrates friendliness, and fosters positive interpersonal relationships within the group. In work orientation, the leader establishes strict norms to facilitate the achievement of tasks and goals. This orientation can be further classified into authoritative, democratic, and permissive styles. For postpartum depressed women, the counselor needs to select an appropriate leadership style based on the strengths and weaknesses of their leadership behavior, the characteristics of the group, the individuals' habits, and the relevant counseling theory.

External factors refer to the elements that influence the functioning of the group. For instance, the counselor must consider the size of the group, as well as the time and space allocated for counseling sessions. These factors equally constrain the operation of psychological services. Only through a combination of assessing internal and external factors, organised and planned work can expected counselling goals be achieved (Yalom &

Leszcz, 2020). Therefore, in this study, detailed preparations should be made prior to counseling, including the development of a rigorous activity program and the determination of an appropriate group size and location, laying a solid foundation for subsequent counseling and data analysis.

Group counseling can take various forms based on different counseling theories and approaches, which include psychoanalytic groups, behaviorist groups, psychodrama groups, and more. Additionally, groups can be categorized based on their nature and function as leaderless groups (such as growth and self-help groups), therapeutic groups, or psycho-educational groups (Rosendahl et al., 2021). In this study, the counselor divides the experimental group into a CBT group and a PPT group. The CBT group emphasizes the counselor's role in teaching and correcting within the group, functioning as both therapist and educator, and tends to adopt a more directive approach. In contrast, The PPT groups encourage active participation and sharing among the group members. The counselor's role is to lead and facilitate discussions while inspire members to think critically. This typically embraces a humanistic perspective on individuals and promotes an positive treatment philosophy, leaning towards a non-directive style.

However, this division and leadership pattern is not rigid; it varies depending on the group’s stage and objectives. For example, Jacobs et al. (2015) categorized group missions into two dimensions: "focusing on the group process" (on a scale of 1 to 5) and "focusing on personal issues" (on a scale of 6 to 10). He views leadership style as a continuum between these two dimensions. Counseling and therapeutic groups should adopt leadership styles within the range of 6 to 8, while growth, interpersonal, and support groups tend to utilize styles in the range of 2 to 5. This finding helps counselors gain a deeper

understanding of the role requirements for different treatment models, allowing them to consider the stages of group development and specific goals. Counselors need to remain flexible in their leadership approach within CBT and PPT groups, adapting to the stages and objectives of the sessions rather than adhering to a rigid rule. Because the ultimate purpose of all this is to improve postpartum depression for women.

2.4.2 Stages of Group Development

There are various methods for dividing groups into stages, such as the six-stage and seven-stage models; however, these approaches are often considered too complex and are less frequently used. Currently, the four-stage theory proposed by Corey (2012) is widely preferred. This theory posits that a complete group progresses through four distinct stages: the initial stage, the transitional stage, the working stage, and the ending stage, each characterized by specific tasks and dynamics. In the initial stage, the core tasks involve acceptance and identification among members. The leader facilitates this process by helping members clarify their goals, establish group norms, and define the roles and responsibilities of both the leader and the participants, aiding their transition to the next stage. The transitional stage is critical for group development and is often marked by conflicts among members. During this phase, the counselor plays a vital role in encouraging members to recognize these conflicts, fostering a harmonious atmosphere, and alleviating feelings of anxiety and restlessness. Next, the group reaches the working stage. The stage typically exhibits strong cohesion, with members communicating openly and freely. The leader supports members in problem-solving and learning new behaviors through encouragement, demonstrations, explanations, and other techniques. Finally, the group enters the ending stage, during which members summarize their counseling

experiences under the leader's guidance, consolidate their learning outcomes, and transfer their newfound skills into daily life to promote an active and healthy lifestyle.

D.Jacobson and F. Jacobson (2006) further condensed the core stages that all groups go through into three main phases: the beginning stage, the functioning stage, and the ending stage. This view argued that the transition phase is actually the phase where the beginning phase has ended but the members are not yet ready to discuss private issues, and thus, this phase is considered part of the operational stage. This study designs intervention plans based on the initiation phase, the operational phase, and the ending phase. Specifically, during the initiation phase, members are facilitated to get to know one another and establish group norms. In the operational phase, treatment techniques from CBT and PPT are employed to help postpartum depressed women in the experimental group alleviate their depression. Finally, in the ending phase, the group consolidates their learning achievements and addresses any feelings of separation. Upon completion of the group counseling sessions, the counselor conducts a summative assessment, gather their feedback, and evaluate any changes they have experienced.

In a nutshell, group counselors must possess these above knowledge, skills, and organizational abilities necessary to implement effective and standardized treatment for women with postpartum depression. The following section outlines the practice of group counseling in China, highlighting its current status, existing limitations, and future prospects.

2.4.3 Group Counselling Practice in China

In China, group-based educational activities have a long history, but strictly defined group counseling has only emerged over the past three decades. In 1991, Professor Fan

Fumin of Tsinghua University was the first to introduce group counseling into university mental health education, marking the formal inception of this practice in China (Fan & He, 2022). Early group counseling was primarily implemented in higher education institutions, aiming to address common psychological issues experienced during students' development. After 2000, group counseling gradually became integrated into school education systems, with developmental group counseling becoming the mainstream format, widely applied in class management and the cultivation of students' adaptability.

However, compared to individual counseling, group counseling remains underutilized and is mostly limited to children and students (Thomason & Qiong, 2008; Huang, 2018). Since 2015, with growing attention to mental health within the education system, the deployment of group counseling in primary, secondary, and tertiary schools has increased notably. Nevertheless, there remain significant challenges in both service delivery and clinical research. For example, Zhang (2008) noted that early school-based group counselling primarily focused on helping new students adapt, building self-confidence, and developing interpersonal skills. The research tools were relatively simplistic, the scope of intervention was narrow (typically conducted in groups of 20–30 participants), and the studies often lacked rigorous experimental designs. As a result, their scientific rigor and generalizability were limited.

In recent years, the quality of research design has gradually improved. For example, Yang et al. (2024) employed an experimental-control pretest-posttest design to examine the intervention effects of Satir model group counseling on suicidal ideation among college students. Similarly, Zhu et al. (2024) explored the role of positive psychology-oriented group counseling in cultivating positive psychological qualities among vocational students.

These studies have enhanced reproducibility and persuasiveness to some extent, yet high-quality, rigorously designed research remains relatively scarce.

Compared to the education sector, the adoption of group counseling in the medical field is more recent and less researched. In clinical practice, group counseling has been used to enhance emotion regulation, coping ability, perceived social support, and quality of life among patients with physical and mental illnesses. For instance, Xing (2017) investigated group counseling's effects on alleviating feelings of loneliness among schizophrenia patients in recovery, finding close associations between perceived social support, self-esteem, and loneliness—showing the efficacy of group intervention in mitigating negative emotions. Liu (2023) examined the impact of solution-focused group counseling on enhancing self-efficacy among postoperative breast cancer patients. Although the sample size was limited, it provided preliminary evidence supporting the application of group counseling in women's health.

Moreover, group counseling has been introduced as a tool for occupational support and psychological well-being among healthcare professionals. Jia et al. (2022) found that narrative group counseling had positive effects on male nurses' career planning, promoting professional identity and development. Zhu et al. (2020) demonstrated that group counseling could alleviate stress, improve job satisfaction, and reduce burnout among nurses employed in military hospitals. Although these studies are still limited by issues such as sample representativeness and the use of measurement tools that are not widely recognized internationally, they nonetheless begin to demonstrate the adaptability and potential of group counseling within health service.

With deepening research, group counseling has begun to be applied in interventions for perinatal women—offering transferable experiences for serving women with postpartum depression. For example, in a parallel randomized controlled trial, Chen et al. (2025) examined the effects of a theory-guided physical activity intervention (based on the Behavior Change Wheel) on maternal health. The intervention included one face-to-face individual session and three weekly online group counseling sessions, with primary outcomes including physical activity levels, incidence of gestational diabetes, and blood glucose. Secondary outcomes such as weight gain, sleep quality, quality of life, and maternal-infant health outcomes were also tracked. The study's methodological rigor, including sample recruitment, randomization, blinding, and multivariate analysis, offers a valuable model for group intervention research.

Another randomized controlled trial (RCT) conducted by Gao et al. (2012) involved 194 Chinese first-time mothers, in which the intervention group participated in prenatal education centered on interpersonal psychotherapy: two 90-minute antenatal group sessions followed by a postpartum telephone follow-up. The study assessed changes in perceived social support, parenting efficacy, postpartum depression levels, and psychological health. Though the intervention was not purely group counseling, it nonetheless highlighted the potential value of group-based psychological support for maternal mental health. However, these studies did not specifically examine outcomes such as insomnia, fatigue, hope, rumination, or perceived social support among postpartum women, and their target populations differ from those of the present study. Significantly, these studies involving perinatal women conducted only two to four intervention sessions—possibly due to participants' physical limitations and time sensitivity during the postpartum period. Further, a systematic review by Qi et al. (2021) identified key

moderate-level risk factors for postpartum depression in Chinese women, including prenatal depression, anxiety, poor economic status, and low marital quality. While these risk factors are not directly related to group counseling itself in China, they provide theoretical guidance for identifying high-risk groups and designing tailored, culturally appropriate intervention strategies with higher acceptance among postpartum women in specific regions. Finally, existing empirical evidence supports the use of Cognitive Behavioral Therapy (CBT) and Positive Psychotherapy (PPT) in China. These studies are generally well-designed and provide valuable insights. However, most focus primarily on depressive symptoms as the sole outcome, involve relatively small sample sizes, and do not specifically target postpartum women (Han et al., 2024; Wang et al.,2024). These limitations are common across other group counseling studies as well, which collectively lay the groundwork for the present research.

Overall, group counseling in China is still in its early stages but demonstrates meaningful applicability and practical value across education and medical contexts. Although studies specifically addressing group counseling for postpartum depression remain limited, existing experimental research indicates that RCT designs evaluating multiple psychological and behavioral variables are feasible. This provides methodological support and theoretical grounding for further application of group counseling among women with postpartum depression. Against this backdrop, group counseling represents an important area of research potential and practical value for alleviating postpartum depression and its associated psychological distress.

2.5 Treatment of Postpartum Depression

The Diagnostic and Statistical Manual of Mental Disorders, 5th Edition (DSM-5), considers postpartum depression (PPD) as a depressive symptom that arises within the characteristic postpartum period (American Psychiatric Association, 2013). PPD and general depression are similar in terms of treatment. Currently, PPD can be alleviated and treated through a combination of medication, physiotherapy, and counseling/psychotherapy. This section outlines the various approaches to treating PPD and discusses why counseling/psychotherapy may be particularly appropriate for women experiencing PPD.

Medication

Nguyen et al. (2019) found that oxytocin and hormones related to the Hypothalamic-Pituitary-Adrenal axis significantly impact the mental health of women during the postpartum period. Jacobson et al. (2021) argued that fluctuations in perinatal sex hormones are crucial contributors to postpartum depression, with allopregnanolone emerging as a key determinant. Additionally, it has been found that low thyroid functions in the second and third trimesters of pregnancy and postpartum period are positively associated with anxiety, depression and obsessive-compulsive (Konstantakou et al.,2021). This body of evidence indicates a general consensus in the medical community that hormones are closely related to the onset of postpartum depression. The various physiological hormonal changes after pregnancy and childbirth may contribute to this condition. Consequently, enhancing the neurotransmitter conduction process in the body can significantly improve depressive symptoms, which has become a vital approach to treating depression both medically and biologically.

Selective serotonin reuptake inhibitors (SSRIs) are the most evidence-supported treatment for postpartum depression, as these drugs exert their antidepressant effect by inhibiting the uptake of serotonin. Among them, sertraline is backed by the most clinical trial evidence (Vasiliu, 2022). Nowadays, new antidepressants are in development, such as Brexanolone, which offers an ultra-rapid antidepressant effect for severe depression (Rodríguez, 2023). These studies highlight the key role medications play in treating depression and the ongoing research aimed at improving treatment outcomes.

However, some investigations have found that mainstream medications are only 60% effective in treating postpartum depression initially (Skolnick, 2009). Furthermore, research has indicated that antidepressants can affect the baby through breast milk. For example, Sachs et al. (2013) reported the presence of low concentrations of antidepressants in breast milk after mothers ingested psychotropic drugs. Some mood stabilizers have been detected in infant plasma at concentrations exceeding 10% of therapeutic maternal plasma levels. While recent studies suggest that the likelihood of significant transfers is small, Schoretsanitis et al. (2019) argued that more research is needed to rule out this risk completely.

Given that most drugs are excreted in breast milk, there is considerable variability in the amount of medication infants can receive. This poses a potential threat to the liver and kidney function of infants during their early months, particularly if they experience elevated levels of medication in their blood and tissues (e.g., brain) (Salazar et al., 2016). Therefore, breastfeeding mothers should be adequately informed about the risks associated with medications, as their infants may be exposed to them. In addition to the risks posed to infants, antidepressants can also present challenges for the mothers. Common side effects

include an increased susceptibility to gastrointestinal reactions, and in severe cases, there can be a risk of acute pancreatitis (Jiménez et al., 2023). As a result, the use of antidepressants in women with postpartum depression carries significant risks and typically necessitates thorough assessment by a physician before use. This situation further exacerbates the apprehension surrounding medication use among women with postpartum depression. In summary, these negative factors can hinder their access to necessary treatment, leading to a degree of exclusion from medication.

Physiotherapy

Some psychologists are advocating for safe, highly effective non-pharmacological treatments that present fewer contraindications for special populations, such as pregnant women and children. Transcranial magnetic stimulation (TMS) is a leading non-pharmacological treatment for depression. Some studies have confirmed the efficacy of TMS in treating postpartum depression under double-blind conditions, offering hope for physiotherapy to alleviate depressive symptoms (Ganho-Ávila, 2019). Ozcan et al. (2020) found that TMS is particularly effective for treatment-refractory depression and has a positive impact on cognitive aspects and suicidal thoughts.

However, the financial and time burdens associated with TMS can pose challenges for patients (Sonmez et al., 2019). As a result, accessing this form of therapy may be difficult for women with postpartum depression. If a hospital lacks the necessary physiotherapists and equipment, patients may not be able to undergo the treatment. Additionally, commuting between the hospital and their residences can become a significant financial burden. This is especially true because multiple treatments over an extended period necessitate frequent go back and forth. Therefore, the reach of TMS is

limited compared to pharmacological treatments. For women with postpartum depression, the physiotherapy is somewhat excluded.

Counselling/Psychotherapy

Counseling and psychotherapy are considered the safest treatments for depression and are widely accepted by many patients. McHugh et al. (2013) has confirmed this by analyzing extensive literature on adult patients' preferences in treating mental illness. Their findings reveal a strong preference for psychotherapy, especially among younger patients and women. This indicates that women with postpartum depression may be particularly receptive to mental health counseling and treatment. The effectiveness of therapies such as cognitive-behavioral, interpersonal, and psychodynamic approaches is well-established (Valverde et al., 2023; Wang et al., 2023). Additionally, newer therapies like mother-infant therapy have shown promise in treating postpartum depression, though further studies are necessary to validate these outcomes (Huang et al., 2020). These evidence suggests that mental health counseling and therapy are valuable and potential alternatives for addressing postpartum depression, offering a safe and effective treatment option.

In conclusion, there are numerous approaches to treating depression. While antidepressant medications and physiotherapy may carry certain shortcomings and risks, counseling and psychotherapy are generally safer and more widely accepted, particularly among special population. Therefore, this study focuses on using counseling and psychotherapy to support women experiencing PPD.

2.6 Living Conditions of Postpartum Women

The postpartum period spans from delivery until the mother’s physical and psychological condition returns to normal. It is a long process. Thus, postpartum women

are generally defined as those who have given birth within the past year (Zhao, 2019; Nisar et al., 2020). During this stage, they often encounter physical, psychological and social challenges, accompanied by various symptoms and reactions. Understanding these challenges and difficulties is essential for identifying their needs and clarifying the specific goals of treatment.

2.6.1 Physical Conditions

After giving birth, women experience a range of physiological responses influenced by surgical trauma, individual fitness, quality of postpartum care, and hormonal changes. Typically, within the first 24 hours postpartum, body temperature rises slightly (37.5-38°C) due to the physical exertion, water loss, and fatigue from labor. Around the third or fourth day, temperature may rise again as breast milk production begins, causing the breasts to swell and appear red due to increased milk supply (Martin et al., 2023). During this time, women may experience breast engorgement, while factors such as pregnancy-related changes, dehydration, and intraoperative blood loss can contribute to a weight loss of 5 to 6 kilograms (Alekseev, 2015). Additionally, women who have undergone a cesarean section may experience wound pain. Thus, the first week postpartum poses significant physical challenges for them. By the sixth week, rapid uterine contractions can result in abdominal pain or cramps. This discomfort is due to the fibrosis and hyaline degeneration of endothelial and elastic tissues in the uterine blood vessels, leading to obstruction, and the shedding of more uterine cells. This process is colloquially known as "bad diarrhoea", which is a natural phenomenon experienced by every woman who has given birth (Aisien, 2021). Over time, the body gradually returns to its pre-pregnancy state.

However, the postpartum recovery process can be prolonged, and some damage may even be irreversible. For instance, women with conditions such as high blood pressure, diabetes, anemia, infections, or obesity may take longer to recover. Notably, the abdominal muscles are overstretched during pregnancy, and muscle damage from childbirth can lead to persistent wrinkles or stretch marks on the abdomen and legs (Farley & Tringali, 2023). Additionally, declines in sexual function due to perineal trauma may not return to pre-birth levels (Gutzeit et al., 2020). There is also evidence that most women will breastfeed their children. The combination of prolactin and oxytocin means that babies discharge milk after sucking or stimulating the breasts, putting new mothers at risk of swollen breasts and sore nipples. Breastfeeding is recommended for at least six months (Meek & Noble, 2022), meaning breast discomfort may persist for an extended period. Conclusively, childbearing places women under considerable physical stress and can lead to all kinds of lasting and irreversible damages. Some women may face long-term negative consequences. Against this challenging backdrop, women may become prone to feelings of gloom, pessimism, annoyance, and even depression.

Adverse emotions may lead to a variety of somatic symptoms in postpartum women. Somatization refers to the tendency to experience and express physical discomfort and symptoms without detectable pathology through current laboratory tests, or where symptoms are disproportionate to test results. It manifests in two main ways: firstly, individuals may be unable to recognize their emotions or realize they are experiencing psychological pain, using somatization as a means to convey emotional distress. Secondly, somatization refers to physical symptoms that accompany mental health issues (Ayse et al., 2023). This study primarily focuses on the latter.

Previous research indicates that approximately two-thirds of patients with depression experience comorbid somatization symptoms, such as fatigue, sleep disturbances, appetite changes, headaches, back discomfort, and chronic pain (Carlehed, 2017; Li et al., 2023). There is also considerable overlap between the somatic symptoms of depression and certain disorders, which can lead to these symptoms being overlooked. During pregnancy and the postpartum period, somatic symptoms tend to be more pronounced compared to other cognitive or emotional symptoms (Baez et al., 2021). Consequently, somatic symptoms represent a significant aspect of depression that deserves to be recognised. Novick (2015) found that the severity of somatic symptoms in patients with depressive disorders was positively correlated with the intensity of their depressive symptoms. Additionally, Taycan (2015) concluded that the severity of somatic symptoms is a significant predictor of the recovery of psychosocial functioning in these patients. This suggests that somatization symptoms not only reflect depression but also predict clinical outcomes; the more severe the somatization symptoms, the less effective the antidepressant treatment. Therefore, counselors and therapists should monitor changes in depressive somatization symptoms to better assess the effectiveness of depression treatment and identify the applicability of CBT and PPT.

Research on depressive somatization symptoms is limited, which may be attributed to the predominance of emotional symptoms in depressive disorders and the insufficient attention given to somatic symptoms caused by depression (Li, Y. et al., 2016; Lu et al., 2021). Therefore, this study focuses specifically on somatization symptoms in postpartum depressed women. American scholar Williamson (2015) found that postpartum depressed women are particularly susceptible to irritability, insomnia, fatigue, and changes in appetite, considering these symptoms to be significant signs of postpartum depression. Furthermore,

a survey comparing symptoms in postpartum and non-postpartum women in the United States, based on DSM-IV criteria, showed that alongside emotional symptoms (such as sadness and lack of pleasure), sleep problems and fatigue ranked highly, with prevalences of 90.1% and 90.5%, respectively (Hoertel et al., 2015). This highlights that somatic symptoms are common in postpartum depression in Western countries and are often associated with insomnia and fatigue. In China, a survey involving 1,503 patients across 11 hospitals found that 83.9% of younger individuals and 82% of middle-aged individuals reported experiencing fatigue, while 74.1% of younger and 75.1% of middle-aged participants reported insomnia. The prevalence of other symptoms, such as chest pain, stomach pain, dizziness, dyspnea, and constipation, was less than 60% (Guo et al., 2021). Jian et al. (2021) also noted that fatigue and related symptoms were reported by over 61% of participants, making fatigue the most prominent somatization symptom. These findings suggest that fatigue and insomnia are the most common somatic problems faced by individuals with depression or postpartum depression worldwide and warrant significant attention.

In summary, insomnia and fatigue are the most common physical issues experienced by women with PPD. This study employs CBT and PPT to address and alleviate these physical symptoms among postpartum depressed women. By testing the effectiveness of treatment, insomnia and fatigue can serve as important evaluation indicators to reflect the applicability of CBT and PPT.

2.6.2 Psychological Conditions

New mothers often face multiple challenges, including childcare stress, sleep deprivation, hormonal fluctuations, and physical recovery, which place them at a high risk

for psychological disorders. Although many new mothers may not yet be diagnosed with any mental illness, they frequently experience symptoms such as depression, anxiety, boredom, self-blame, and low mood, all of which can significantly impact their daily lives. Ahrens (2023) found that within the first 24 months after giving birth, the cumulative risk of being diagnosed with Post-Traumatic Stress Disorder (PTSD) was 6 percent, while the risks for anxiety disorders and depression were 25 percent and 28 percent, respectively. This prevalence has been confirmed by other study, with the highest prevalence of postpartum depression, followed by postpartum anxiety and traumatic stress disorder (Cantwel, 2021). These three conditions are among the primary psychological disorders affecting women during the postpartum period.

Post traumatic stress disorder

Post traumatic stress disorder (PTSD) is classified as an anxiety disorder, characterized by anxiety that is not necessarily triggered by an actual threat, leading to tension and panic that may not match real environmental dangers. A study revealed that 5.6% to 16.3% of women in labor are likely to experience PTSD. Symptoms can include nightmares, flashbacks, excessive panic, anger, difficulty sleeping, and trouble concentrating (Vignato et al., 2017). Although the incidence of PTSD is lower than that of postpartum depression and postpartum anxiety, the triggers for this disorder are quite common in everyday life. PTSD can be triggered for new mothers who have experienced abuse, domestic violence, or rape, as well as those who have undergone miscarriage, premature birth, or complicated deliveries. Women often go to great lengths to avoid any stimuli associated with their trauma, such as passing by a hospital or encountering baby clothes or toys. A survey conducted by Hernández et al. (2019) involving 2,990 postpartum women in Spain found that those suffering from PTSD reported a generally poor quality of

life. Risk factors for PTSD include the use of birthing instruments, cesarean sections, and injuries to the reproductive system, while practices such as skin-to-skin contact with the newborn, well-planned deliveries, and effective pain relief can significantly help reduce maternal PTSD. Thus, the healthcare environment and the condition of the mother during delivery have a substantial impact on maternal mental health, underscoring the importance for preventive measures taken by healthcare professionals.

Nowadays, some studies advocate for preventive initiatives through the establishment of a "labor-delivery-recovery (LDR) unit," which aims to reduce maternal energy expenditure, address diverse needs, and enhance the quality of childbirth. This initiative helps new mothers feel more comfortable in their roles, boosting their subjective well-being and sense of accomplishment, which in turn can reduce post-traumatic stress (Kazemi et al., 2023; Chen et al., 2021). It is anticipated that these findings will contribute to decreasing the incidence of PTSD and improving the mental health of postpartum women.

Postpartum anxiety

Postpartum anxiety can primarily be categorized into panic attacks and chronic anxiety. Panic attacks are a form of acute anxiety where new mothers may suddenly experience a strong sense of suffocation and near-death sensations, accompanied by symptoms such as unsteady gait, difficulty breathing, and an urgent need to urinate. These symptoms are typically short-lived, often resolving within five to ten minutes. However, following an attack, individuals may experience palpitations and develop a fear of experiencing another attack, leading to a reluctance to be alone. In contrast, new mothers suffering from chronic anxiety often feel persistently tense and excessively worried. They

may fear their child could suddenly die or choke, remaining in a heightened state of alertness throughout the day, which can interfere with their ability to sleep or eat. These symptoms and reactions can be so distressing that patients frequently find themselves consumed by worry and panic.

There are no unique diagnostic criteria for postpartum anxiety disorder; it is considered a phenomenon directly related to pregnancy, childbirth, and motherhood (Fawcett et al., 2019). The onset of postpartum anxiety is generally believed to be influenced by personality traits, psychosocial factors, and genetic predispositions. For instance, Western scholars have identified a strong association between certain personality traits, particularly neuroticism, and the occurrence of postpartum depression and anxiety (Roman et al., 2019). Additionally, changes in inflammatory mediators, hormonal fluctuations, and disruptions in sleep can contribute to the development of postpartum anxiety (Zappas et al., 2020). Thus, postpartum anxiety is a multifactorial psychological issue with a complex etiology.

Research indicates that postpartum anxiety can have both short-term and long-term effects on mothers and their children. If left untreated, it may worsen comorbid conditions, lead to non-compliance with medical regimens, substance abuse, suicide, and even infanticide (Kendig et al., 2017). This suggests that postpartum anxiety poses risks comparable to postpartum depression. Therefore, studies encourage nurses to actively participate in the screening and management of postpartum anxiety (Arefadib, 2021). Improving the quality of care through continuous training and professional development is essential to prevent crises. In conclusion, postpartum anxiety is a prevalent psychological

issue among women after childbirth, with a high incidence and risk. It requires focused attention from psychologists to ensure timely screening and treatment.

Postpartum depression

Globally, the risk of Postpartum depression (PPD) is notably high. A comprehensive study that reviewed databases like PubMed, Google Scholar, and Embase found that the pooled prevalence of postpartum depression across 38 studies, involving over 20,000 postpartum women, was 22% (Upadhyay et al., 2017). Another study pooling data from Middle Eastern countries reported a PPD prevalence as high as 27% among mothers in the region. This prevalence is linked to various physical, psychological and social factors, such as poor economic status, pregnancy-related complications, low educational attainment, and unplanned pregnancies (Alshikh et al., 2021). Consequently, PPD constitutes a serious public health issue worldwide, which is the primary mental health problem of greatest concern in this study.

PPD is classified as a mood disorder. Individuals experiencing depressive episodes may exhibit a variety of psychological and somatic symptoms, such as loss of interest, feelings of guilt, loss of appetite, depressed mood, and diminished motivation. Common psychological symptoms include anxiety, self-blame, cognitive biases, and decreased concentration. Mild postpartum depression may involve persistent low mood, lack of interest in external activities, and negative thoughts. In severe cases, individuals may experience hallucinations, delusions, self-injury, or suicidal tendencies. What causes depression in postpartum women? Western scholar Wampold (2019) identified three widely accepted explanations within academia: 1)Biological factors. A family history of depression and neurotransmitter abnormalities in the brain increases the likelihood of

developing the disorder. 2) Life or environmental stress. Factors such as financial loss, family stress, poor work conditions, or accidental injury can contribute to PPD. 3) Psychological factors. Psychoanalytic theory suggests depression arises from repressed childhood experiences or conflict between the ego and superego; Learning theory posits that depression is acquired through learned helplessness; and Cognitive theory argues that depressive patients often suffer from cognitive distortions, negative experiences, and excessively low self-evaluations (Vittorio et al., 2022). Based on these various theories and etiologies, psychoanalytic, cognitive, behavioral, and biological approaches have developed corresponding treatments for therapists to employ.

This study focuses on hope and ruminative thinking among women with postpartum depression. Hope is a prevalent psychological phenomenon that can explain many behaviors and reactions. It is an emotion, a cognitive set (cognitive orientation) as well as a positive motivational state (Courtnage, 2020). As such, hope can reflect the psychological characteristics or conditions of an individual. Research has shown that hope is a predictor of mental health and is closely linked to depression (Ritsche et al., 2022). For instance, one study on oncology patients found a negative correlation between mental health and hopelessness or depression, and a significant positive correlation between depression and hopelessness (Ata & Kılıç, 2022). Another study indicated that in obstetrics and gynecology patients, as mental health levels increased, depression levels decreased while hope levels increased (Kirca et al., 2024). This array of evidence suggests that higher levels of hope are associated with lower levels of depression, better mental health, and improved treatment outcomes. Therefore, the study examines hope as an important outcome variable and observes the effects of CBT and PPT on hope in women with postpartum depression.

Similarly, ruminative thinking (RT) is a cognitive trait that plays a significant role in depression. According to response style theory, RT can delay recovery and exacerbate depression when an individual experiences depressive symptoms. Rumination is a central factor in the onset, severity, and maintenance of depression (Watkins & Roberts, 2020; Robinson & Alloy, 2003). Depressed individuals often exhibit a negative cognitive bias, believing they are worthless and unable to change their circumstances. This leads them to focus on depression-related behaviors and thoughts, such as repeatedly considering the potential causes and consequences of their depression. Without positive action to alter this mindset, individuals can become trapped in a cycle of rumination.

One study has identified RT as a cognitive susceptibility factor for negative emotions, showing that rumination worsens and prolongs depressed moods and symptoms (Chiang et al., 2022). Another study found that RT serves as a mechanism for the maladaptation associated with depression (Zhang et al., 2019). These studies illustrate a clear link between the severity of depression and the degree of RT, highlighting RT as a psychological predictive factor for depression. Furthermore, American scholar Otani (2023) found that RT negatively affected both the treatment process and outcomes. Participants decreased rumination and depressive symptoms after treatment with Buddhist mindfulness techniques. Thus, RT can be an important indicator of depression improvement.

In summary, post-traumatic stress disorder, postpartum anxiety, and postpartum depression are common mental health issues that affect women after childbirth, with PPD being the most prevalent and having the greatest impact. Hope and ruminative thinking are important psychological factors in women with postpartum depression. The study evaluates the applicability of CBT and PPT on hope and ruminative thinking.

2.6.3 Social Conditions

The social condition of postpartum women varies depending on region, culture, and educational attainment. However, in many countries, women generally face disadvantages both at home and in the workplace.

For instance, some scholars have analyzed the career dynamics of women in Korea and found that human capital characteristics, such as education and competitiveness, are strong indicators of job stability and continuity for postpartum women. Those with higher education and greater competitiveness are more likely to return to work immediately after giving birth without experiencing a career break. Conversely, many moderately competitive women often leave their jobs to care for their families due to childbirth, sometimes waiting until their first child is three years old before re-entering the workforce. This delay presents additional challenges regarding job searching or securing promotions (Ma, 2014; Raymo & Lim, 2010). Similarly, researchers have found that returning to work early can have long-term positive effects on future employment. Because promotion to management positions typically occurs after a woman's child-bearing years. Many working mothers may forfeit future management opportunities due to family responsibilities, opting instead for a "mother track," which provides flexibility but limited career advancement possibilities. Firms often perceive early returnees as having a higher level of commitment to their work (Kureishi et al., 2021). This also limits their balance between family and career. This array of evidence underscores the unfavorable circumstances faced by postpartum women in the workplace across Korea and Japan.

A similar situation is observed in certain European countries, where longer interruptions in maternity leave are associated with a tendency toward traditional divisions

of labor within the household (Bächmann et al., 2020; Schober, 2013). In other words, new mothers often spend significantly more time on household duties compared to men. Thus, an extended period spent at home correlates with lower wages, exacerbating labor division and reinforcing inequality within the household. An additional survey conducted by Arntz et al. (2022) among a diverse group of individuals in Germany revealed that men's hourly wages tend to increase in the context of remote work, while women's wages do not see similar improvements unless they change employers. This underscores the disadvantaged position of women in the European labor market is also prevalent in some circumstances. Consequently, women often lag behind men in terms of career progression, wage income, and family status. Such an environment undoubtedly intensifies the stress experienced by postpartum women, leading to increased rates of depression and anxiety. Balancing work and family responsibilities becomes a significant challenge in their social lives.

The study focuses on postpartum women in China, who face significant challenges both in the workplace and in their personal lives. Relevant studies can be broadly summarized as follows:

Maternity penalty

This term refers to the negative consequences that childbearing can lead to career advancement and women's human capital. One study outlines the various forms of maternity penalties on occupational status, including obstacles to wages, employment rates, types of employment, career progression, and promotions (Zhuang, 2020). Another suggests that the greatest penalty for women occurs when they have one, three and more children, whereas for men, having two children represents the peak of wage growth. This suggests that there are significant gender differences in the impact of childbearing on

salaries (Bari,2023). Therefore, childbearing is disadvantageous for Chinese women, contributing to a workplace culture where married men tend to earn more than married women, thereby exacerbating this negative cycle.

Work-Family conflict

Influenced by traditional gender roles, most women carry a heavier burden at home and are typically responsible for the majority of household chores. This distribution of responsibilities consumes significant amounts of their time and energy. Bertocchi and Bozzano (2020) argue that women are disadvantaged in the labor market due to the disparity between men's continuous investment in human resources and women's more intermittent investment. This difference in capital accumulation further devalues women's human capital, objectively contributing to workplace discrimination. Postpartum women often find themselves overwhelmed with household responsibilities, which limits their opportunities for self-investment over extended periods, such as in long-term studies or participation in vocational training. In contrast, men generally have more time and energy to focus on personal development and career advancement. Over time, employers may show a preference for male employees who are perceived as more profitable in the marketplace. As a result, women must exert more effort to attain the same opportunities. Reichel et al. (2023) support the above perspective by discussing social policy and the returns on human capital. They advocate for fathers to take paternity leave and suggest penalizing those who do not to protect women from workplace discrimination. This clearly demonstrates that work-family conflicts can have complex and lasting negative effects on women's human capital.

Diversity of implicit discrimination

China has implemented several laws to regulate female employment, maternity protection, and maternity leave benefits. However, postpartum women still encounter numerous obstacles when applying for jobs, returning to work, seeking promotions, and negotiating salaries. Common discriminatory practices include age restrictions for female job applicants, prohibitions on giving birth within certain timeframes, and barriers preventing women from resuming management roles after childbirth. In many ways, society has failed to offer new mothers appropriate rewards and recognition. Instead, it has gradually positioned them in a passive role in the advancement of human civilization, subjecting them to the double burden of "gender and motherhood" (Yang, 2019). Consequently, China's current institutional frameworks and laws have inadequately protected postpartum women, forcing them to navigate competitive workplace environments for their survival. In many instances, they may even sacrifice their own interests to secure agreeable employment.

Incomplete laws

Currently, some policies in China exhibit significant flaws in their formulation and design, with regulations lacking practical guidance and severely insufficient legal enforcement (Yang, 2020). These shortcomings allow many employers to exploit loopholes in the system, making it challenging to uphold the rights and interests of postpartum women. Moreover, the culture of gender equality has not yet fully taken root in population, and the maternity protection system remains inadequate. As a result, many women experience a significant sense of helplessness. For adults, social support largely derives from a harmonious family and work environment. However, given the current

social context, women frequently lack sufficient social support, which is a cause for concern.

Social support comes from outside sources of help and support. Usually, people can get it from parents, partners, colleagues and friends. It has several types, but perceived social support (PSS) is the most often used social support metric, because it is simple to assess and has been demonstrated to be a more accurate indicator of mental health than other metrics (Li, F. et al., 2021). Thus, PSS is the study's main emphasis. PSS relates to a person's expectation and evaluation of social support and is a belief about social support. It can alleviate the pressure faced by individuals, enhance personal well-being and subjective emotional experience. Thus, it is a very important psycho-social resource. One study has shown that PSS mediates the relationship between loneliness and mental health. It moderates the relationship between loneliness and depression (Hutten et al.,2021). Leonard (2020) found that low PSS predicts stress, which in turn predicts depressive symptoms. When PSS decreases, perceived stress increases and long-term depressive symptoms increase. Thus, there is an association between perceived social support and mental health, which can be used as a response indicator for changes in depression.

In summary, postpartum women commonly experience physical, psychological and social disturbances that negatively impact their physical health, mental well-being and social functioning. Among these challenges, insomnia and fatigue are highly prevalent somatic symptoms in postpartum depressed women, making them important targets for treatment by counselors. Additionally, there is a strong correlation between hope, ruminative thinking, and depression, with all serving as common psychological responses in depressed women. Therefore, hope and ruminative thinking can act as predictors of

depression, reflecting changes in the psychological aspects of postpartum women. Moreover, implicit discrimination, high pressures from home and work, and a lack of a culture of gender equality contribute to feelings of powerlessness and low social support among postpartum women. They seek understanding, care, and concern from the outside world. Therefore, perceived social support is also a key focus of this study. Overall, the research focuses on evaluating the applicability of CBT and PPT in treating the physical aspects (insomnia and fatigue), psychological aspects (hope and ruminative thinking) and social aspects (perceived social support) among postpartum women with depression.

2.7 Application of Cognitive Behavioral Therapy

Cognitive Behavioral Therapy (CBT) is derived from both Behavioral Therapy and Cognitive Therapy. The theoretical foundations of Behavioral Therapy are rooted in classical conditioning theory, operant conditioning theory and social learning theory. Behavioral Therapy declares that human behavior, whether functional or dysfunctional, normal or pathological, is learned and can be modified through learning processes. The primary strategy is that behaviors which are rewarded and yield satisfactory outcomes are easier to learn and maintain, whereas behaviors that are punished or result in unpleasant outcomes are less likely to be learned or sustained. By understanding the conditions that influence these rewards and punishments, counselors can control the number of desired behaviors. Behavioral Therapy encompasses a variety of techniques rather than a single method. Common treatment techniques today include relaxation therapy, systematic desensitisation, shock therapy, aversion therapy, and behavioural modelling.

There is ample evidence supporting the efficacy of behavioral therapy. For example, Ribé-Vines et al. (2023) found that when in vivo exposure therapy is unavailable,

incorporating motor feedback synchronized with visual and auditory cues during participants' exposure to virtual reality environments may enhance the effectiveness of flight fear exposure therapy. Additionally, a study indicated that some patients with head and neck cancer experience anxiety, and the use of thermoplastic masks can exacerbate their negative mood. Integrating systematic desensitization into their care can help them cope during treatment (Carmack, 2023). Spandler and Carr (2022) reviewed the historical context of aversion therapy used with the homosexual population in the UK. Although the study highlights the unethical practices of that era, it still acknowledges aversion therapy as a valid psychological intervention and indicates that behavioral therapy techniques are now widely applied in treating children with autism. This series of studies demonstrate that behavioral therapy has consistently produced positive therapeutic effects and has had a lasting impact. Various therapeutic techniques are employed across diverse fields such as addiction treatment, remediation, and alleviating negative moods. Consequently, behavioral therapy is recognized as one of the reliable and standardized forms of psychotherapy. With the advancement of cognitive psychology and information theory, the focus of psychological research has shifted from studying behaviors to exploring human information processing.

Cognitive Therapy has evolved into a recognized psychotherapy technique. It employs cognitive strategies to change undesirable goals and thoughts, addressing false perceptions based on the premise that cognitive processes influence emotions and behaviors. Broadly speaking, education, explanation, and constructive criticism can be viewed as specific forms of cognitive therapy. Common techniques for modifying cognition include the Socratic questioning, argumentation strategies, and mindfulness. Some studies have shown favourable effects of cognitive therapy. For instance, a survey

examining 35 outcomes from prominent global databases found that mindfulness-based stress reduction and mindfulness-based cognitive therapy can help alleviate a range of psychological difficulties stemming from multiple sclerosis (Zarotti et al., 2023). Additionally, Kraines (2022) analyzed ten mindfulness-based cognitive treatments for depression, revealing that seven of these studies reported significant efficacy, and at least one study showed improvements in cognitive aspects. These findings illustrate that cognitive therapy is both applicable and effective.

The integration of Cognitive Therapy and Behavioral Therapy has given rise to Cognitive Behavioral Therapy, with its founder being Aaron Beck. CBT has the following four features (Beck, 2016). Firstly, in CBT systems, the therapeutic interview is more evident, and therapists are more involved than in other mental therapies. This is demonstrated by the fact that during the initial diagnostic interview, the therapist provides a methodical and complete account of the patient's difficulties and characterizes the patient's symptoms in cognitive or behavioral terms, respectively. Secondly, unlike psychoanalytic therapy, neither cognitive nor behavioral therapies make significant use of the participant’s childhood experiences or early family relationships. Instead, they emphasize the direct connection between current problems and recent events. Since participants have already developed maladaptive response patterns, insight into the origins of their symptoms is not deemed essential. Thirdly, CBT targets specific problems and symptoms, setting clear and achievable treatment goals. The therapy process is highly structured and organized, relying on active collaboration between the counselor and the participant. Lastly, CBT is a short-term intervention that incorporates teaching and practical exercises to help participants develop coping skills. To reinforce these skills and promote gradual improvement in problem-solving and autonomy, participants are often

assigned tasks to complete between sessions. In conclusion, Beck's summary of CBT suggests the integration strengths of cognitive and behavioral therapies, emphasizing the distinctive features and promising future of CBT as an effective treatment approach.

There is a wealth of research evidence supporting the effectiveness of Cognitive Behavioral Therapy (CBT) worldwide. For instance, a meta-analysis examining the combination of medication and CBT for adults with alcohol or drug abuse found that this combination resulted in greater benefits compared to usual care with medication alone (Ray et al., 2020). Another study assessed the long-term efficacy of Cognitive Therapy (CT), Behavioral Therapy (BT), and CBT for insomnia. The results indicated that CBT led to greater improvements in insomnia severity compared to CT, and it also provided better relief from physical health-related symptoms than either CT or BT (Sarfan et al., 2023). These pieces of evidence not only validate the effectiveness of CBT but also suggest that it may offer superior treatment benefits compared to single therapies. However, some studies have noted that CBT may have a slight benefit in treating some persistent physical symptoms, but it is not statistically significant (Tack & Tuller,2023), and CBT is very effective in treating somatoform disorders, but not all patients improve (Fang et al.,2020). These varying results may stem from differences in experimental settings, participant characteristics, and specific components of the CBT treatment. The population of our study consists of Chinese women with postpartum depression, which differs from the subjects and settings of prior research. Therefore, it is essential to conduct CBT specifically with postpartum depressed women to determine whether this treatment alleviates the various symptoms they experience.

2.8 Application of Positive Psychotherapy

Positive Psychotherapy (PPT), also known as Positive Psychological Intervention (PPI), is a form of psychotherapy rooted in positive psychology. Its primary aim is to alleviate depressive symptoms by engaging individuals in conscious activities that foster positive attitudes, behaviors, and cognitions to enhance overall well-being. This treatment model promotes well-being and indirectly reduces the severity of mental distress. Seligman suggests that *"mental health is not merely the elimination of negative factors such as mental illness, but also involves the experience of well-being and the stimulation of positive functioning."* He argues that positive experiences and qualities serve as the *"best weapon against mental illness."* To describe this state, he introduced the concept of "positive health," suggesting that individuals who exhibit positive health can show excellent outcomes (Bodryzlova & Moullec, 2023).

Specifically, positive health consists of the following three components: Physiological health refers to the absence of serious physical illness and good basic physiological functioning; Subjective health involves the individual's subjective experience, including a) positive feelings about their physical condition, such as vitality and energy. b) optimism, i.e., positive feelings about the future. c) high satisfaction with life and d) positive emotions, reflected in reduced negative emotions and a sense of participation and significance in life; Functional health refers to the individual's good adaptation to life. These connotations reflect positive health is a high standard of multidimensional health, which represents the ultimate goal of positive psychotherapy. According to Rashid and Seligman (2018), positive psychotherapy can be effective in achieving positive health. Therefore, setting mental health goals is crucial. If a person defines their health goal as simply avoiding problems, they may base their life strategies on eliminating those issues.

In this case, if they do not face any problems, they might not strive for further self-improvement, because their goal has already been met. Conversely, if an individual sets their health goal to develop their positive strengths and qualities, they will continue to pursue happiness and personal growth throughout their life. In summary, positive psychotherapy plays a significant role in enhancing positive health and strengthening an individual's resilience against disease.

How does positive psychotherapy address depression? Unlike cognitive theory, which emphasizes the elimination of cognitive biases, positive psychology posits that depression may arise from a deficiency of positive resources. Positive resources encompass positive cognitive biases, positive affective experiences, and positive volitional behaviors. Among them, the most important of these is positive cognition (biases). This notion is reflected in the cognitive "self-deception" tendencies. In general, people tend to have an optimistic view of themselves; they often believe they are smarter, more attractive, and better liked than others. They also maintain the belief that they are more likely to experience positive events (such as a fulfilling marriage or a long, healthy life) and less likely to encounter negative events (such as cancer or accidents). A lack of positive cognition or cognitive biases may contribute to the development of depression, particularly mild depression (Pittard et al., 2021). Thus, counselors can assist participants by fostering positive cognitive biases, cultivating positive emotions, and encouraging positive intentions and behaviors. Common therapeutic techniques may include consciously enjoying sensory experiences, practicing gratitude, engaging in kind behaviors, seeking meaning in life, exercising regularly, identifying and applying personal strengths, practicing meditation, and setting achievable goals. These activities and techniques involve relationships, aspirations, experiences, actions, and meanings. PPT can integrate a variety

of positive techniques and activities to empower participants. The study incorporates these techniques and strategies to address depression in postpartum women.

Currently, there is evidence indicating that PPT can effectively improve depression. For example, counselors used positive influencing techniques to treat depression in children aged 9 to 12 years and found that these techniques alleviated depressive symptoms (Arora & Sharma, 2018). Carr (2021) reported that PPT had a small to moderate effect on health, strengths, quality of life, depression, and anxiety, with sustained improvement observed at three-month follow-ups. Therefore, PPT appears to be a promising treatment for depression.

However, the number of studies on PPT in clinical samples is limited, and there are few studies to reference. This view is supported by Chakhssi et al. (2018), who noted that despite the growing interest in PPT in clinical settings, more high-quality studies are needed to determine the effectiveness of PPT among clinical populations. It is evident that this field warrants further investigation, especially in specific contexts such as postpartum depression. There is also insufficient evidence regarding the efficacy of PPT for treating postpartum depression. For instance, a narrative study evaluated the use of PPT in perinatal women's mental health, suggesting that research on PPT is still in the exploratory phase and highlighting the need for more evidence regarding its applicability, methodology, and target populations (Corno et al., 2019). Therefore, PPT for postpartum depression holds promising research prospects. This study evaluate the applicability of PPT in alleviating the physical, psychological and social challenges faced by postpartum depressed women in China.

In conclusion, CBT and PPT offer distinct perspectives on the onset of depression, both offer a diverse array of techniques and hold significant research value and potential in treating postpartum depression.

2.9 CBT and PPT Model in Treating Physical, Psychological and Social Aspects

This section discusses the treatment evidence for CBT and PPT in addressing physical aspects (insomnia and fatigue), psychological aspects (hope and ruminative thinking) and social aspects (perceived social support), emphasizing research findings and existing gaps for further exploration and refinement.

2.9.1 CBT in Treating Physical Aspects (Insomnia, Fatigue)

There is some research evidence supporting the use of Cognitive Behavioral Therapy (CBT) in treating physical aspects such as insomnia and fatigue. One study evaluated the application of CBT for insomnia and fatigue, revealing that it significantly improved insomnia and daytime fatigue, which, in turn, enhanced daytime productivity and reduced dysfunctional activities (Kieley et al., 2020). Another study compared the efficacy of different treatment through light-dark therapy and standard CBT in reducing maternal postnatal insomnia, finding both therapies to be effective and safe (Verma et al., 2022). Although these studies confirm the effectiveness of CBT for insomnia and fatigue, they lack detailed descriptions of treatment goals, techniques, strategies, and processes. This limitation makes it challenging for other researchers to accurately replicate their procedures, raising questions about the overall effectiveness of the treatment.

In contrast, some studies provide detailed accounts of CBT. For instance, Falabella (2022) outlined the stages of counseling activities, specifying the tasks accomplished at each stage, the techniques employed, and the details of each session. Similarly, Drerup

(2021) documented his therapeutic process extensively in his dissertation, noting that CBT is an effective treatment for chronic insomnia and demonstrated effectiveness for patients with multiple comorbidities as well. He instructed patients to write a sleep log to track their sleep patterns and responses to treatment. The measures he employed included sleep compression (where patients gradually reduce the time spent in bed until they reach their target total sleep time), stimulus control (delaying bedtime until the individual feels sleepy to enhance sleep drive and reduce the time taken to fall asleep), and avoiding naps. To manage fatigue, Drerup recommended implementing exercise and strength training, as well as behavioral and educational interventions. These included promoting energy through physical activity to improve endurance and maintaining an activity log to help patients identify when they feel fatigued and to better manage their daily pace. These two studies clearly present the treatment approaches and processes associated with CBT, providing credible confirmation of its therapeutic effects.

However, since the target populations of the aforementioned studies did not include postpartum depressed women, it remains unclear whether CBT applies to this population or if it can effectively improve insomnia and fatigue among postpartum women. The available evidence on CBT does not provide a detailed, subject-specific reference for our study. In summary, two key shortcomings exist in the current research: a) While there are many CBT treatment programs with various forms, there are relatively few high-quality studies that specifically elaborate on strategies for treating insomnia and fatigue, as well as a lack of studies that address the physical aspects of women with postpartum depression (Verma et al., 2023). b) Although previous studies have confirmed CBT's effectiveness for fatigue and insomnia, there is also some contradictory evidence. For example, one study found that chronic fatigue resulting from recovery after COVID-19 showed only a 10%

improvement among CBT participants, with most not experiencing physical-level improvements (Vink & Vink-Niese, 2020). In terms of insomnia, a study pooling over two thousand participants from prominent global databases found that CBT was ineffective in treating insomnia among shift workers (Reynolds et al., 2023). Conversely, another study demonstrated that CBT was beneficial for insomnia in older adults and positively impacted depression (Sadler et al., 2018). These varying findings highlight the need for further investigation and analysis.

In conclusion, there is conflicting evidence regarding the effectiveness of CBT, and a lack of detailed studies focused on postpartum depression populations. This study aims to evaluate the applicability of CBT for addressing the physical aspects, specifically insomnia and fatigue, in women with postpartum depression.

2.9.2 CBT in Treating Psychological Aspects (Hope, Ruminative Thinking)

Western research generally recognizes that hope is a crucial component of psychotherapy, facilitating clients' acceptance of the process of change in a positive manner (Rassool & Khan, 2023). Bartholomew et al. (2021) found a negative correlation between hope and distressing symptoms, indicating that an increase in hope is associated with a decrease in distress during counseling. This suggests that hope may implies the effectiveness of treatment. Recently, some studies have used hope as an indicator of diagnostic change, demonstrating that hope predicts change trajectories in CBT and correlates with both patient self-reports and clinician-rated outcomes (Gallagher et al., 2020). Luo et al. (2022) summarized 27 studies revealing a significant moderate effect of psychotherapy in reducing despair and increasing hope among cancer patients. Similarly, Hernandez and Overholser (2021) reviewed 36 studies in which most included hope as a

secondary outcome, finding that treatment based on CBT alone, or in combination with antidepressants, significantly reduced feelings of hopelessness in older adults with depression. Thus, hope can be considered an important predictor or measure of treatment changes.

However, the effectiveness of CBT in increasing hope specifically in women with postpartum depression remains uncertain. Despite existing studies demonstrating the impact of psychotherapy or CBT on hope, none included participants who were Chinese women with postpartum depression. Therefore, more research is needed to clarify the applicability of CBT in improving hope within this specific population.

Ruminative thinking (RT) is another crucial factor this study focuses on. RT has been identified as a contributing factor to the onset and progression of emotional disorders, serving as an important predictor of depression and a target for treatment (Maslej et al., 2020). Arnett (2021) found that individuals with insomnia who experienced nocturnal cognitive hyperarousal or ruminative thinking faced the highest risk of suicidal ideation, confirming the strong link between RT and emotional disorders, such as depression. Some counselors have used CBT to address rumination and reduce depression levels. For example, Spinhoven et al. (2018) found that various forms of CBT, including those integrating mindfulness therapy, were effective in addressing RT. However, this meta-analysis did not include postpartum women, so the findings cannot be directly generalized to this population.

Fortunately, for postpartum women, a recent study indicated that RT and negative beliefs directly or indirectly predicted postpartum depression. These factors partially mediated PPD and revealed that PPD shares similar meta-cognitive mechanisms with

general depression (Petrošanec et al., 2022). This underscores that RT is also a strong predictor of PPD. Spinhoven's findings may indirectly apply to the postpartum depressed population (Spinhoven et al., 2018). Given the scarcity of similar studies, this research evaluates the applicability of CBT in addressing RT.

2.9.3 CBT in Treating Social Aspect (Perceived Social Support)

There is a growing interest in the role of positive psychosocial factors in treatment, given their capacity to alleviate mental health issues and serve as predictors (Valiente et al., 2020). Social support is a crucial psychosocial factor, with perceived social support being a significant component. Both are closely linked to depression and personal well-being.

A study involving 222 stroke patients found that a lack of social support and the presence of physical dysfunction negatively impacted depression levels (Ryu & Kim, 2023). Successful psychotherapy, such as music therapy, has been shown to improve relationship quality, increase positive emotions, and enhance the use of social support networks (Stedje et al., 2023). These findings suggest that psychotherapy can improve social support, which in turn can positively influence depression. Likewise, Lindfors et al. (2014) discovered that pre-treatment social support predicted both short-term and long-term changes in psychotherapy, highlighting the importance of social support when evaluating a patient's resources and treatment plan. Barnett (2023) found that changes in social dysfunction were linked to students' psychotherapy outcomes and rehabilitation experiences. Future research should explore whether incorporating social support into psychotherapy provides additional benefits to students. In a word, both studies also demonstrate the relationship between social support and psychotherapy. Social support can provide indications of treatment effectiveness and act as a predictor.

However, studies specifically analyzing the role of CBT and PPT on social support, or perceived social support, are scarce. Shnaider (2017) examined the influence of social support on treatment outcomes for PTSD, finding that support from intimate partners and other family members may effectively enhance PTSD treatment outcomes in CBT. This suggests a potential link between changes in social support levels and CBT outcomes. Beyond PTSD, further investigation is needed to explore the role of CBT in enhancing perceived social support among women with postpartum depression.

2.9.4 PPT in Treating Physical Aspects (Insomnia, Fatigue)

Existing research rarely analyzes the direct relationship between positive psychotherapy (PPT), insomnia, and fatigue. This may be because positive mindset is resource-oriented and viewed as a health asset, which is often challenging to relate to physical problems. Instead, it is more commonly associated with CBT. Although direct evidence of PPT alleviating insomnia and fatigue is scarce, a few studies provide valuable insights for our research.

One study by Kubzansky et al. (2018) found an association between positive mental health and improved outcomes related to vascular disease. The link between mental health and cardiovascular disease may be mediated through biological, behavioral, and psychosocial pathways. The researchers suggest that cardiovascular health can be enhanced through positive psychological interventions (positive psychotherapy), such as well-being-oriented strategies. Optimism, for example, can influence how individuals process and interpret everyday stressors, reducing their perceived threat level. Optimists tend to use problem-solving and planning strategies for controllable stressors, while for uncontrollable stressors, they shift to other goals and coping strategies. These insights help

explain how positive mental health can improve cardiovascular health levels by reducing stressor stimuli and promoting healthier behaviors. Therefore, the study could further explore other physical aspects, such as fatigue and insomnia, based on above study.

Another study explored the relationship between positive mental health (PMH) and subjective sleep quality in a high school student population. The findings indicated that higher levels of PMH among students mitigated the negative effects of poor sleep quality. Moreover, PMH served as a protective factor for both physical and mental health and was identified as a safeguard against depression and a facilitator of better sleep quality (Tafoya & Aldrete-Cortez, 2018). This study linked positive mental health to enhanced sleep quality, confirming that PMH can improve both depression and sleep quality. PPT, as a means to promote positive mental resources and health, is therefore implicated in these findings.

Although there is currently limited evidence, the above studies suggest a potential role for PPT in addressing different aspects of physical issues. This study aims to further evaluate the applicability of PPT on the physical aspects of postpartum depression, particularly focusing on insomnia and fatigue.

2.9.5 PPT in Treating Psychological Aspects (Hope, Ruminative Thinking)

Hope can serve as a predictor of treatment effectiveness for PPT. One study found that infertile women generally experience high levels of emotional stress, and that training in PPT can positively influence their mental health and levels of hope (Yanık & Kavak, 2024). However, there is a scarcity of research specifically examining the impact of PPT on hope levels in women with postpartum depression. Most existing literature focuses on the effects of positive psychotherapy on other psychological qualities, such as self-efficacy,

happiness, and life satisfaction. Therefore, this study further evaluates the applicability of PPT in enhancing hope among postpartum depressed women.

Due to the lack of relevant research, it is currently unclear whether PPT is an applicable treatment model for addressing ruminative thinking (RT) in women with postpartum depression. Nonetheless, some indirect studies suggest that PPT may have the potential to improve rumination. For example, Hoppen (2021) argued that PPT can enhance positive emotions, meaning, and engagement, which are associated with improved psychological outcomes such as increased life satisfaction and decreased negative psychological consequences. This suggests that PPT may be able to inhibit RT because of the interconnections between cognition, emotion and behaviour. Good emotions, meanings and outcomes may counteract negative cognition. The more relevant evidence is from Layous et al. (2023), who demonstrated that rumination adversely affects depression, while gratitude can mitigate these negative effects and increase positive emotions. They propose that, in addition to minimizing negative effects, enhancing positive experiences should be a direct goal of depression treatment. This indicates that PPT, which focuses on fostering positive resources, may help cultivate qualities akin to gratitude, counteracting the detrimental impacts of RT. Further evidence supporting this connection comes from another study, examining the effects of positive psychotherapy on academic rumination in high school students. The results indicated that PPT significantly reduced academic rumination, a specific type of RT, as well as academic stress (Gadampour & Ghazanfari, 2019). This reflects the usefulness of the PPT in treating certain rumination.

In summary, the limited evidence suggests that PPT has a potential role in promoting positive mindset and reducing RT across various populations. Therefore, this

study evaluates the applicability of PPT in treating ruminative thinking among women with postpartum depression.

2.9.6 PPT in Treating Social Aspects (Perceived Social Support)

The evidence for PPT in improving perceived social support is limited. Some studies indicate that positive behaviors, such as expressing or recalling gratitude, contribute to enhanced relationship quality (an important aspect of social support) and overall well-being (Sheldon & Yu, 2022; Deichert et al., 2019). Additionally, Lathren et al. (2021) demonstrated how positive emotions influence intimate interpersonal relationships, showing that self-compassion (defined as caring for and supporting oneself during difficult times and viewed as a form of resilience) fosters healthier interpersonal relationships and emotional well-being. These findings suggest that positive resources, including positive emotions and behaviors, can significantly impact social support. It is also important to note that PPT essentially encourages participants to recognize and utilize their various resources, which may, in turn, enhance their levels of social support. However, further research is necessary to confirm this potential effect and idea..

In conclusion, the current evidence is insufficient to establish a definitive link between psychotherapy and social support (perceived social support). This study evaluates the applicability of PPT in treating perceived social support among women with postpartum depression.

2.10 Theoretical Framework

As a clinical counselling study, the theory of this study is embodied in the treatment. These theories reflect the core treatment principles and techniques of both CBT and PPT. The theoretical framework outlines the relationship between treatment models,

treatment goals, and treatment theories (see Figure 2.1). The treatment models are divided into Cognitive Behavioral Therapy (CBT) and Positive Psychotherapy (PPT), both of which are used as independent variables. Treatment goals, or outcomes, are categorized into physical aspects (insomnia and fatigue), psychological aspects (hope and rumination thinking) and social aspects (perceived social support), serving as dependent variables. During counseling sessions, the counselor will utilize Rational Emotive Behavior Therapy (ABC Model), Reality Therapy Theory, Social Role Theory (Gender Role), Resilience Theory and social Learning Theory to deal with the physical, psychological and social aspects of difficulties.

Specifically, in CBT, the counselor applies the Rational Emotive Behavior Therapy (ABC Model) to address and correct the adverse cognitions and beliefs of women with postpartum depression. By leveraging the intrinsic connection between cognition, emotion, and behavior, the counselor aims to improve the participants' psychological and physical issues. The Reality Therapy Theory is used to collaboratively set goals and create action plans, encouraging participants to evaluate their current behaviors and choices. Counselors provide relevant skills and knowledge, guide participants in expressing their emotions rationally, and discuss problem-solving approaches. This comprehensive approach aids in alleviating various distresses of women with postpartum depression such as ruminative thinking, insomnia and fatigue .

In PPT, the focus is on exploring and utilizing positive resources. The counselor employs Social Role Theory (Gender Role) to help postpartum depressed women develop an equitable gender perspective, clearly understand their rights and obligations, reduce negative emotions and thoughts (ruminative thinking), and enhance their control over their

own lives. Using Resilience Theory, the counselor analyzes the women's strengths and resources, cultivates positive emotions and self-management skills, and enhances their self-efficacy and ability to help themselves, leading to positive physical and psychological changes such as hope and perceived social support.

Social Learning Theory serves as a universal framework applied in all group counseling and is therefore incorporated into both CBT and PPT. Group members continuously gain experience through observation, modeling, and communication at all stages of the group, resulting in more positive reinforcement and closer interpersonal relationships, thereby increasing perceived social support and new perceptions.

In conclusion, the above discussion outlines how these theories relate to the variables examined in this study. Guided by different theories, the independent variables may influence the dependent variables to varying degrees. This contributes to evaluating the applicability of CBT and PPT in addressing the physical, psychological and social challenges faced by postpartum depressed women.

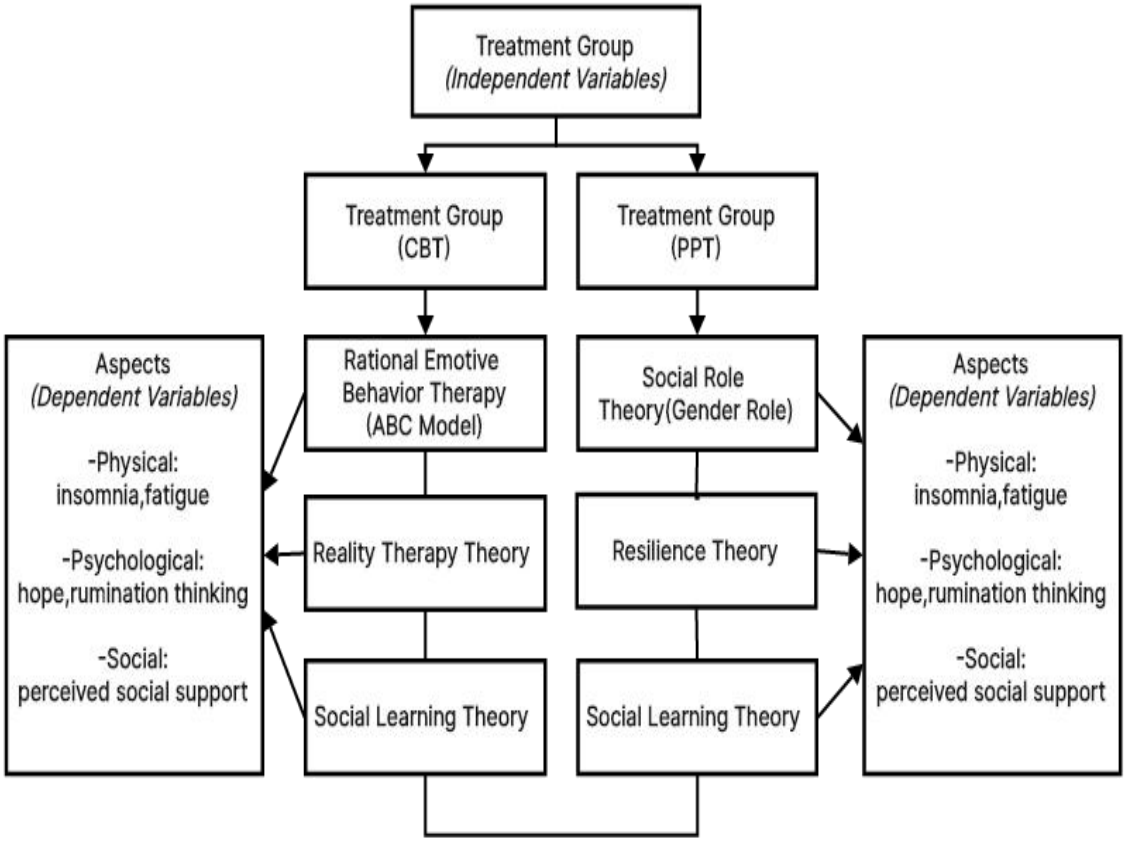


Figure 2.1: The Theoretical Framework of Research

2.11 Conceptual Framework

Based on the literature review, this study has designed a conceptual framework (see Figure 2.2) that illustrates the effects of different independent variables (groups) on dependent variables (physical, psychological and social aspects) following treatment. The groups include CBT, PPT, CBT control group, PPT control group. The physiological, psychological and social aspects covered insomnia, fatigue, hope, ruminative thinking, and perceived social support. In this study, observing changes in these variables across different groups help determine the applicability of various treatment models for women with postpartum depression. This process of change is derived from the therapeutic stimulus applied by the counsellor. Thus, with effective error control, changes in

dependent variables can be attributed to the role of CBT and PPT, which can also be considered as the effects of distinct groups.

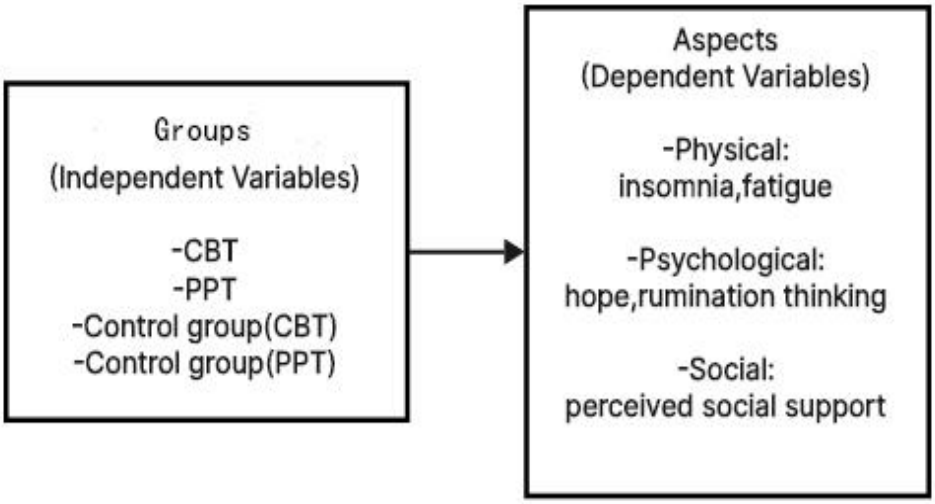


Figure 2.2: The Conceptual Framework of Research

2.12 Chapter Summary

This chapter offers an overview of group counseling and psychology theories, group counselling practice in China, the living conditions of postpartum women, and research evidence on how group counseling addresses physical, psychological and social aspects. The study summarizes these literature, highlighting gaps and contradictions in previous research evidence, which helps to clarify the investigation direction and priorities. The chapter also summarizes a theoretical framework and a conceptual framework to facilitate a better understanding of the study's logic and ideas for other researchers. In the next chapter, the study introduces the methodology, including the research design, sampling method, and instruments. Additionally, a pilot study is conducted to assess the

psychometric properties of the instruments and treatment modules. Finally, the data are cleaned and tested in preparation for data processing.

CHAPTER 3

METHODOLOGY

3.1 Overview

This chapter outlines the methodology used in the study, covering various aspects such as the research paradigm, study design, population and sampling techniques, sample size, research instruments, pilot study, data collection, data analysis, and error control.

3.2 Research Paradigm

The term "philosophy" originates from ancient Greek and literally means "love of wisdom" (Johnson, 2021). In the pursuit of wisdom and truth, researchers have adopted various paradigms, which can be defined as "a way of looking at the world" or different "worldviews" (Gardner, 1987). The positivist paradigm emerged as a philosophical concept in the nineteenth century, opposing metaphysical notions by asserting that only scientific understanding can reveal reality. It became the dominant scientific method in the early twentieth century.

Positivism is grounded in observation and data, emphasizing formal, rigorous testing and analysis of facts to uncover universal cause-and-effect relationships. It holds that knowledge is derived solely from accurate observations and empirical results, positing that improved data collection and adherence to higher scientific standards yield better outcomes (Khaldi, 2017; Kaboub, 2008). Consequently, positivism emphasizes the use of the scientific method in research to "validate" findings and assess whether theories align with the observed realities.

Quantitative research embodies the positivist ideology and can be categorized into experimental and non-experimental research (see Figure 3.1). To effectively evaluate the applicability of CBT and PPT for postpartum depressed women in physical, psychological and social aspects, this study employs experimental research (a quasi-experimental design) within the positivist paradigm. This approach tests the correctness of the alternative hypotheses, thereby drawing conclusions from the study.

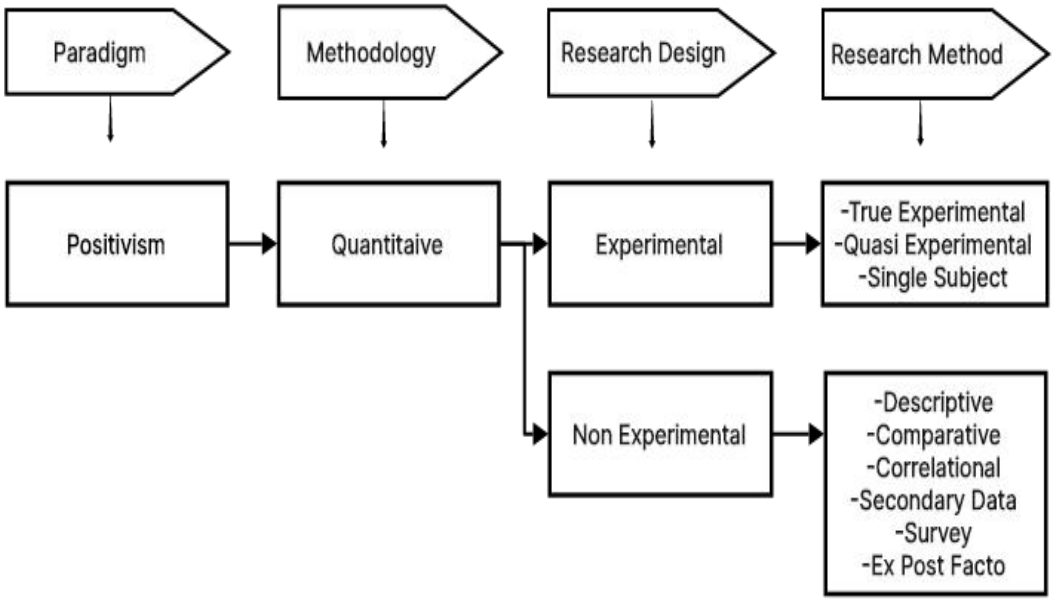


Figure 3.1: Research Paradigm

3.3 Research Design

The study employs a quantitative quasi-experimental design, with two treatment model (CBT and PPT). Experiment 1 aims to evaluate the applicability of CBT on the physical (insomnia and fatigue), psychological (hope and rumination) and social (perceived social support) aspects of postpartum depressed women. Experiment 2 focuses on examining the applicability of PPT on the same physical, psychological and social

dimensions among postpartum depressed women. The results from both experiments are combined to identify applicable treatment models for these areas.

The treatment sessions take place in the group activity hall of Guiyang Maternal and Child Health Hospital (GCH). The measurement environment, as well as the counselor and the participants remain consistent throughout the study. The entire group process is divided into four phases: screening, pre-test, intervention, and post-test, which take at least one month to complete. The counselor conducts a recruitment process for group members one month prior to the treatment, selecting individuals who meet the inclusion and exclusion criteria. Following this, the counselor determines suitable times for group therapy sessions for women with postpartum depression. Then, participants are required to complete an informed consent form prior to treatment. The pre-test is conducted before the initial treatment, with the pre-test and first treatment occurring in a single session. The intervention phase consists of three sessions, each lasting 2.5 hours. Each session is broadly divided into three components: introduction, treatment, and summary. After the three treatment sessions, the post-test is scheduled for the same time the following week. The one-week interval is designed to allow participants to objectively and dispassionately assess the treatment. Therefore,the whole process takes four weeks. The detailed research design for each phase is as follows.

Phase one: Participants are screened for this study and required to complete the Chinese version of the Beck Depression Inventory (BDI-II-C) to meet the criteria for depression. They also need to satisfy specific inclusion and exclusion criteria. Following this, participants are randomly assigned to either the experimental or control groups. Randomization are conducted using Excel instruction. Finally, the experimental groups

(CBT and PPT) and the control groups (control-CBT and control-PPT) are essentially identical and equivalent.

Phase two: All group members complete the Integrated Dimensional Questionnaire (IDQ) to assess the Initial situation on postpartum depressed women in the physical, psychological and social aspects during Experiments 1 and 2. The IDQ includes personal information and several standardized scales, encompassing demographic data, the Chinese version of the Insomnia Severity Index (ISI-C), the Chinese version of the Fatigue Scale (FS-14-C), the Chinese version of the Herth Hope Index (HHI-C), the Chinese version of the Rumination Response Scale (RRS-C), and the Chinese version of the Perceived Social Support Scale (MSPSS-C). These measurements serve as the results of the pre-test.

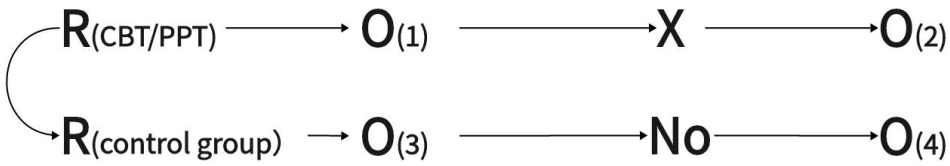
Phase three: The CBT and PPT experimental groups each undergo three treatment sessions, whereas their respective control groups receive no intervention. This is because providing any form of knowledge or services could potentially influence the experimental results, and even non-specific treatments might, to some extent, reduce the interest of breastfeeding women and lead to participant dropout. For the experimental groups, treatments are conducted once a week, with each session focusing on specific themes and techniques. Participants are expected to engage in in-depth self-reflection on these themes while learning relevant skills and strategies for improvement. For the control groups, participants also complete three weekly online check-ins, identical in schedule to the experimental groups. During this period, counsellor closely monitors the participants' situation to minimize potential liability and risk. Upon completing the study, control group participants receive additional gifts and individual medical consultations to safeguard their

rights. As a token of appreciation, all participants, regardless of group, are invited to attend free postnatal lectures.

Phase four: At the end of the three treatment sessions, all group members participate in a post-test (IDQ) that aligns with the pre-test. At this stage, both the experimental and control groups have available pre-test and post-test data. The counselor cleans the data and uses descriptive statistics to analyze the total number of samples, means, percentages, and standard deviations. Inferential statistics employed the independent samples t-test to assess the effects of the different independent variables (CBT, PPT, CBT control group, PPT control group) on the dependent variables (insomnia, fatigue, hope, ruminative thinking, and perceived social support).

In conclusion, this research design employs a Pretest-Posttest Control Group Design to study women with postpartum depression (see Figure 3.2). This design facilitates the evaluation of the applicability of CBT and PPT in addressing the physical, psychological and social aspects of postpartum depression.

Pretest-Posttest Control Group Design



Alphabetical meanings:
R: randomization of samples in experimental and control groups
$O_{(1)}$: experimental group pre-test
$O_{(2)}$: experimental group post-test
$O_{(3)}$: control group pre-test
$O_{(4)}$: control group post-test
X: experimental treatment (this study was three treatments)
No: no experimental treatment

Figure 3.2: Research Design

3.4 Population and Sampling

The study population was selected from postpartum depressed women at Guiyang Maternal and Child Healthcare Hospital (GCH), Bijie Maternal and Child Healthcare Hospital (BCH), and Qingzhen Maternal and Child Healthcare Hospital (QCH). All participants were within the puerperium, defined as 0-8 weeks post-delivery. During this period, postpartum women typically visit the hospital for medical check-ups and rehabilitation, so nearly all women attending these hospitals are within this time frame.

Currently, there are approximately 12,047 postnatal women accessing health services at these three hospitals. Given the variability in the prevalence of postpartum depression, ranging from 10 to 20 percent in some studies (Li et al., 2020; Nisar et al.,

2020) to a lower rate of 6.7 percent (Liu et al., 2017), the estimated total sample size of postpartum depressed women in these hospitals is at least 807 based on the lower prevalence rate.

3.4.1 Sample Size

Typically, parametric tests have a minimum sample size requirement. In this study, G-Power 3.1 was used to determine the minimum sample size. An independent samples t-test was employed to evaluate the differences between the experimental and control groups. To calculate the sample size in G-Power, the study required inputs for statistical power, effect size, test type, allocation ratio, and alpha error. The default settings used for test type and alpha error were a two-tailed test and alpha = 0.05. Previous research indicates that the effect size in social sciences generally falls within the range of small to medium, typically ranging from 0.2 to 0.5 (Lakens, 2022). For this study, an effect size of 0.5 was chosen, as a larger effect size corresponds to a smaller required sample size. Cohen (1992) confirmed that a statistical power of 0.8 to 0.9 is appropriate for most studies. Higher statistical power necessitates a larger sample size. Consequently, the minimum sample size corresponds to a statistical power of 0.8. The allocation ratio (N2/N1) was set to the default value of 1, indicating that the experimental and control groups would be of equal size.

The results presented in Figure 3.3 indicate that the sample size for each group should be at least 64 participants based on the independent samples t-test, taking into account factors such as venue, treatment effect, and economic efficiency. Therefore, this study assigns 65 participants to each experimental group and control group, resulting in a total of 260 participants across all experiments. Specifically, there will be 130 participants

in the experimental group (comprising 65 in the CBT group and 65 in the PPT group) and 130 participants in the control group (consisting of 65 in the CBT group and 65 in the PPT group).

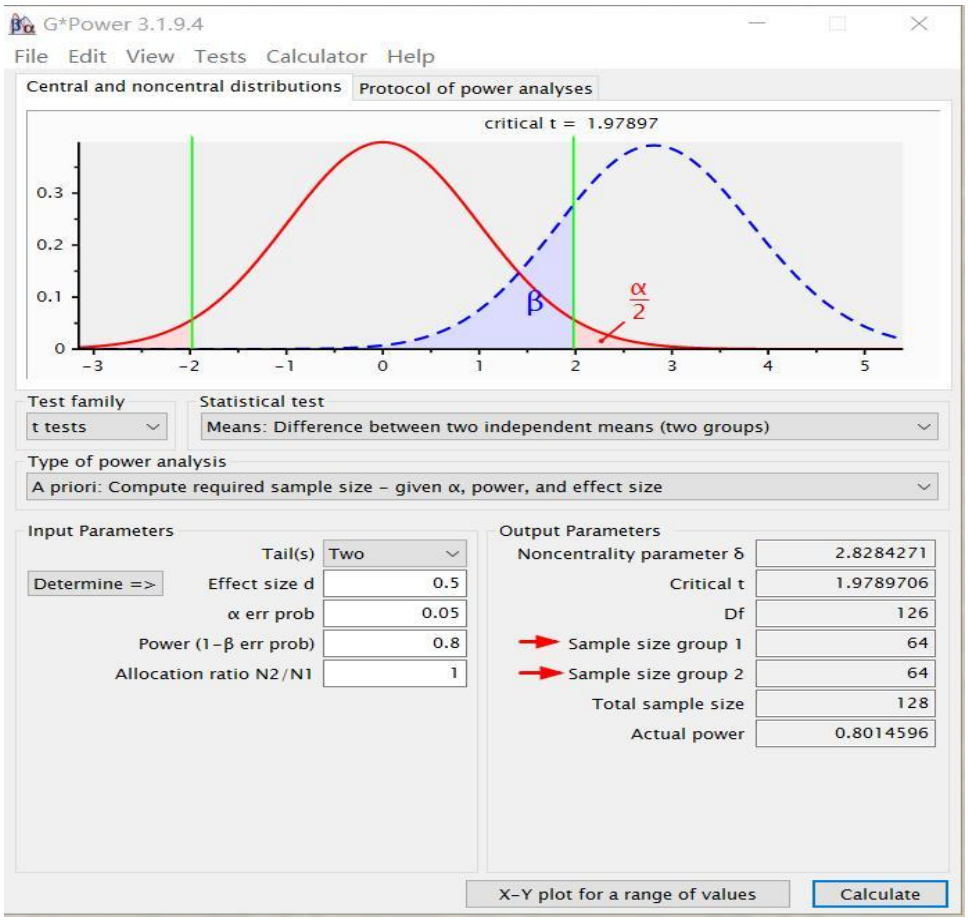


Figure 3.3: Sample Size

3.4.2 Sampling Technique

Sampling is the process by which the researcher selects a specific number of participants from a target group based on certain principles, with the aim of using the sample results to represent the broader population. This study employs purposive sampling, facilitated by the medical record system and the assistance of healthcare personnel. The

counselor has designed the Beck Depression Inventory (BDI-II-C) using the Questionnaire Star App developed by Changsha Ranxing Technology Co. The inventory is widely distributed at Guiyang Maternal and Child Health Hospital (GCH), Bijie Maternal and Child Health Hospital (BCH), and Qingzhen Maternal and Child Health Hospital (QCH) through on-site, QR codes, and web links. After postpartum women complete the questionnaire, the app can automatically calculate their scores. Women with BDI-II-C scores greater than 13 have the opportunity to access information about counseling goals, types, schedules, locations, activities, counselor profiles, and more through a provided link. If they express interest in participating in group counseling, they can register either on-site or online. While counselors and healthcare professionals encourage participation, the behavior is not mandatory.

In this study, counselors recruit group members of more than 65 participants per group to mitigate member attrition, which can impact the effectiveness of group counseling. To ensure the statistical power and validity, sample loss should be limited to within 20% (Polit & Beck, 2021). Typically, researchers recruit approximately 10% more than the required sample size to enhance cost-effectiveness. Consequently, the study recruits 10% additional women with postpartum depression during the recruitment process to ensure an adequate sample size. However, the final number of participants in each group is capped at 65 to maintain consistency between the experimental and control groups. Furthermore, to ensure that the sample accurately represents the overall population, the sample size from each hospital should constitute one-third of the total sample. Specifically, in a group of 65 members, it is preferable to include around 22 participants from each hospital. This strategy helps to stabilize the sampling process and avoids over-centralization of sample sources.

The final members of the experimental and control groups were determined using Excel's random assignment function (the instruction used was "=RAND"), which disrupts the original order of the samples. The counselor sorts the participants based on the randomly generated numbers, assigning the first half to the experimental group and the second half to the control group. Additionally, the researcher can apply the random assignment function again to categorize participants into the CBT group, PPT group, CBT control group, and PPT control group. This approach reduces sampling bias in participant allocation and ensures that each sample has an equal probability of being assigned to either the experimental or control groups. Table 3.1 presents the required sample size categorized by group to facilitate understanding of the sampling process for other researchers.

Table 3.1: Number of Sample by Group

Treatments	Groups	Recruitment number	Sample size
CBT	Treatment group	72	65
	Control group	72	65
PPT	Treatment group	72	65
	Control group	72	65
Total	Treatment group	144	130
	Control group	144	130
	Both group	288	260

Note: The 65 samples were from three hospitals, and the approximate number of recruits from GCH, BCH, and QCH were 22, 22, and 21.

3.4.3 Sample Inclusion Criteria

The sample selected for the study needed to meet several requirements:

Educational background: Participants must have a minimum education level of middle school or above. They should be capable of accurately completing the questionnaire and possess reading literacy skills.

Postpartum depression: Participants must be experiencing postpartum depression, as indicated by a score greater than 13 on the Beck Depression Inventory (Shin et al., 2021).

Voluntary participation: Participants must voluntarily agree to attend the study. Involuntary participants may exhibit resistance to psychotherapy, potentially affecting the treatment's effectiveness and the accurate assessment.

Willingness to follow group norms: Participants should be able to engage in group counseling and adhere to the group norms. Effective counseling relies on participant cooperation and the smooth progression of group activities, which requires members not to challenge group norms arbitrarily.

No-usage of psychotropic medications: Participants should not be taking psychotropic medications, particularly antidepressants, sleeping pills, and caffeine-containing drugs, as these can significantly influence treatment outcomes.

3.4.4 Sample Exclusion Criteria

Exclusion of individuals with suicidal tendencies: Individuals with a Beck Depression Inventory (BDI-II) score greater than 29 should be evaluated through an interview to confirm their suitability for group participation. Any participants indicate significant suicidal tendencies or exhibit extremely severe emotional reactions, they are deemed unsuitable for the counseling group.

Professional background and similar treatment experience: Participants must not have a professional background in psychology and counseling. Moreover, participants

should not have previously received similar treatment. This criterion helps minimize the influence of pre-existing knowledge on the experiment.

Serious illness and disability: Participants are excluded if they have a serious illness or disability that could interfere with group counseling, such as individuals who are blind and those with severe heart disease. This criterion is assessed by a physician and the counselor.

3.5 Instruments

The study had two research instruments used for screening for postpartum depression and assessing the integrated dimensions (including insomnia, fatigue, hope, ruminate thinking, and perceived social support), respectively.

3.5.1 Screening for Postpartum Depression

The Chinese version of the Beck Depression Inventory (Second Edition), referred to as the BDI-II-C, was utilized to screen for postpartum depression. At the beginning of the inventory, the counselor included demographic information items that would assist the counselor in contacting the participant and determining their eligibility for group counseling. The demographic items collected included the participant's nickname, case number, contact number, educational background, use of psychotropic medication, professional background, and any disabilities or serious illnesses. The first three items were presented as fill-in-the-blank questions, while the last items were structured as single-choice questions.

The Beck Depression Inventory (BDI) was developed by Beck, an American clinical psychologist, in 1967 and has become one of the most widely utilized

self-assessment tools for depression today. The inventory consists of 21 common symptoms and attitudes associated with depression, making it suitable for individuals aged 13 and older to assess the severity of depressive symptoms over a two-week period (Hubley, 2021; Williams, Everaert, & Gotham, 2021). The questionnaire can typically be completed in about five minutes, making it both efficient and convenient. Beck categorized depression into three dimensions: (1) negative attitudes or suicidality, (2) physical symptoms, and (3) operational difficulties. In 1996, Beck revised the BDI based on the diagnostic criteria for depression outlined in the DSM-IV, resulting in the Beck Depression Inventory-II (BDI-II). The BDI-II demonstrates improved reliability and validity compared to the original BDI, making it more appropriate for depression screening.

The BDI-II consists of 21 items, incorporating four new symptoms compared to the original version: agitation, worthlessness, inattention, and loss of energy. Each item is rated on a scale from 0 to 3. Participants are asked to evaluate four statements for each item and select the option that best reflects their feelings. For example, if a participant chooses "I don't feel particularly guilty," they receive a score of 0; if they select "I feel guilty all the time," they receive a score of 3. This scoring system indicates the degree to which the participant agrees with the corresponding statement. The overall score on the inventory ranges from 0 to 63, with depressive symptoms categorized as follows: no depression (0 to 13), mild depression (14 to 19), moderate depression (20 to 28), and severe depression (29 to 63). Higher scores reflect more severe depression. The BDI-II has been translated into numerous versions for use in various countries. For instance, a psychometric study of the BDI-II conducted in two samples in Mexico revealed Cronbach's alpha values between 0.87 and 0.92 (González et al., 2015). Similarly, the Cronbach's alpha for an Italian sample was reported as 0.840 (Maggi et al., 2023). These

findings indicate that the instrument demonstrates strong reliability across different cultural contexts.

The Chinese version of the Beck Depression Inventory has been translated without any modifications to the content. In a sample of construction workers, the Cronbach's alpha for the inventory was found to be 0.91, with each item exceeding 0.90 (Zhu et al., 2018). Among depressed patients, the BDI-II-C demonstrated a Cronbach's alpha of 0.94 (Wang, X. et al., 2020). These findings indicate that the internal consistency coefficients of the BDI-II-C exhibit high reliability across different groups, thus confirming it as a reliable instrument. The study assess the reliability and content validity of BDI-II-C among women with postpartum depression in a pilot study to ensure its appropriateness for this population.

3.5.2 Assessment of Integrated Dimensions

The Integrated Dimensions Questionnaire (IDQ) was developed by the researcher by combining individual demographic information with multiple standardized scales. Its purpose is to measure all indicators across the physical, psychological and social aspects among women with postpartum depression. The IDQ consists of seven sections: Section A: Demographic Information, Section B: Chinese version of Insomnia Severity Index (ISI-C), Section C: Chinese version of Fatigue Scale (FS-14-C), Section D: Chinese version of Herth Hope Index (HHI-C), Section E: Chinese version of Rumination Response Scale (RRS-C), Section F: Chinese version of Multidimensional Scale of Perceived Social Support (MSPSS-C). Each section is designed to assess different dimensions and contribute to a comprehensive evaluation of the participant's situation.

Section A consists of 11 questions designed to collect demographic information about the participants. These questions cover a range of topics, including nickname, case number, contact number, emergency contact number, identity (rural population/urban population), educational background, age, number of births, mode of delivery, economic condition and family residence style. The type of questions are multiple choice and fill-in-the-blank.

Section B is derived from the Insomnia Severity Index (ISI), an essential tool for assessing the severity of subjective insomnia over the past two weeks, developed by Morin et al. (2011). The ISI comprises seven items that evaluate various dimensions, such as difficulty maintaining sleep, sleep dissatisfaction, interference with daytime functioning due to sleep difficulties, and distress caused by these sleep issues. It employs a 5-point Likert scale to rate each item (e.g., 0 = none; 4 = very severe), resulting in a total score ranging from 0 to 28. Scores ranging from 0 to 7 indicate essentially normal sleep, with occasional insomnia that does not interfere with daily functioning. Scores between 8 and 14 suggest mild sleep difficulties, characterized by poor sleep on some nights. Scores of 15 to 21 reflect moderate sleep problems that noticeably affect daily life and functioning, while scores from 22 to 28 indicate severe sleep disturbances that significantly impair health, functioning and require immediate intervention (Kaufmann et al., 2019). Typically, the ISI can be completed in under five minutes and scored in less than a minute, making it both efficient and convenient. A study in San Diego, which combined data from 33 publications involving 29,688 samples, reported Cronbach's alpha for the ISI ranging from 0.65 to 0.92, with a combined Cronbach's alpha coefficient of 0.83 (Cerri et al., 2023). This indicates that numerous studies have confirmed the ISI's reliability.

The study used the Chinese version of the ISI (ISI-C). Among 2,066 Chinese undergraduate students, the ISI-C demonstrated a Cronbach's alpha of 0.81, and the correlation coefficient was 0.74 upon retesting two weeks later, suggesting good reliability (Lin et al., 2018). The ISI-C has been employed in various studies, including research involving older individuals in Chinese communities (Yu, 2010). In the pilot study, the study further assessed the reliability and content validity of the ISI-C among women with postpartum depression to ensure the quality of the instrument.

Section C is derived from the Fatigue Scale (FS-14), developed by the UK Psychological Medicine Research Unit in 1992 to measure the intensity of fatigue symptoms, evaluate clinical efficacy, and identify cases of fatigue. The FS-14 consists of 14 items, which principal component analysis categorizes into two groups: physical fatigue (items 1 to 8) and mental fatigue (items 9 to 14). Participants are asked to respond to the questions based on the scale's content and their actual experiences. With the exception of items 10, 13, and 14, which are scored inversely, a "yes" or "no" answer to the remaining items is scored as 1 or 0, respectively. The total fatigue score is the sum of physical and mental fatigue, with physical fatigue rated from 0 to 8 and mental fatigue from 0 to 6. A higher total score on the FS-14 indicates more severe fatigue. The Cronbach's alpha coefficient of the scale is 0.81 (Chalder, 1993), indicating good reliability of the original instrument.

This study utilized the Chinese version of the FS-14, referred to as FS-14-C. The scale retains the original content, with only the language modified. The FS-14-C has been employed in several studies to assess fatigue stemming from various causes (Xi et al., 2023; Zhan et al., 2020). However, there is limited literature available on the psychometric

properties of this instrument. One article, written in Chinese, reported a Cronbach's alpha coefficient of 0.81 in Chinese automotive assembly workers, with coefficients of 0.80 and 0.68 for the physical and mental fatigue dimensions, respectively. Confirmatory factor analyses confirmed the two-factor structure of physical and mental fatigue (Li, Y. et al., 2016). Another report, written in English and widely cited, tested the FS-14 in Chinese adults and the general population. It found support for a two-factor structure with a Cronbach's alpha of 0.86 (Wong & Fielding, 2010). These findings suggest the FS-14-C has good psychometric properties in the Chinese population. Considering the scarcity of evidence and potential discrepancies in scale translation, the study re-evaluated the translation, content validity, and reliability of the instrument. This part is further explained in the pilot study.

Section D is derived from the Herth Hope Index (HHI). While there are various scales to measure levels of hope, researchers in the health field often view hope as a confident, future-oriented yet uncertain multidimensional experience. As a result, the HHI is frequently used in this context (Pleeging et al., 2022). The HHI includes three dimensions: positive attitudes, positive behaviors, and intimacy, which collectively assess positive readiness and expectations, behaviors and emotions, and interconnectedness with self and others. The scale consists of 12 questions rated on a four-point scale. For example, if a participant rates the item "I have a positive outlook toward life" as a 2, it indicates disagreement with the statement; a higher total score reflects a greater level of hope. The Cronbach's alpha for the scale was reported as 0.97, with a retest reliability of 0.91 (Soleimani et al., 2019).

This study used the Chinese version of the HHI, known as HHI-C. A study on the psychometric properties of the HHI-C found that the translated version achieved a 95% equivalence rate with the original scale. The consistency coefficients and retest reliability were 0.89 and 0.80, respectively (Chan et al., 2012). These results indicate that the HHI-C is consistent with the English version and demonstrates good quality. Liu et al. (2023) utilized this scale with children diagnosed with cancer, reporting a Cronbach's alpha of 0.78, further confirming the HHI-C's reliability and applicability across diverse populations. To more robustly utilize this instrument in the postpartum depression population, the study assessed its reliability and content validity among women with postpartum depression in the pilot study.

Section E is derived from the Rumination Response Scale (RRS). Measuring rumination was introduced by Nolen-Hoeksema's Reactive Style Theory, which influenced the development of the RRS. The scale consists of 22 items, prompting participants to respond based on their feelings and experiences. The questions cover aspects such as deep thinking about personal problems, persistent recall of negative emotions, and problem-solving strategies.

Over the years, the RRS has undergone modifications. Roberts, Gilboa, and Gotlib (1998) conducted an exploratory factor analysis of the RRS's structure and psychometric properties, resulting in a three-factor model. These factors include "symptom-based rumination," "introspection/self-isolation," and "self-blame." Building on this three-factor model, Han and Yang (2009) translated and developed the Chinese version of the RRS (RRS-C), maintaining the content of the original instrument and renaming the three dimensions as Symptom-Based Rumination, Brooding, and Obsessive Reflection.

The study used the RRS-C, which comprises 22 items measured on a four-point Likert scale (1 = almost never, 2 = sometimes, 3 = often, 4 = almost always). The total score, ranging from 22 to 88, is calculated by summing the item scores, with higher scores indicating greater levels of rumination. Confirmatory factor analyses of the RRS-C indicated an acceptable fit (RMSEA = 0.068, GFI = 0.87, AGFI = 0.86, NNFI = 0.82, CFI = 0.83, IFI = 0.83), and it demonstrated strong reliability with a Cronbach's alpha of 0.90 and a retest reliability of 0.82 (Han & Yang, 2009). This suggests that the RRS-C possesses good reliability and validity. Currently, several studies have utilized the RRS-C to assess the stability of factor structure across gender and age in adolescent populations (Liang & Lee, 2019) or in conjunction with working memory tasks to evaluate participants' cognitive operations (Cui et al., 2023). This indicates that the RRS-C is a reliable instrument for measuring ruminative thinking. In the pilot study, the instrument was re-evaluated for its psychometric properties among women with postpartum depression.

Section F is derived from the Multidimensional Scale of Perceived Social Support (MSPSS), developed by Zimet et al. (1988). The MSPSS consists of 12 items that measure three dimensions of support: family support, friend support, and other support. The Cronbach's alpha values were 0.91 for other support, 0.87 for family support, and 0.85 for friend support, with an overall reliability of 0.88. The retest reliability after 2 to 3 months was found to be 0.72, 0.85, and 0.75 for the respective dimensions (Zimet et al., 1988). These results demonstrate that the original scale has good reliability and sufficient stability over time. The scale has also been translated into various languages, such as the Spanish version with a reliability exceeding 0.90 (Calderón et al., 2021), indicating its cultural adaptability and suitability for cross-cultural use.

The study used the the Chinese version of the scale, known as MSPSS-C, which has been culturally tested and translated by Chinese scholars. It utilizes a 7-point scale ranging from "very strongly disagree" to "very strongly agree." For instance, if a participant scores 5 on an item, it reflects mild agreement with the statement. The total score indicates the overall level of perceived social support, with higher scores suggesting greater feelings of support. Scores between 12 and 36 are considered low levels of support, 37 to 60 indicate medium support, and scores above 60 reflect high support. The MSPSS-C has an alpha value of 0.95 and the reliability coefficients for the three subscales range from 0.85 to 0.91. Confirmatory factor analysis showed good construct validity ($\chi^2/df = 3.01$, CFI = 0.92, TLI = 0.91, RMSEA = 0.08) (Jin, 2020). Another investigation involving children reported an alpha value of 0.88 for the MSPSS-C (Zhou et al., 2019). These findings indicate that the MSPSS-C possesses strong reliability and validity. In the pilot study, the instrument was re-evaluated for its psychometric properties among women with postpartum depression.

3.6 Intervention Plans

Group therapy is divided into CBT and PPT, with each type conducted three times, each session limited to 2.5 hours. The therapy sessions are held once a week. The pre-test is administered before the program starts in the first week, and the post-test is completed at the same time in the fourth week. Thus, the entire CBT and PPT process takes one month. The exact schedule will be determined based on the most convenient time for the majority of participants, avoiding times when women are breastfeeding or likely to be more tired, such as before 8:00 a.m. or after 9:00 p.m. Both CBT and PPT sessions are led by a counselor. The treatment counsellor is always the researcher himself, ensuring consistency. The Group Activity Hall of Guiyang Maternal and Child Health Hospital is selected as the

venue. It is centrally located in the city, offering a spacious environment for activities and convenient transportation. Additionally, participants have access to medical staff for assistance if needed during the treatment.

To maintain the quality of counseling and uphold the rigor of the experimental design, the group is established as a closed group, meaning there are fewer changes in participants. This approach requires the counselor to carefully screen for suitable group members during the preparation phase, establish clear agreements, and strictly control the duration and frequency of treatment to minimize unnecessary attrition. Supportive measures and motivational strategies can be employed to promote member stability.

Intervention Plan for CBT

The CBT module was designed by the counselor following the process of standardized CBT. The content of the activities is primarily based on existing treatment plans by other scholars, with appropriate modifications to accommodate the needs and physical conditions of postpartum women. The plan is comprehensive and safe, utilizing widely accepted techniques and strategies from CBT. Considering this is a new intervention plan, the content validity of the module was validated by experts during the pilot study. Additionally, participants and experts participated in simulation experiments, providing valuable feedback and comments to improve treatment fidelity. This process indicates that the CBT module is both reliable and effective.

The CBT module is divided into three sessions: "Warming You and Me," "Cognitive Therapy," and "Behavioral Therapy." Each session comprises one treatment and can be broken down into smaller activities and components.

Warming You and Me: This session consists of seven steps aimed at establishing the group, facilitating communication and interaction among members, and creating a supportive environment. The counselor introduces the group's goals and activities, establishes group rules with participants, and encourages positive communication. The primary goal of this session is to encourage participants to share the changes and challenges they have experienced since becoming mothers, fostering mutual understanding, self-acceptance, and emotional support through open communication and sharing.

Cognitive Therapy: Participants learn to use the ABC theory to adjust their cognition, challenge irrational beliefs, and reconstruct healthy perceptions. The counselor provides a rational self-analysis form to enhance their ability to recognize and debate irrational beliefs. Standardized procedures include comprehension, modification, and re-education. In addition, the counselor imparts mental health knowledge as a key component. Specifically, the counselor first introduces participants to basic mental health knowledge and the ABC model, helping them understand the causes of their emotions and other difficulties, as well as strategies for addressing them. This provides a solid foundation for subsequent therapy. Next, participants are guided to explore and identify irrational beliefs and to challenge them through reasoned disputation. This process involves both self-reflection and support from others to reconstruct more adaptive cognitions. Finally, participants learn to use the Reasonable Self-Analysis Form (RSA) as a practical tool to address the challenges they are currently facing.

Behavioral Therapy: The third session is an important stage to help women with postpartum depression clarify goals and take positive actions. Guided by the counselor, participants first identify actionable, measurable goals and develop their own solutions.

Through brainstorming, participants share strategies for mutual benefit. The counselor also teaches techniques to enhance problem-solving skills while emphasizing the importance of personal decision-making. Participants then rewrite a comprehensive action plan based on their best goals and strategies. This plan should be simple, actionable, and include clear time requirements and assessment criteria. Finally, postpartum women make a commitment and are monitored by family members and counselors. Overall, the counselor encourages participants to focus on the present moment and apply the techniques and knowledge acquired to solve specific, well-defined problems.

Intervention Plan for PPT

Similarly, the PPT module is designed by the counselor, following the Positive Psychotherapy process. The content of the activities is primarily based on existing treatment plans by other scholars, with appropriate modifications to accommodate the needs and physical conditions of postpartum women. The treatment plan extensively uses common techniques and strategies in PPT and has been refined through pilot studies. The PPT module demonstrates good treatment fidelity and validity.

The PPT module is divided into three sessions: "Warming You and Me," "Exploring Strengths and Self-Care," and "Empowerment". These sessions utilizes the three core elements of resilience theory: external support factors, internal strengths, and efficacy factors (problem-solving skills), along with other guiding theories. Each session can be broken down into smaller activities and parts.

Warming You and Me: Like the CBT module, this session focuses on forming group norms, establishing rules, creating cohesion, fostering awareness, and sharing among members. This session helps group members understand that postpartum depression is not

unique to them and that all participants face various life challenges. The only difference in this part from CBT lies in the homework assignments. After the first session, participants in the CBT group were asked to record unpleasant emotions and events they experienced, providing material for subsequent cognitive therapy. In contrast, participants in the PPT group were instructed to note subtle sensory experiences that are often overlooked, such as tastes and smells, and to record as many joyful events or pleasant memories from the week as possible. This served as a means of building a reservoir of positive resources.

Exploring Strengths and Self-Care: This session aims to help group members develop gender awareness, self-awareness, and recognize their strengths and uniqueness. The counselor facilitates this reflection through several games and discussions, improving self-efficacy and reducing negative beliefs. As a result, group members gain more hope and motivation for themselves and their lives. Specifically, the counselor first applied social gender theory to guide participants in exploring several key gender role issues and, through dialogue, helped reduce gender-related stereotypes. Next, participants took part in two games, Make a Difference and Merit Bombing, which used lychees and office paper to help them identify and recognize their own qualities. Finally, participants shared entries from their happiness diaries and danced to music, activities designed to help them recall past moments of happiness and savor the joy of the present.

Empowerment: This session helps group members realize their potential by integrating their experiences, skills, and available resources. The counselor trains participants in communication skills, enriches their experiences, teaches emotion management methods, and cultivates adaptability. After these activities, participants are better able to understand their resources and abilities, adopting positive attitudes and

effective strategies to cope with postpartum depression. Specifically, the third session focused on unlocking participants' potential. They first learned communication skills, emotional regulation strategies, and time management techniques. The counselor next led a Resource Circle activity, urging participants to think thoroughly about the skills they'd learned, as well as the resources and qualities they'd always had. Through self-analysis and group discussion, they identified practical solutions to their current problems. In the final stage, the counselor shared case examples to inspire courage and motivation for change, helping participants integrate their reflections, newly learned skills, and existing resources to improve their present circumstances.

Table 3.2 provides a summary of intervention plans. A more detailed plan of activities can be found in Appendix C of this study. This appendix includes comprehensive information on the general goals of the treatment program, specific goals, schedule, venue, participants, guiding theories, content and steps of the activities, and required materials .

Table 3.2: Intervention Plans

Modules	Sessions	Activities	Content
CBT	Warming You and Me	7	Pretest; Get to know counsellor and introduce; Games; Introduce the purpose and content of the group; Determine the group rules; Express your emotions and get support in the communication; Summary

Table 3.2 continued

	Cognitive Therapy	8	Review and introduction; Games; Introduction to mental health and the ABC model; Group members identify irrational beliefs; Group members revise beliefs; Group members rebuild healthy beliefs; Group members reinforce beliefs; Summary
	behavioral Therapy	7	Review and introduction; Set goals and solutions; Group members share strategies; Counselor provides professional strategies; Group members self-analyze and self-decide; Group members refine action plans and make commitments to action; Summarize and deal with parting emotions.
PPT	Warming You and Me	7	Pretest; Get to know counsellor and introduce; Games; Introduce the purpose and content of the group; Determine the group rules; Express your emotions and get support in the communication;Summary

Table 3.2 continued

Exploring Strength and Self-Care	6	Reviewing and introducing; Games; Discussion and self-Analysis; Being aware of strengths and resources to enhance self-efficacy; Learning to take care of yourself; Summary
Empowerment	7	Reviewing and Introducing; Sharing Parenting Experiences; Learning Emotional Management Skills; Learning Stress Reduction Techniques; Utilizing Resources and Techniques to Solve Problems; Boosting Confidence and Courage; Summarizing and Parting Emotional Processing

Note:
a) CBT and PPT sessions are conducted once a week over a period of three weeks, with a post-test completed in the fourth week. The total length of treatment is one month. Each activity includes assignments designed to consolidate the effects of the treatment and promote the development of positive habits among participants.
b) Before each treatment session, participants are required to fill out a treatment protocol to clarify their responsibilities and obligations (see Appendix B for details).

3.7 Pilot Study

A pilot study is a crucial step in the research process. In the social sciences, pilot studies primarily focus on evaluating research instruments and their utility (Malmqvist et al., 2019). The pilot study examined the reliability and validity of the research instruments (BDI-II-C and IDQ). It also assessed the treatment fidelity and validity of CBT and PPT to ensure accurate and smooth implementation of intervention plans.

Before conducting the pilot study, the sample size needed to be determined. These participants differed from those in the formal study; however, their screening requirements were identical, as all individuals needed to meet the same inclusion and exclusion criteria. a) For reliability, 35 participants were selected to assess the internal consistency coefficients of the instruments. This sample size exceeds the minimum requirement of 30 participants typically needed for pilot studies (Johanson & Brooks, 2010). b) For fidelity, there is no established method for calculating sample size. Fidelity is usually evaluated qualitatively. In pilot study study, feedback from the 35 participants and two experts in the field of counseling was collected to refine the programme contents and processes. c) For validity, Polit et al. (2007) concluded that assessing content validity requires a minimum of three experts for scoring. Therefore, the study invited four experts to evaluate the content validity of the instruments and treatment modules.

The pilot study outlines the approach, process, and criteria for evaluating the reliability, treatment fidelity, and validity of the instruments and modules.

For instruments, reliability testing was conducted with 35 postpartum depressed women at the Guiyang Maternal and Child Health Centre (GCH). All 35 participants completed the Beck Depression Inventory (BDI-II-C) and the Integrated Dimensions Questionnaire (IDQ), taking approximately 30 minutes to finish. Data were processed using IBM SPSS 27.0. Typically, Cronbach's alpha values are interpreted as follows: acceptable (0.70 to 0.80), very good (0.80 to 0.90), and excellent (greater than 0.90). Values above 0.70 indicate that the instruments or modules possess good reliability (Rey et al., 2020).

Psychological scales are typically evaluated for content validity using two indices: the Item-Level Content Validity Index (I-CVI) and the Scale-Level Content Validity Index (S-CVI). The Item-Level Content Validity Index (I-CVI) and the Scale-Level Content Validity Index (S-CVI) represent the content validity of the individual items and the overall scale, respectively, based on the experts' ratings (see Equation 3.1 and Equation 3.2). The I-CVI is determined by evaluating the relevance or representativeness of each item to the content in question. Experts rated each item on a four-point scale: 1 (not relevant), 2 (weakly relevant), 3 (strongly relevant), and 4 (very relevant). The value of the I-CVI is calculated by dividing the number of experts who rated an item as 3 or 4 by the total number of experts. The S-CVI is derived as the average of the I-CVI values for all items. A threshold of I-CVI $\geq$ 0.75 or 0.78 and S-CVI $\geq$ 0.85 or 0.90 indicates good content validity; if the I-CVI $<$ 0.75, the relevant items must be modified, and the S-CVI should be recalculated (Ma et al., 2022; Almanasreh et al., 2022).

For treatment modules, the psychotherapy module does not assess the degree of association between items, therefore it does not test reliability. To address this limitation, the pilot study introduces treatment fidelity to enhance the consistency of the intervention according to the intended design. Treatment fidelity refers to the extent to which the intervention is implemented as planned (Sanetti et al., 2021). High Treatment Fidelity increases the interpretability and repeatability of outcome data and can serve as an alternative method to improve program reliability. The assessment involves conducting a simulation experiment with 35 participants and two experts. Participants were familiarized with the activities and techniques used in the intervention, while the experts observed the entire process. At the end of the evaluation, the experts and the participants provided

recommendations and improvements for the simulation test, reaching an internal consensus on treatment modules.

In term of validity of the treatment modules, most researchers utilize the formula proposed by Mohd and Ahmad to assess the content validity of treatment modules (Mohamad & Abdhafidz, 2021). Mohd and Ahmad (2005) proposed a formula to calculate the content validity of the modules and provided a module questionnaire consisting of five items. This formula evaluates the extent to which the entire module and its sessions achieve their objectives. Experts or peers were asked to rate the entire module and sessions using a questionnaire with a scale ranging from 1 (strongly disagree) to 5 (strongly agree), resulting in a maximum total score of 25 (see Equation 3.3). If the percentage or content validity is greater than 70%, the module is considered to be of good quality.

Equation 3.1, Equation 3.2 and Equation 3.3 are the formulas for calculating the content validity.$N_{3,4}$ represents the number of people who rated the module either as 3 or 4, N represents the total number of experts, and ∑(I -CVI) represents the sum of I-CVI of n items, $N_{I\text{-}CVI}$ represents the number of I-CVI, d (module) represents the content validity of the module, S_{Total} represents the total score given by each expert, and S_{max} is the maximum score of the questionnaire. Table 3.3 summarises the methods and criteria for testing the instruments and modules.

$$I\text{-}CVI = \frac{N_{3,4}}{N} \qquad \text{Equation 3.1}$$

$$S\text{-}CVI = \frac{\sum_{n} (I\text{-}CVI)}{N_{I\text{-}CVI}} \qquad \text{Equation 3.2}$$

$$d(\text{module}) = \frac{S_{\text{Total}}}{S_{\max}} \times 100\ \% \qquad \text{Equation 3.3}$$

Table 3.3: Calculation Methods and Criteria

Modules /Scales	Reliability /Validity	Sample size	Calculation	Criteria
BDI-II-C	Reliability	35	internal consistency coefficients	alpha≥0.7
	Validity	4	I-ICV and S-CVI	I-CVI ≥0.75 S-CVI ≥0.85
IDQ	Reliability	35	internal consistency coefficients	alpha≥0.7
	Validity	4	I-ICV and S-CVI	I-CVI ≥0.75 S-CVI ≥0.85
CBT Module	Fidelity	35; 2	Communication and Feedback	
	Validity	4	Mohd and Ahmad (Equation 3.3)	d＞70%
PPT Module	Fidelity	35; 2	Communication and Feedback	
	Validity	4	Mohd and Ahmad (Equation 3.3)	d＞70%

Note: The number 35 in the sample size indicates the number of participants, while the number 4 and the number 2 represents the number of experts; I-ICV and S-CVI denote the content validity of the items and the content validity of the scale through the experts' ratings; The alphabet d represents the content validity of the module.

3.7.1 Reliability of the Instruments

Reliability tests for the BDI-II-C and IDQ are assessed using Cronbach's alpha. Women were first screened by purposive sampling in hospitals. The pilot study required the recruitment of 35 women with postpartum depression, using the same inclusion and

exclusion criteria as the formal experiment. The screening instrument employed was the Patient Health Questionnaire (PHQ-9), serving as a BDI-II-C equivalent scale. A survey indicated that the Cronbach's alpha for the PHQ-9 ranged between 0.77 and 0.88 (Sun et al., 2017), demonstrating it as a highly reliable screening tool for depression. The cut-offs for depression severity are 5, 10, 15, and 20 (Hasan et al., 2021). Participants with a PHQ-9 score >5 are considered to have mild depression, qualifying them for the pilot study sample. After completing the PHQ-9, these 35 postpartum depressed women then completed the BDI-II-C and IDQ. The counselor used SPSS 27.0 to perform the reliability test. Typically, a Cronbach's alpha value greater than 0.7 satisfies the reliability requirement. The results of the reliability assessments for the two instruments are as follows:

Table 3.4: Reliability of the Instruments

Instruments	Parts	Cronbach alpha
BDI-II-C	BDI-II-C	0.89(n=35)
IDQ	ISI-C	0.82(n=35)
	FS-14-C	0.78(n=35)
	HHI-C	0.87(n=35)
	RRS-C	0.89(n=35)
	MSPSS-C	0.90(n=35)

Table 3.4 shows that the BDI-II-C and IDQ have good reliability, which can be used for follow-up studies.

3.7.2 Validity of the Instruments

Four experts assessed the validity of the measurement instruments. These experts were affiliated with the Guiyang College of Information Science and Technology and Guizhou Normal University. All four held doctoral degrees or were senior lecturers with backgrounds in psychology or counseling. The instruments validated in the study included

the BDI-II-C and the IDQ. The IDQ comprises parts such as ISI-C, FS-14-C, HHI-C, RRS-C, and MSPSS-C.

Although the psychometric properties of both the original and Chinese versions of these scales have been thoroughly described and widely used by researchers, it was crucial to reassess their validity specifically in the postpartum depression population as preparation for the formal experiment. Tables 3.5 to 3.10 present the content validity of each instrument, with the results outlined below:

Table 3.5: Content Validity of BDI-II-C

Items	Expert Scores				N	I-CVI	S-CVI
	A	B	C	D	(≥3)		
1	4	4	4	4	4	1.00	
2	4	3	4	3	4	1.00	
3	4	4	4	3	4	1.00	
4	3	4	4	4	4	1.00	
5	3	3	4	4	4	1.00	
6	4	2	3	4	3	0.75	
7	2	4	4	3	3	0.75	
8	3	3	4	4	4	1.00	0.92
9	4	4	4	4	4	1.00	
10	3	4	4	3	4	1.00	
11	3	4	4	3	4	1.00	
12	4	4	4	2	3	0.75	
13	4	2	4	4	3	0.75	
14	3	2	3	4	3	0.75	
15	4	3	4	3	4	1.00	
16	4	3	4	3	4	1.00	

Table 3.5 continued

17	4	2	4	3	3	0.75
18	4	3	4	3	4	1.00
19	4	4	4	4	4	1.00
20	4	3	4	4	4	1.00
21	4	2	4	3	3	0.75

The I-CVIs were all greater than 0.75, and the S-CVI was 0.92, exceeding the threshold of 0.9. This indicates that the BDI-II-C has good content validity and can accurately assess the level of depression in postpartum depressed women.

Table 3.6: Content Validity of ISI-C

Items	**Expert Scores**				**N (≥3)**	**I-CVI**	**S-CVI**
	A	**B**	**C**	**D**			
1	3	3	3	4	4	1.00	
2	4	3	4	3	4	1.00	
3	4	3	2	4	3	0.75	
4	3	4	3	4	4	1.00	
5	3	3	4	4	4	1.00	0.93
6	4	4	3	4	3	0.75	
7	3	4	3	3	4	1.00	

The I-CVIs were all greater than 0.75, and the S-CVI was 0.93, exceeding the threshold of 0.9. This suggests that the ISI-C has good content validity and accurately measures insomnia severity in postpartum depressed women.

Table 3.7: Content Validity of RRS-C

Items	Expert Scores				N (≥3)	I-CVI	S-CVI
	A	B	C	D			
1	3	4	3	3	4	1.00	
2	3	3	2	3	3	0.75	
3	3	4	3	4	4	1.00	
4	4	4	4	3	4	1.00	
5	3	4	4	4	4	1.00	
6	4	4	3	3	3	0.75	
7	4	3	3	4	4	1.00	
8	3	4	3	2	3	0.75	
9	3	3	3	4	4	1.00	
10	4	4	4	4	4	1.00	
11	4	3	4	4	4	1.00	
12	4	4	3	4	4	1.00	
13	4	4	4	4	4	1.00	
14	3	3	3	4	4	1.00	0.91
15	4	3	4	3	4	1.00	
16	4	4	4	3	4	1.00	
17	4	3	3	3	4	1.00	
18	4	3	4	3	4	1.00	
19	4	4	4	4	4	1.00	
20	4	3	4	4	4	1.00	
21	3	2	3	3	3	0.75	
22	4	4	3	4	4	1.00	

The I-CVIs were all greater than 0.75, and the S-CVI was 0.91, exceeding the threshold of 0.9. This suggests that the RRS-C has good content validity and accurately measures the extent of rumination in postpartum depressed women.

Table 3.8: Content Validity of HHI-C

Items	Expert Scores				N	I-CVI	S-CVI
	A	B	C	D	(≥3)		
1	4	4	3	3	4	1.00	0.96
2	4	3	4	3	4	1.00	
3	3	3	2	4	3	0.75	
4	4	4	3	4	4	1.00	
5	3	3	4	4	4	1.00	
6	4	4	3	4	4	1.00	
7	4	4	3	4	4	1.00	
8	3	3	3	3	4	1.00	
9	4	3	4	3	4	1.00	
10	3	3	3	3	4	1.00	
11	4	3	4	4	4	1.00	
12	4	4	2	4	3	0.75	

The I-CVIs were all greater than 0.75, and the S-CVI was 0.96, exceeding the threshold of 0.9. This suggests that the HHI-C has good content validity and accurately measures hope in postpartum depressed women.

Table 3.9: Content Validity of MSPSS-C

Items	Expert Scores				N (≥3)	I-CVI	S-CVI
	A	B	C	D			
1	3	3	3	4	4	1.00	0.94
2	4	3	4	3	4	1.00	
3	3	3	2	3	3	0.75	
4	4	4	3	4	4	1.00	
5	3	3	4	4	4	1.00	
6	3	4	3	4	3	0.75	
7	3	4	3	3	4	1.00	
8	4	4	4	4	4	1.00	
9	3	4	3	4	4	1.00	
10	4	4	3	3	4	1.00	
11	3	4	4	4	4	1.00	
12	3	2	3	3	3	0.75	

The I-CVIs were all greater than 0.75, and the S-CVI was 0.94, exceeding the threshold of 0.9. This suggests that the MSPSS-C has good content validity and can accurately measure perceived social support in postpartum depressed women.

Finally, the study conducted a linguistic refinement of the Chinese version of the Fatigue Scale (FS-14-C) based on the work of Li et al. (2016). The translation process was carried out by two translators, both PhD students specializing in International Chinese, one from Tianjin University and the other from Liaoning University, to ensure the accuracy of the translation. The counselor obtained the original scale from a paper published by Chalder (1993) and provided both the original scale and the Chinese translated version to the translators. The two translators then compared the original scale with the Chinese

version to assess consistency, accuracy, and adherence to linguistic conventions. They were instructed not to alter the questions or structure of the original scale but to focus on language adjustments and presentation. Ultimately, the counselor synthesized the feedback from both translators to develop the final Chinese version of the FS-14. This approach helped reduce inaccuracies that might have arisen from a direct translation of the FS-14. The content validity of FS-14-C is as follows:

Table 3.10: Content Validity of FS-14-C

Items	Expert Scores				N (≥3)	I-CVI	S-CVI
	A	B	C	D			
1	3	3	3	2	3	0.75	0.91
2	4	3	4	3	4	1.00	
3	4	3	2	4	3	0.75	
4	3	4	3	4	4	1.00	
5	3	3	4	4	4	1.00	
6	4	4	3	4	4	1.00	
7	3	4	3	3	4	1.00	
8	2	3	3	3	3	0.75	
9	3	2	3	3	3	0.75	
10	3	3	3	3	4	1.00	
11	4	4	3	4	4	1.00	
12	4	3	2	4	3	0.75	
13	3	2	3	3	4	1.00	
14	3	3	4	4	4	1.00	

The I-CVIs were all greater than 0.75, and the S-CVI was 0.91, exceeding the threshold of 0.9. This indicates that the FS-14-C has good content validity and can accurately measure fatigue levels in postpartum depressed women.

In summary, the BDI-II-C and IDQ were utilized in our study to screen participants and assess various dimensions, respectively. The Chinese versions of these instruments have demonstrated good psychometric properties in previous research and also exhibit high validity and reliability in this pilot study. Therefore, they are deemed suitable for women experiencing postpartum depression.

3.7.3 Treatment Fidelity of the CBT and PPT Module

Psychotherapy modules are systematic and complex intervention programs, so there is no direct measure of their reliability. Treatment Fidelity is a derived strategy for assessing the quality of these intervention programs. It refers to the degree to which an intervention or treatment is delivered as intended, without significant deviations from the original design or program. Ensuring consistent and accurate delivery of the intervention is crucial for the validity and reliability of research findings, particularly in clinical or behavioral studies. High Treatment Fidelity helps to ensure that any observed effects are attributable to the intervention itself rather than variations in its implementation (Behn et al., 2022).

Treatment Fidelity encompasses various components, including Treatment Design Fidelity, Treatment Delivery Fidelity, and Treatment Receipt Fidelity. The available evidence on Treatment Fidelity varies widely among studies, due to differing measurement methods and types of fidelity (Sanetti et al., 2021; Ibrahim & Sidani, 2015). Consequently, Treatment Fidelity has not yet achieved a consistent evaluation system or widely adopted

template. Nonetheless, evaluating treatment fidelity is encouraged, as it can facilitate practice and enhance the achievement of goals. This pilot study focuses on Delivery Fidelity and Receipt Fidelity. Delivery Fidelity refers to the counselor's strict adherence to the intervention program, avoiding arbitrary adjustments to the intervention content, and is assessed by specialists. Receipt Fidelity aims to confirm that participants understand and engage actively with the treatment content, which is evaluated through participant feedback. Both forms of fidelity are assessed qualitatively through feedback communication and observation. While qualitative evaluations may have potential shortcomings, they remain a valid approach for assessing fidelity (Kaderavek & Justice, 2010).

This phase involved 35 participants (who tested the reliability of the scale) and two experts (from the pool of four experts who tested the validity of the scale). After the participants completed the BDI-II-C and the IDQ, the counselor provided detailed explanations of the activities and steps involved in CBT and PPT and led them through a simulation exercise. The two experts observed the rigorous implementation of the treatment program and offered guidance to the counselor, focusing on a variety of items in the fidelity checklist (see Table 3.11). The fidelity checklist required open-ended responses to capture any details that could be improved. Participants were also asked to provide feedback on their ability to master and replicate the therapeutic techniques. The counselor documented feedback and comments from both the experts and participants, refining the details of the intervention accordingly. Such rehearsals are effective for increasing fidelity and are supported by other research (Hankonen, 2020). This process improves the stability and consistency of formal treatment, reducing potential risks such as conflicts in

counseling and omissions of activities. Ultimately, this study successfully accomplished this task and reached a consensus with both experts and participants.

Table 3.11: Treatment Fidelity Checklist

Description of the items*
1.Does the researcher clearly describe the active ingredients of treatment modules?
2.Does the researcher provide the text of intervention plan to increase the fidelity of the treatment modules?
3.What procedures and tools were used to ensure treatment fidelity?
4.Does the researcher provide data documenting the fidelity of implementation of the intervention?
5.Was the intervention implemented with high fidelity, such as strict adherence to the intervention plan?
6.If the fidelity of implementation varied, did the researcher have initiatives to regulate change?
7.Please identify any improvements and areas of concern that the counselor should be addressed in the implementation process.
*Source: Kaderavek & Justice, 2010; *The content has been slightly modified to align with the objectives and focus of this study.*

3.7.4 Validity of the CBT and PPT Module

According to Mohd and Ahmad (2005), the module questionnaire, consisting of five questions, assesses the extent to which the treatment behaviors align with the treatment goals. Four experts served as evaluators, with each required to rate the CBT and PPT based on the five items. Scores ranged from 1 (strongly disagree) to 5 (strongly agree), resulting in total scores between 5 and 25. The counselor then calculated the content validity using Equation 3.3 and determined the average score. If the percentage of content validity exceeded 70%, the module was deemed to have good quality. The questionnaire content and results are presented in Tables 3.12 and 3.13.

Table 3.12: Validity of the CBT Module

Description of the items	Expert Scores			
	A	B	C	D
1.The content of the CBT module is in line with the target participants.	5	5	5	5
2.The content of the CBT module can successfully be realised.	4	5	4	4
3.The content and time allocation of the CBT module is reasonable.	3	4	3	4
4.The content of the CBT module can help participants to think rationally.	4	4	5	4
5.The content of the CBT module can help participants with stress management.	4	5	5	4
Total Score	20	23	22	21
Validity Coefficient by Experts	0.80	0.92	0.88	0.84
Percentage by Experts	80%	92%	88%	84%
Validity Coefficient for Module (Percentage)	0.86（86%）			

Table 3.12 indicates that the content validity of the CBT module is 0.86 (86%), exceeding 70%. Therefore, the CBT module is deemed suitable to treat postpartum depression and fulfills the treatment requirements.

Table 3.13: Validity of the PPT Module

Description of the items	Expert Scores			
	A	B	C	D
1.The content of the PPT module is in line with the target participants.	4	5	5	5
2.The content of the PPT module can successfully be realised.	5	4	4	4
3.The content and time allocation of the PPT module is reasonable.	3	4	3	3
4.The content of the PPT module can help participants to think rationally.	4	3	3	4
5.The content of the PPT module can help participants with stress management.	5	4	5	5

Table 3.13 continued

Total Score	21	20	20	21
Validity Coefficient by Experts	0.84	0.80	0.80	0.84
Percentage by Experts	84%	80%	80%	84%
Validity Coefficient for Module(Percentage)	0.82（82%）			

Table 3.13 indicates that the content validity of the PPT module is 0.82 (82%), exceeding 70%. Therefore, the PPT module is deemed suitable to treat postpartum depression and fulfills the treatment requirements.

In conclusion, the pilot study demonstrated that research instruments (BDI-II-C and IDQ) exhibited strong reliability and validity. Additionally, treatment models (CBT and PPT) passed fidelity assessments and validity tests, indicating intervention programmes were good and satisfactory.

3.8 Data Collection

This study collected first-hand experimental data, following the process outlined in Figure 3.3. Initially, the counselor submitted the ethical review materials to the Universiti Malaysia Sarawak Ethics Committee, which approved the CBT and PPT treatments. Subsequently, women with postpartum depression from Guiyang Maternal and Child Health Hospital (GCH), Bijie Maternal and Child Health Hospital (BCH), and Qingzhen Maternal and Child Health Hospital (QCH) were screened and recruited, resulting in a total of 260 participants enrolled in the experiment. Each group comprised 65 participants, with identical setups for the CBT and PPT module. The counselor instructed group members to complete the Integrated Dimensions Questionnaire (IDQ) within a designated timeframe, thereby obtaining pre-test results. The testing environment were consistent across all experimental and control groups. Following the pre-test, the CBT group received three

weeks of Cognitive Behavioral Therapy, while the PPT group underwent three weeks of Positive Psychotherapy. The control group did not receive any treatment. Finally, in the fourth week, the counselor asked each group member to complete the IDQ again to collect post-test data.

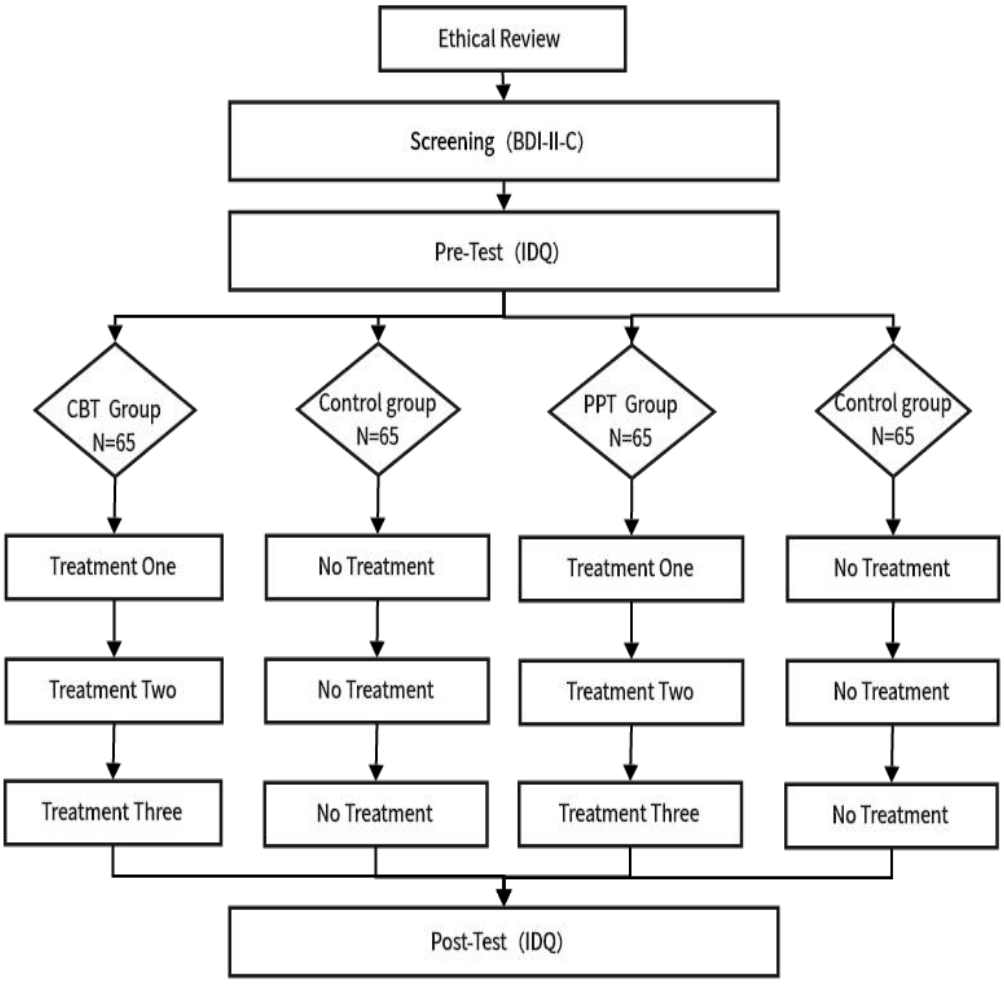


Figure 3.4: Data Collection Process

3.9 Error Control

The following methods were employed to control errors in the study:

Use of standardized instruments: Standardized scales with good reliability and validity were utilized. All participants completed standardized scales in the same condition and environment.

Alignment with treatment requirements of CBT and PPT: The treatment modules were designed in accordance with the goals and strategies of CBT and PPT, both of which have passed fidelity and validity analysis.

Appropriate sample size and coherence among members: The sample size met the minimum requirement for a quasi-experimental study, ensuring the validity of the research. Furthermore, all members were approximately equivalent, adhering to the established inclusion and exclusion criteria.

Consistency: The treatment environment and the counselor remain consistent across all groups throughout the entire experimental process to reduce errors. Group members are required to sign an agreement, and various forms of incentives are provided to minimize dropout. In cases of special circumstances, members should give prior notice before leaving the group.

Randomization of participants: Participants in the experimental and control groups were completely randomized using Excel instructions, resulting in comparable equivalence between the groups.

Diverse sample source: A total of 260 women with postpartum depression were recruited from three hospitals. To prevent an overly concentrated sample, the study limited

the number of participants from each hospital. This approach ensures that samples represent different hospitals, leading to broader and more generalizable results.

Bootstrap method: The bootstrap method was employed in data analysis to reduce the errors associated with purposive sampling.

Minimizing subjective errors and encouraging participation: To reduce subjective errors and alleviate participant resistance, small gifts such as fruits and baby toys were offered during the activities. Additionally, a free online lecture conducted by a physician was scheduled at the end of the post-test. These strategies aim to enhance participants' enthusiasm for the activities, thereby reducing the likelihood of sample loss and careless completion of the questionnaires.

3.10 Data Analysis

SPSS 27.0 was used as the analytical software for this study. In general, most studies set the statistical significance level at 0.05 (Johnson, 1999), which is crucial for determining significance bias. If $p < 0.05$, it indicates significance at the 0.05 level, providing 95% confidence in the results and allowing for the rejection of the null hypothesis. However, this threshold also entails a 5% risk of committing a Type I error (alpha error). Conversely, if the significance level is set at $p < 0.01$, the risk of alpha error is reduced to 1%. Yet, this may result in a higher percentage of Type II error (beta error), which represents the risk of incorrectly accepting the null hypothesis. The influence of alpha and beta errors is significantly affected by sample size. In clinical trials, samples larger than 30 or 50 are typically considered substantial, though a precise threshold has not been universally established. In this study, with a sample size of 65 participants in each

group, the size exceeds that of other similar research, making an alpha error of 0.05 reasonable and helping to maintain the beta error within an acceptable range.

3.10.1 Data Analysis Process

Firstly, the study conducted data cleaning to ensure that the data is not affected by unreasonable data. The data must meet certain criteria before analysis, with the study focusing on the following two aspects:

Outliers and missing values processing: Outliers, or error values, are individual data points that significantly deviate from the majority of observations within a sample. When they present, outliers can affect the mean or standard deviation, potentially leading to substantial deviations in the final analysis results. This impact can be even more pronounced in clinical studies with small sample sizes, making it essential to check for outliers before analysis.

This study used box plots to detect data outliers. A box plot is an intuitive descriptive statistical method consisting of five key numerical points: minimum observation, 25% quartile (Q1), median, 75% quartile (Q3), and maximum observation. Outliers appear as dots beyond the maximum or minimum observed values. If a researcher cannot reasonably address outliers, the inaccurate or irrelevant data may need to be removed (Pallant, 2020). Typically, removed outliers are treated as missing values, a strategy proven feasible by scholars (Kwak & Kim, 2017). This study adopts such a strategy to handle outliers.

Missing values are often replaced using various methods, such as the median of nearby points, the mean of nearby points, or the mean of all data. Each method has its own

advantages and disadvantages. In this study, the mean of all data (excluding missing values) is chosen to replace missing values to avoid errors from the subjective judgment of nearby points. This approach also maximizes the use of available data. In conclusion, this study replaces missing values and outliers with the mean of all non-missing values.

Normality test: Several tests assess normality, including the Shapiro-Wilk and Kolmogorov-Smirnov tests. Typically, $p>0.05$ indicates that the data follow a normal distribution (Razali & Wah, 2011). In this study, the K-S method was going to be used first to detect the normality. However, standard normal distributions are rare, and most clinical studies achieve an approximate normal distribution. If the test results do not indicate standard normality, researchers can use P-P plots to roughly determine the data's shape. The data is approximately normal, evidenced by points on a P-P plot aligning closely with the predicted normal distribution line, a t-test is still appropriate for data processing (Leech et al., 2013). Conversely, if the study data do not closely follow a normal distribution, non-parametric tests can be employed, such as the Wilcoxon rank-sum test (Mann-Whitney U test), Moses extreme reactions test, K-S test, and Wald-Wolfowitz test. Among these, the Mann-Whitney U test is equivalent to the independent samples t-test and is used to determine whether two independent samples originate from populations with the same distribution. In short, the study combines KS and P-P plots to judge the normal distribution of the data.

Next, the study proceeded with data analysis, which involves two parts:

Descriptive Analysis: This section focuses on the demographic information of postpartum women, including total numbers, means, standard deviations, and percentages, to describe the basic characteristics and dispersion of the data.

Inferential Statistics: This section addresses two situations. The data do not satisfy the assumption of approximate normality, non-parametric tests are employed, with significance determined by the p-value. Conversely, the data meet the criteria for approximate normality, independent samples t-tests are used to analyze differences between the pre-tests and post-tests of the experimental and control groups. To control error, the study uses the Bootstrap method, which employs repeated resampling to reduce sampling error and enhance result robustness.

The analysis begins by calculating the mean pre-test scores for the two groups to assess whether they are statistically equivalent. The means do not significantly differ, an independent samples t-test is conducted on the post-test means of both groups. Conversely, a significant difference is found in the pre-test, the study uses the mean of the change scores (post-test minus pre-test) for an independent samples t-test. During the independent samples t-test, it is important to consider the homogeneity of variance, assessed by Levene's test. The value is greater than 0.05, the data meets the assumption of homogeneity of variance. Therefore, the results of the significance test in the study reports significance from the column for equal variances assumed. The value is less than 0.05, the significance is reported from the column for equal variances not assumed.

A p-value less than 0.05 indicates that CBT or PPT is effective in treating the variables related to physical, psychological and social aspects. The study further calculates effect sizes to reflect the applicability of different treatment models. Effect size measures the strength of the treatment effect, reflecting the difference caused by a factor. A commonly used indicator of effect size in t-tests is Cohen's d (Ferguson, 2016; Lovakov & Agadullina, 2021). Cohen's d is defined as the difference between the means of two groups

divided by the pooled standard deviation (see Equation 3.4). Cohen's d ranges from 0 to positive infinity, with larger values indicating greater differences between the two groups and a more pronounced treatment effect.

$$\text{Cohen's d} = \frac{\overline{M}_1 - \overline{M}_2}{\overline{SD}} \qquad \text{Equation 3.4}$$

Finally, the study interprets the results of descriptive and inferential statistics. The flow of data analysis process is illustrated in Figure 3.5.

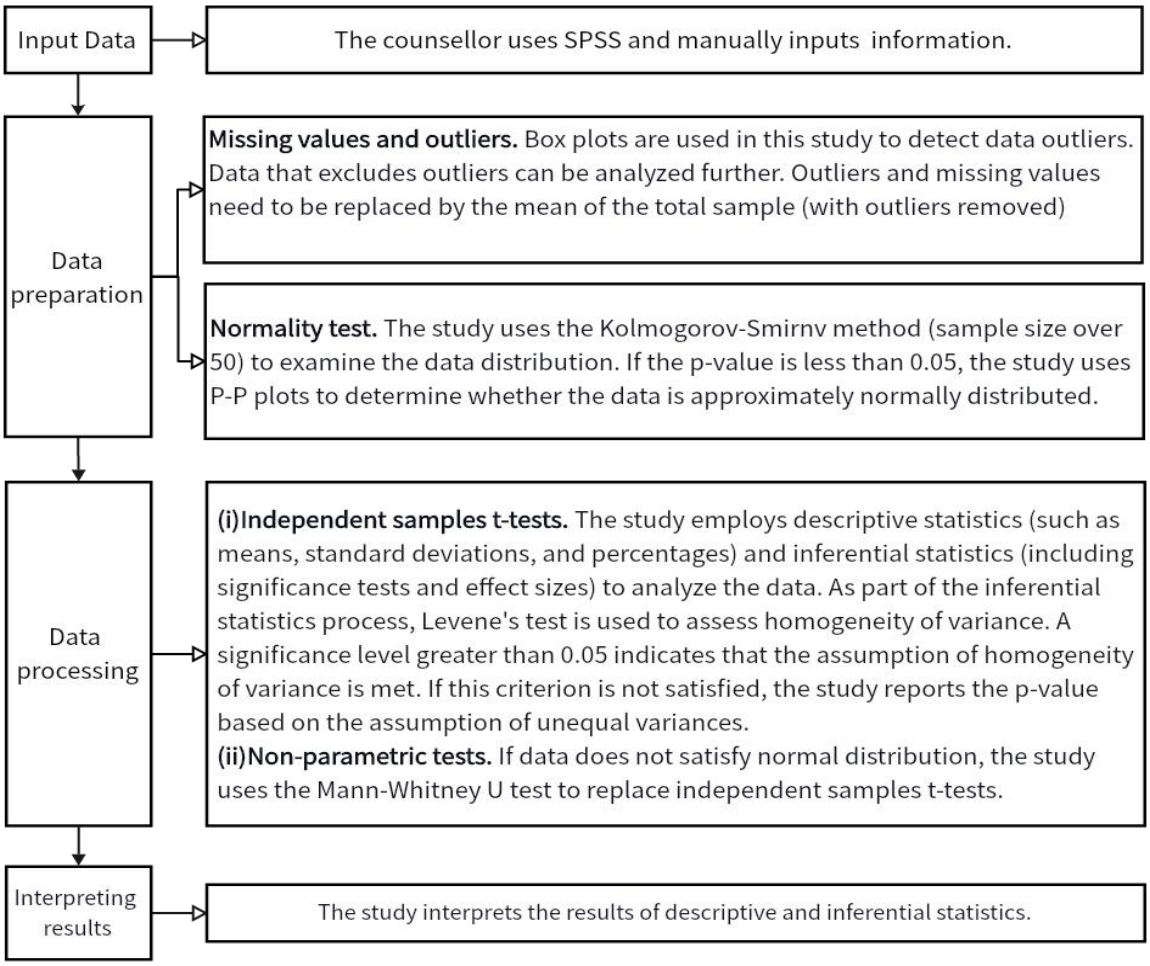


Figure 3.5: Data Analysis Process

3.10.2 Missing Data and Outliers

The study collected data from 130 participants in the experimental group and 130 in the control group. However, two individuals in the CBT group had missing responses in the Ruminative Response Scale (RRS-C), and one individual in the PPT group made double choices in the Multidimensional Scale of Perceived Social Support (MSPSS-C). Additionally, five missing data points were found in the control group. According to Mirzaei et al. (2021), a missing rate of less than 15% is considered acceptable and only requires revision. Therefore, these missing values were replaced using the mean of the remaining available data. For instance, the two missing values from the CBT group were substituted with the mean RRS-C score of the other 63 CBT group members. Ultimately, a total of 260 data points were deemed eligible for subsequent analyses.

Outliers were identified based on whether the data values exceeded extremely high or low thresholds, as they can affect the overall shape and characteristics of the data. Box plots were used as the testing method, visualizing the range, variance, and standard deviation of the data. The analysis revealed 14 outliers across all variables in this study, which is well below the total sample size threshold of 15%. The outliers related to insomnia, fatigue, hope, ruminative thinking (RT), and perceived social support (PSS) were replaced with the mean values of their respective variables. After data cleansing, Figures 3.6 and 3.7 illustrate that there are no redundant points outside the expected range for each variable. Consequently, the data quality meets the requirements for analysis.

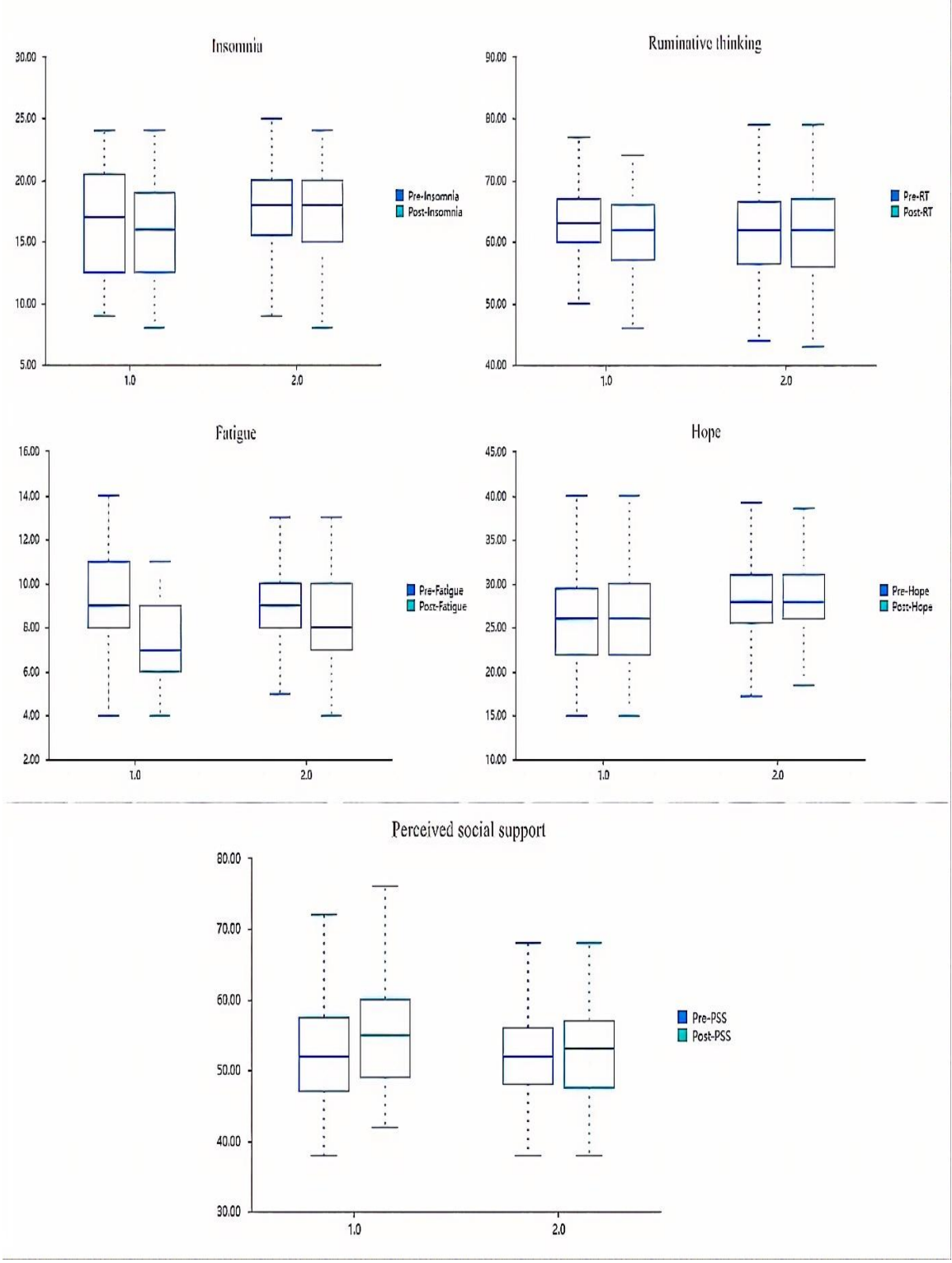


Figure 3.6: Outliers cleaning for CBT group; (No. 1) Experimental group; (No. 2) Control group

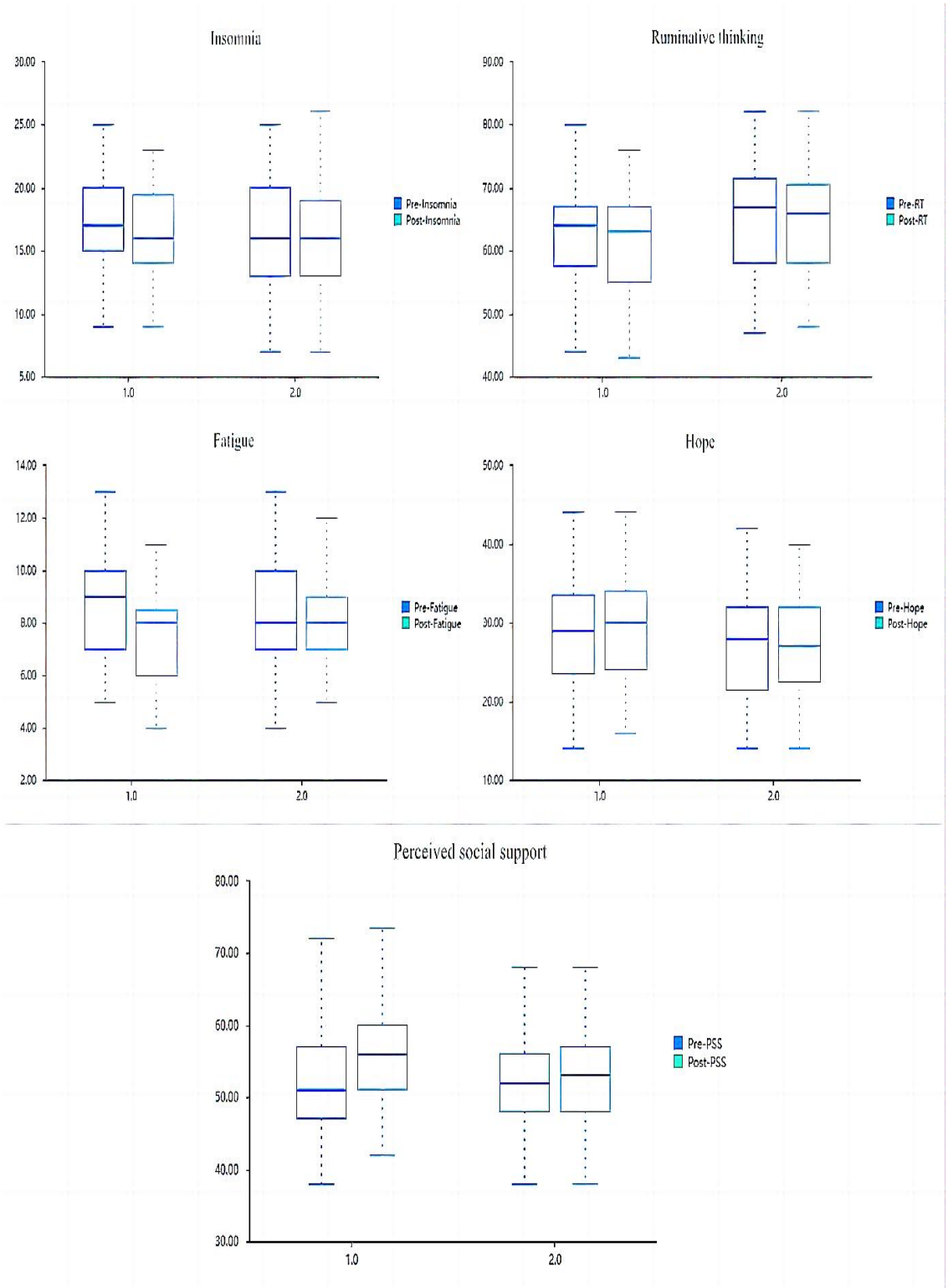


Figure 3.7: Outliers Cleaning for PPT Group; (No. 1) Experimental group; (No. 2) Control group

3.10.3 Normality Assessment

Performing a normality test is a prerequisite for conducting a t-test. The Kolmogorov-Smirnov Test (K-S test) is used to assess normality. If the p-values are above 0.05, this indicates that the data follows a normal distribution. Although this is the most rigorous method, achieving a standard normal distribution in practical research can be challenging. Therefore, a P-P plot can also be utilized to determine whether the data approximates a normal distribution roughly. When the data meets the criteria for approximate normal distribution, the points on the P-P plot align closely along a straight line.

In this study, the pre-test and post-test results for each variable were initially assessed using the K-S test, followed by the creation of P-P plots for those variables that did not conform to a standard normal distribution. Table 3.14 indicates that Pre-Insomnia, Pre-PSS, and Post-PSS for the CBT group and the control group conformed to a standard normal distribution ($p > 0.05$), while the remaining variables did not. Figure 3.8 shows that Post-Insomnia, Pre-Fatigue, Post-Fatigue, Pre-Hope, Post-Hope, Pre-RT, and Post-RT for the CBT group and the control group approximated a normal distribution. Consequently, all variables in the CBT and control groups conformed to either a standard or approximate normal distribution, making them suitable for t-test.

Table 3.14: Normality Test for CBT

Variables	Sample size	Skewness	Kurtosis	Kolmogorov-Smirnov	
				Statistics D values	*p*
Pre-Insomnia	130	-0.15	-0.85	0.07	0.08
Post-Insomnia	130	-0.26	-0.76	0.09	0.01**
Pre-Fatigue	130	-0.09	-0.23	0.14	0.00**
Post-Fatigue	130	0.28	-0.43	0.13	0.00**
Pre-Hope	130	0.33	0.03	0.10	0.01**
Post-Hope	130	0.34	-0.05	0.09	0.009**
Pre-RT	130	-0.21	-0.01	0.08	0.04*
Post-RT	130	-0.28	-0.34	0.10	0.002**
Pre-PSS	130	0.18	-0.01	0.05	0.61
Post-PSS	130	0.37	0.21	0.07	0.16

*$p<0.05$,**$p<0.01$

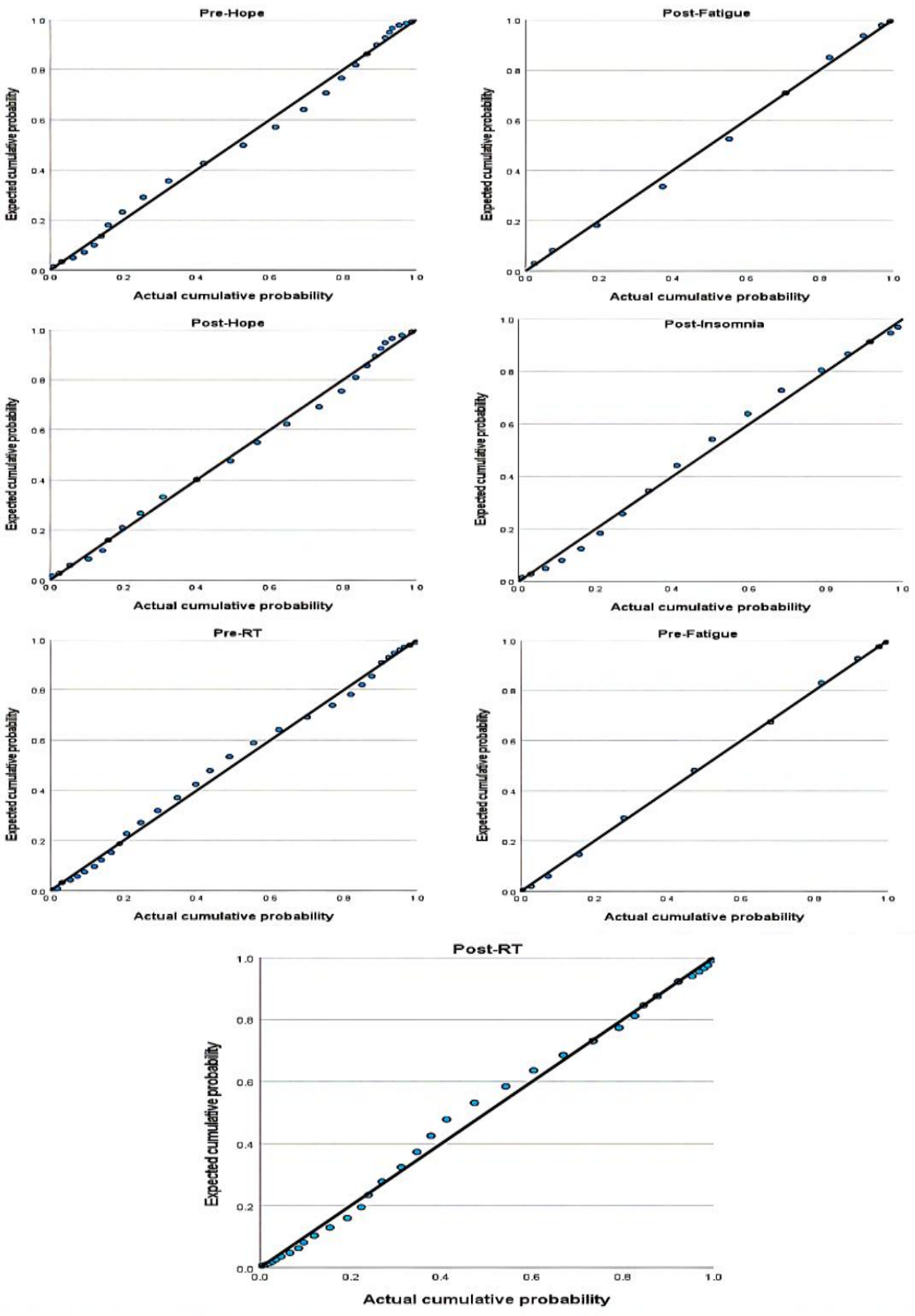


Figure 3.8: The P-P Plots for CBT Variables

Table 3.15 indicates that Pre-Insomnia, Pre-Hope, Post-Hope, Pre-PSS, and Post-PSS in the PPT group and the control group conform to a standard normal distribution ($p > 0.05$), while the remaining variables do not. Figure 3.9 illustrates that Post-Insomnia, Pre-Fatigue, Post-Fatigue, Pre-RT, and Post-RT in both the PPT group and the control group approximate a normal distribution. Therefore, all variables in the PPT group and their control group meet the criteria for either standard or approximate normal distribution, making them suitable for t-test.

Table 3.15: Normality Test for PPT

Variables	Sample size	Skewness	Kurtosis	Kolmogorov-Smirnov	
				Statistics D values	p
Pre-Insomnia	130	-0.12	-0.56	0.07	0.19
Post-Insomnia	130	-0.04	-0.51	0.08	0.05*
Pre-Fatigue	130	0.14	-0.62	0.12	0.00**
Post-Fatigue	130	0.21	-0.48	0.14	0.00**
Pre-Hope	130	-0.07	-0.63	0.07	0.16
Post-Hope	130	-0.01	-0.62	0.06	0.43
Pre-RT	130	-0.23	-0.36	0.10	0.00**
Post-RT	130	-0.26	-0.27	0.01	0.00**
Pre-PSS	130	0.20	-0.04	0.05	0.59
Post-PSS	130	0.29	0.05	0.06	0.35

*p＜0.05,**p＜0.01

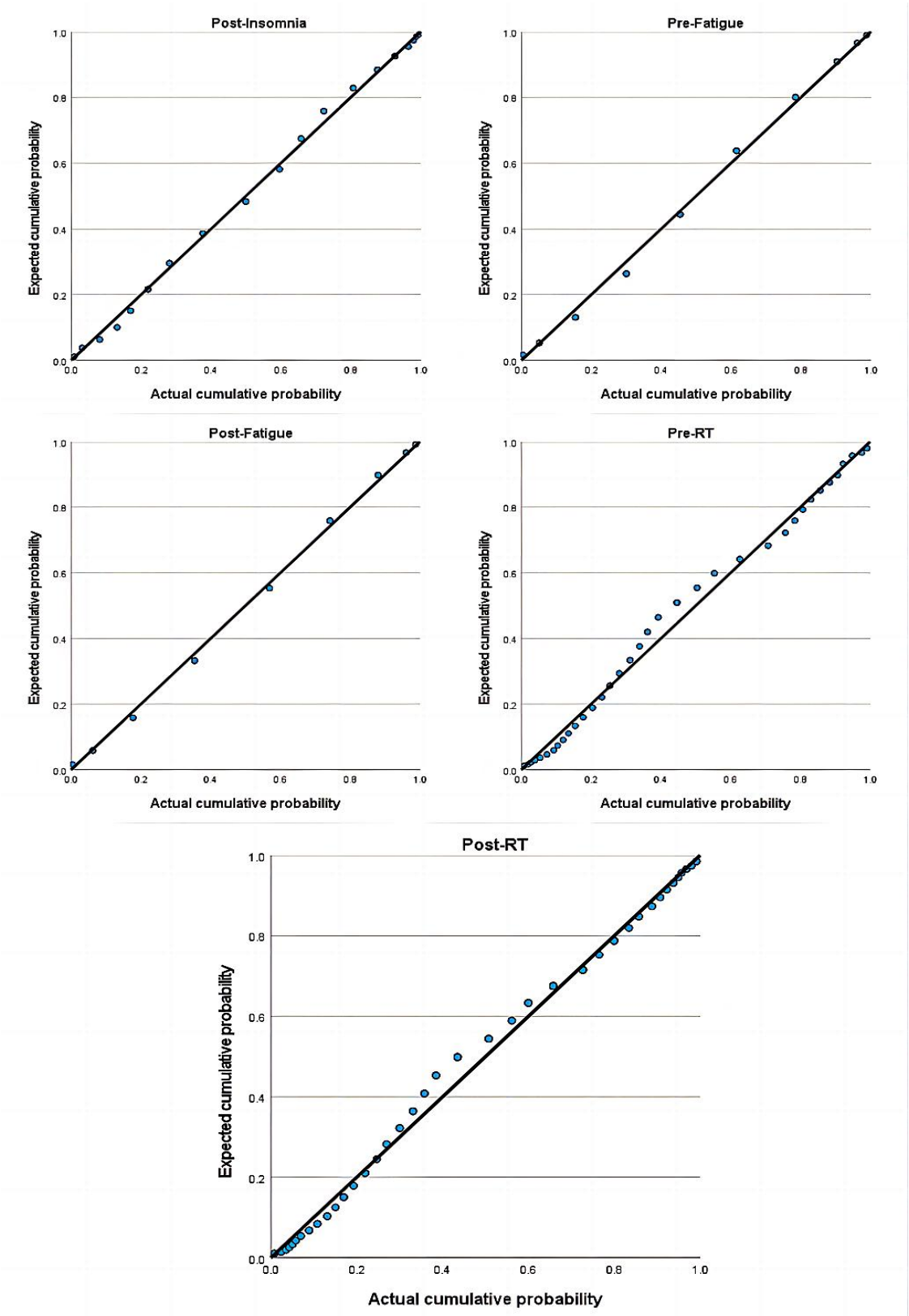


Figure 3.9: The P-P Plots for PPT Variables

3.10.4 Summary

In conclusion, this study employed a Pretest-Posttest Control Group Design, utilizing the independent samples t-test as the statistical method. The threshold for committing a Type I error (alpha error) was set at 0.05. The researcher followed a systematic approach for data input, cleaning, analysis, and interpretation. After data cleaning, missing values and outliers were replaced with sample means, resulting in a total of 260 usable data points. Both the CBT and PPT variables met the criteria for normal or approximate normal distribution, fulfilling the conditions necessary for using the independent samples t-test. Significance tests were conducted, and p-values were reported based on the results of the homogeneity of variance test. Groups that exhibited significant differences were assessed for effect sizes to evaluate the therapeutic strength of CBT and PPT across physical, psychological and social aspects.

3.11 Chapter Summary

This study used quantitative research through a Pretest-Posttest Control Group Design to evaluate the applicability of CBT and PPT in treating postpartum depressed women at the physical (insomnia, fatigue), psychological (hopefulness, rumination thinking) and social aspects (perceived social support).

Participants were sampled from three hospitals in Guizhou, resulting in a sample of 260 women within 0-8 weeks postpartum, all of whom met specific inclusion and exclusion criteria. The research instruments included the Chinese version of the Beck Depression Inventory (BDI-II-C) for screening postpartum depression and the Integrative Dimensions Questionnaire (IDQ) for measuring insomnia, fatigue, hope, rumination, and perceived social support. The intervention programme was divided into CBT module and

PPT module. Each module consists of weekly sessions, totaling three sessions. The content of the activity programme was derived from previous research, internet sources, books and the needs of women with postpartum depression. The pilot study confirmed the reliability and validity of the instruments and the fidelity and validity of the treatment modules, suggesting the feasibility and effectiveness of instruments and modules for postpartum depression. At the end of the chapter, the study outlines error control, data preparation, and analysis processes, confirming that the research data met the necessary requirements for the independent samples t-test.

In the next chapter, the study presents the results of the descriptive and inferential statistics, organized around the research hypothesis.

CHAPTER 4

RESULTS

4.1 Overview

The chapter presents the results of the data analysis, including descriptive analysis and inferential analysis based on research hypotheses.

4.2 Descriptive Analysis

4.2.1 Demographics of the Sample

This study evaluated 260 women with postpartum depression from 0-8 weeks. They were from GCH, QCH and BCH hospitals in China. The mean age of these women was 25.37 ± 4.11. Most of these women had middle school, high school and undergraduate diplomas. The highest number of these women had high school diplomas (42.31%); Most of the participants were from rural areas, which accounted for 64.66 %. Regarding the number of children, 39.23% had one child, while 43.84% had two children; the remainder had no children or more than two; The majority of births were normal deliveries (58.87%), while the remaining were Caesarean deliveries (41.13%); The majority of the women lived with their partner and children in a nuclear family (55.29%), followed by those living with their parents (34.16%). More than half of the women were in moderate economic circumstances (56.72%), while 29.47% faced economic difficulties, and 13.81% were well off. Regarding depression scores, 92.42% of the women had mild to moderate symptoms, including 64.53% experiencing mild depression. After the interview and evaluation by the counsellor, a small percentage of severely depressed women who met the counselling

criteria were also included in the study. Overall, the demographics of the sample were diverse, rich and broadly representative. Detailed data are shown below in Table 4.1.

Table 4.1: Demographics of the Sample

Factor	Frequency (n)	Percentage (%)	Cumulative percentage (%)
Educational background			
Middle School	54	20.77%	20.77%
High School	110	42.31%	63.08%
Undergraduate	86	33.08%	96.16%
Postgraduate	10	3.84%	100.00%
Registration status/Identity			
Rural residents	168	64.66%	64.66%
Urban residents	92	35.34%	100.00%
Number of babies			
0 (miscarriage or infant death within 28 weeks)	13	5.00%	5.00%
1	102	39.23%	44.23%
2	114	43.84%	88.07%
3 or more	31	11.93%	100.00%
Mode of delivery			
normal birth	153	58.87%	58.87%
Caesarean birth	107	41.13%	100.00%
Family living style			
Self, partner and children	144	55.29%	55.29%
Self and child/only living alone	27	10.55%	65.84%
Self, partner, children and parents	89	34.16%	100.00%
Economic condition			
well off	36	13.81%	13.81%
Moderate	147	56.72%	70.53%
Difficult	77	29.47%	100.00%
BDI-II-C Scores			
14-19/mild depression	168	64.53%	64.53%
20-28/moderate depression	72	27.89%	92.42%
29-63/severe depression	20	7.58%	100.00%

4.2.2 Descriptive Statistics of CBT

The independent variables were group (CBT group and CBT control group), with 65 postpartum depressed women allocated to each group. The dependent variables included insomnia, fatigue, hope, ruminative thinking (RT), and perceived social support (PSS). The study collected pre-test and post-test data from the participants with postpartum depression. For example, the pre-test score for insomnia was 16.54 ± 4.62 in the CBT group and 17.72 ± 3.79 in the CBT control group, while the post-test score for insomnia was 15.86 ± 4.18 in the CBT group and 17.31 ± 3.67 in the CBT control group. The distributions of other variables were as follows in Table 4.2.

Table 4.2: Descriptive Statistics of CBT

Variables	Sample size	CBT Group		CBT Control Group	
		Mean (M)	Standard Deviation (SD)	Mean (M)	Standard Deviation (SD)
Pre-Insomnia	65	16.54	4.62	17.72	3.79
Post-Insomnia	65	15.86	4.18	17.31	3.67
Pre-Fatigue	65	9.22	2.07	8.97	1.93
Post-Fatigue	65	7.48	1.88	8.26	2.17
Pre-Hope	65	26.09	6.13	28.20	5.02
Post-Hope	65	26.49	6.00	28.42	4.89
Pre-RT	65	63.60	6.49	61.18	7.71
Post-RT	65	61.57	6.94	61.25	7.98
Pre-PSS	65	52.46	7.09	52.08	6.48
Post-PSS	65	54.91	7.06	52.49	6.41

4.2.3 Descriptive Statistics of PPT

Similar to CBT, the independent variables of the study were the groups (PPT group and PPT control group), with 65 postpartum depressed women in each group. The dependent variables were insomnia, fatigue, hope, ruminative thinking (RT) and perceived

social support (PSS). Descriptive statistics reported the mean and standard deviation of the pre-test and post-test for each group. For example, the pre-test score for insomnia in the PPT group was 17.37 ± 3.76 and 16.15 ± 4.33 in the PPT control group, while the post-test score for insomnia in the PPT group was 16.29 ± 3.68 and 16.05 ± 4.39 in the PPT control group. The rest of the variables are shown in Table 4.3.

Table 4.3: Descriptive Statistics of PPT

Variables	Sample size	PPT Group		PPT Control Group	
		Mean (M)	Standard Deviation (SD)	Mean (M)	Standard Deviation (SD)
Pre-Insomnia	65	17.37	3.76	16.15	4.33
Post-Insomnia	65	16.29	3.68	16.05	4.39
Pre-Fatigue	65	8.28	1.97	8.29	2.10
Post-Fatigue	65	7.45	1.70	8.08	1.78
Pre-Hope	65	28.97	6.85	27.17	6.65
Post-Hope	65	29.97	6.51	27.20	6.65
Pre-RT	65	62.12	8.44	65.45	8.96
Post-RT	65	60.94	8.42	65.12	8.59
Pre-PSS	65	52.06	7.24	52.08	6.48
Post-PSS	65	55.78	7.01	52.63	6.53

4.3 Inferential Statistics

The study first tested differences in the pretest variables and then conducted an independent samples t-test using the Bootstrap method to examine the research hypotheses.

4.3.1 The Control of Pretest Differences

The significance test of the pretest is an essential component of the independent samples t-test, as it helps determine whether the experimental and control groups are

equivalent at the pretest stage. In other words, the Pretest-Posttest Control Group Design requires that the experimental and control groups are approximately equal ($p > 0.05$). Having the same baseline level is essential for accurately assessing treatment efficacy based on the posttest results. The results of the pre-test showed a p-value of less than 0.05 and a confidence interval that did not include zero, indicating that the results need to be analyzed using the difference scores (post-test minus pre-test) to accurately assess treatment effects.

For the CBT group and its control group, a t-test using Bootstrap was conducted on the pretest scores of each variable in both groups. Table 4.4 shows that the p-values for Pre-Insomnia ($p = 0.12$), Pre-Fatigue ($p = 0.48$), and Pre-PSS ($p = 0.76$) were all greater than 0.05, indicating no significant differences between the groups. Therefore, the posttest scores for insomnia, fatigue, and PSS reflect the efficacy of CBT. However, the p-value for Pre-Hope ($p = 0.03$) was less than 0.05, and the p-value for Pre-RT ($p = 0.05$) approached borderline significance. As a result, the CBT group cannot directly compare post-test scores for Hope and RT. Instead, the study performs a t-test on the pre-post change values for Hope and RT.

Table 4.4: Significance Test of the Pretest – CBT Group

Variables	Group/Mean±Standard Deviation		SE	*p*	95% CIs	
	1.0(*n*=65)	2.0(*n*=65)			lower	upper
Pre-Insomnia	16.54±4.62	17.72±3.79	0.74	0.12	-2.61	0.34
Pre-Fatigue	9.22±2.07	8.97±1.93	0.35	0.48	-0.46	0.92
Pre-Hope	26.09±6.13	28.20±5.02	0.93	0.03*	-3.92	-0.27
Pre-RT	63.60±6.49	61.18±7.71	1.25	0.05*	0.58	4.89
Pre-PSS	52.46±7.09	52.08±6.48	1.20	0.76	-2.01	2.65

* $p<0.05$ ** $p<0.01$; Note：a) The number 1 represents the experimental group and the number 2 represents the control group; b) Bootstrap is based on 1000 resamples.

For the PPT group and its control group, Table 4.5 shows that the p-values for Pre-Insomnia (p = 0.09), Pre-Fatigue (p = 0.97), Pre-Hope (p = 0.13), and Pre-PSS (p = 0.99) were all greater than 0.05, indicating no significant differences between the groups. Therefore, the post-test scores for insomnia, fatigue, hope, and PSS reflect the efficacy of PPT. However, the p-value for Pre-RT (p = 0.04) was less than 0.05, indicating a significant difference. Consequently, the study conducts a t-test for the change in RT values.

Table 4.5: Significance Test of the Pretest – PPT Group

Variables	Group/Mean±Standard Deviation		SE	*p*	95%CIs	
	1.0(*n*=65)	2.0(*n*=65)			lower	upper
Pre-Insomnia	17.37±3.76	16.15±4.33	0.71	0.09	-0.19	2.62
Pre-Fatigue	8.28±1.97	8.29±2.10	0.35	0.97	-0.72	0.69
Pre-Hope	28.97±6.85	27.17±6.65	1.18	0.13	-0.54	4.14
Pre-RT	62.12±8.43	65.45±8.96	1.51	0.04*	-6.34	-0.39
Pre-PSS	52.06±7.24	52.08±6.48	1.22	0.99	-2.35	2.37

* $p<0.05$ ** $p<0.01$； Note: a) The number 1 represents the experimental group and the number 2 represents the control group; b) Bootstrap is based on 1000 resamples.

In conclusion, differences in pretest scores between the experimental and control groups affect the comparisons of posttest results. For the CBT group, Hope and RT cannot use posttest scores to compare treatment effects, and similarly, Post-RT cannot be compared directly in the PPT group. Instead, these variables require a t-test using the change values between pre-test and post-test scores. The remaining variables were not affected by these differences.

4.3.2 Inferential Analysis based on Research Hypotheses

H_{a1}: CBT is the applicable treatment model in treating the physical aspect (insomnia) among postpartum women with depression in China.

This study conducted independent samples t-tests using Bootstrap between the experimental and control groups to assess the posttest scores of insomnia.The results for homogeneity of variance indicate that Post-Insomnia (F = 2.14, p = 0.15 > 0.05) can utilize the results from the equal variance column. Table 4.6 reports the means, p-values, standard errors, 95% confidence intervals, and effect sizes. The 65 participants in the experimental group showed significant improvements in insomnia following CBT (p = 0.04, CIs = -2.78, -0.77). The effect size is 0.37, indicating small to moderate strength. This suggests that CBT is applicable for addressing insomnia among postpartum depressed women. Therefore, the study accepts research hypothesis H_{a1}.

Table 4.6: Significance Test for Insomnia in CBT

Variables	Group/Mean±Standard Deviation		SE	*p*	Cohen's d	95%CIs	
	1.0(*n*=65)	2.0(*n*=65)				lower	upper
Post-Insomnia	15.86±4.18	17.31±3.67	0.69	0.04*	0.37	-2.78	-0.77

* $p<0.05$ ** $p<0.01$

Note: a) 95% CIs are a p-value alternative to demonstrate the precision of the estimate. If the confidence interval does not contain zero, it means that the difference is significant; b) Cohen's d ranges from small (0.2), medium (0.5), large (0.8); c) Bootstrap is based on 1000 resamples; d) The number 1 represents the experimental group and the number 2 represents the control group.

H_{a2}: CBT is the applicable treatment model in treating the physical aspect (fatigue) among postpartum women with depression in China.

This study conducted independent samples t-tests using Bootstrap between the experimental and control groups to assess the posttest scores of fatigue. The results for homogeneity of variance indicate that Post-Fatigue (F = 0.44, p = 0.51 > 0.05) can utilize the results from the equal variance column. Table 4.7 reports the means, p-values, standard errors, 95% confidence intervals, and effect sizes. The 65 participants in the experimental group showed significant improvements in fatigue following CBT treatment (p = 0.03, CIs = -1.49, -1.11). The effect size is 0.39, indicating small to moderate strength. This suggests that CBT is applicable for addressing fatigue among postpartum depressed women. Therefore, the study accepts research hypothesis H_{a2}.

Table 4.7: Significance Test for Fatigue in CBT

Variables	Group/Mean±Standard Deviation		SE	*p*	Cohen's d	95%CIs	
	1.0(*n*=65)	2.0(*n*=65)				lower	upper
Post-Fatigue	7.48±1.88	8.26±2.17	0.35	0.03*	0.39	-1.49	-1.11

* $p<0.05$ ** $p<0.01$

Note: a) 95% CIs are a p-value alternative to demonstrate the precision of the estimate. If the confidence interval does not contain zero, it means that the difference is significant; b) Cohen's d ranges from small (0.2), medium (0.5), large (0.8); c) Bootstrap is based on 1000 resamples; d) The number 1 represents the experimental group and the number 2 represents the control group.

H_{a3}: CBT is the applicable treatment model in treating the psychological aspect (hope) among postpartum women with depression in China.

Since the pretests for hope differed between the experimental and control groups, the study uses the change scores (posttest minus pretest) to conduct an independent samples t-test. The results for homogeneity of variance indicate that the change scores for hope ($F = 2.83$, $p = 0.01 < 0.05$) should utilize the results from the unequal variance column. Table 4.8 presents the means, p-values, standard errors, 95% confidence intervals, and effect sizes. The findings indicate that CBT had no significant effect on hope ($p = 0.36$, CIs = -0.18, 0.54). Therefore, the study rejects the research hypothesis H_{a3}, concluding that CBT is not the applicable treatment model in treating hope among postpartum women with depression in China.

Table 4.8: Significance Test for Hope in CBT

Variables	Group/Mean±Standard Deviation		SE	*p*	Cohen's d	95%CIs	
	1.0(*n*=65)	2.0(*n*=65)				lower	upper
Hope Difference	0.55±1.24	0.38±0.82	0.18	0.36	——	-0.18	0.54

* $p<0.05$ ** $p<0.01$

Note: a) 95% CIs are a p-value alternative to demonstrate the precision of the estimate. If the confidence interval does not contain zero, it means that the difference is significant; b) Cohen's d ranges from small (0.2), medium (0.5), large (0.8); c) Bootstrap is based on 1000 resamples; d) The number 1 represents the experimental group and the number 2 represents the control group.

H_{a4}: CBT is the applicable treatment model in treating the psychological aspect (rumination thinking) among postpartum women with depression in China.

Similarly, the pretests for RT differed between the experimental and control groups, the study uses the change scores (posttest minus pretest) to conduct an independent samples t-test. The results of homogeneity of variance indicate that the change scores for RT (F = 39.87, p = 0.001 < 0.05) should utilize the results from the unequal variance column. Table 4.9 presents the means, p-values, standard errors, 95% confidence intervals, and effect sizes. The CBT had a significant effect on RT in postpartum depressed women (p = 0.02, CIs = 0.47, 1.89), indicating moderate effectiveness (Cohen's d = 0.41). Therefore, the study accepts the research hypothesis H_{a4}.

Table 4.9: Significance Test for Ruminative Thinking in CBT

Variables	Group/Mean±Standard Deviation		SE	*p*	Cohen's d	95%CIs	
	1.0(*n*=65)	2.0(*n*=65)				lower	upper
RT Difference	2.03±2.61	1.06±2.22	0.35	0.02*	0.41	0.47	1.89

* $p<0.05$ ** $p<0.01$

Note: a) 95% CIs are a p-value alternative to demonstrate the precision of the estimate. If the confidence interval does not contain zero, it means that the difference is significant; b) Cohen's d ranges from small (0.2), medium (0.5), large (0.8); c) Bootstrap is based on 1000 resamples; d) The number 1 represents the experimental group and the number 2 represents the control group.

H_{a5}: CBT is the applicable treatment model in treating the social aspect (perceived social support) among postpartum women with depression in China.

Perceived social support was directly compared using posttest scores. The results of homogeneity of variance indicate that Post-PSS (F = 1.04, p = 0.31 > 0.05) can utilize the results from the equal variance column. Table 4.10 presents the means, p-values, standard errors, 95% confidence intervals, and effect sizes. The CBT had a significant effect on PSS in postpartum depressed women (p = 0.04, CIs = 0.08, 4.76), achieving a small to moderate effect size (Cohen's d = 0.36). Therefore, the study accepts the research hypotheses H_{a5}.

Table 4.10: Significance Test for Perceived Social Support in CBT

Variables	Group/Mean±Standard Deviation		SE	*p*	Cohen's d	95%CIs	
	1.0(*n*=65)	2.0(*n*=65)				lower	upper
Post-PSS	54.91±7.06	52.49±6.41	1.18	0.04*	0.36	0.08	4.76

* $p<0.05$ ** $p<0.01$

Note: a) 95% CIs are a p-value alternative to demonstrate the precision of the estimate. If the confidence interval does not contain zero, it means that the difference is significant; b) Cohen's d ranges from small (0.2), medium (0.5), large (0.8); c) Bootstrap is based on 1000 resamples; d) The number 1 represents the experimental group and the number 2 represents the control group.

H_{a6}: PPT is the applicable treatment model in treating the physical aspect (insomnia) among postpartum women with depression in China.

For PPT, the study examined posttest scores for insomnia. The results of homogeneity of variance indicate that Post-Insomnia (F = 1.43, p = 0.23 > 0.05) can utilize the results from the equal variance column. Table 4.11 presents the means, p-values, standard errors, 95% confidence intervals, and effect sizes. The results indicate that PPT had no significant effect on insomnia (p = 0.73, CIs = -1.16, 1.65). Therefore, the study rejects the research hypothesis H_{a6}, concluding that PPT is not an applicable treatment model in treating insomnia among postpartum women with depression in China.

Table 4.11: Significance Test for Insomnia in PPT

Variables	Group/Mean±Standard Deviation		SE	*p*	Cohen's d	95%CIs	
	1.0(*n*=65)	2.0(*n*=65)				lower	upper
Post-Insomnia	16.29±3.68	16.05±4.39	0.71	0.73	——	-1.16	1.65

* $p<0.05$ ** $p<0.01$

Note: a) 95% CIs are a p-value alternative to demonstrate the precision of the estimate. If the confidence interval does not contain zero, it means that the difference is significant; b) Cohen's d ranges from small (0.2), medium (0.5), large (0.8); c) Bootstrap is based on 1000 resamples; d) The number 1 represents the experimental group and the number 2 represents the control group.

H_{a7}: PPT is the applicable treatment model in treating the physical aspect(fatigue)among postpartum women with depression in China.

The study examined posttest scores for fatigue in the PPT group and its control group. The results of homogeneity of variance indicate that Post-Fatigue (F = 0.23 p = 0.63 > 0.05) can utilize the results from the equal variance column. Table 4.12 presents the means, p-values, standard errors, 95% confidence intervals, and effect sizes. The results indicate that PPT had a significant effect on fatigue (p = 0.04, CIs = -1.23, -0.03), with the treatment achieving a small to moderate effect size (Cohen's d = 0.36). Therefore, the study accepts the research hypothesis H_{a7}.

Table 4.12: Significance Test for Fatigue in PPT

Variables	Group/Mean±Standard Deviation		SE	*p*	Cohen's d	95%CIs	
	1.0(*n*=65)	2.0(*n*=65)				lower	upper
Post-Fatigue	7.45±1.70	8.08±1.78	0.31	0.04*	0.36	-1.23	-0.03

* $p<0.05$ ** $p<0.01$

Note: a) 95% CIs are a p-value alternative to demonstrate the precision of the estimate. If the confidence interval does not contain zero, it means that the difference is significant; b) Cohen's d ranges from small (0.2), medium (0.5), large (0.8); c) Bootstrap is based on 1000 resamples; d) The number 1 represents the experimental group and the number 2 represents the control group.

H_{a8}: PPT is the applicable treatment model in treating the psychological aspect (hope) among postpartum women with depression in China.

The study examined posttest scores for hope. The results of homogeneity of variance indicate that Post-Hope (F = 0.07 p = 0.80 > 0.05) can utilize the results from the equal variance column. Table 4.13 presents the means, p-values, standard errors, 95% confidence intervals, and effect sizes. The results indicate that PPT had a significant effect on hope (p = 0.02, CIs = 0.49, 5.05), with the treatment achieving a small to moderate effect size (Cohen's d = 0.42). Therefore, the study accepts the research hypothesis H_{a8}.

Table 4.13: Significance Test for Hope in PPT

Variables	Group/Mean±Standard Deviation		SE	*p*	Cohen's d	95%CIs	
	1.0(*n*=65)	2.0(*n*=65)				lower	upper
Post-Hope	29.97±6.51	27.20±6.65	1.15	0.02*	0.42	0.49	5.05

* $p<0.05$ ** $p<0.01$

Note: a) 95% CIs are a p-value alternative to demonstrate the precision of the estimate. If the confidence interval does not contain zero, it means that the difference is significant; b) Cohen's d ranges from small (0.2), medium (0.5), large (0.8); c) Bootstrap is based on 1000 resamples; d) The number 1 represents the experimental group and the number 2 represents the control group.

H_{a9}: PPT is the applicable treatment model in treating the psychological aspect (rumination thinking) among postpartum women with depression in China.

Since the pretests for RT differed between the experimental and control groups, the study uses the change scores (posttest minus pretest) to conduct an independent samples t-test. The results for homogeneity of variance indicate that the change scores for RT (F = 21.60, p = 0.001 < 0.05) should utilize the results from the unequal variance column. Table 4.14 presents the means, p-values, standard errors, 95% confidence intervals, and effect sizes. The results indicate that PPT had a marginally significant effect on RT (p = 0.05, CIs = 0.31, 1.07), with the treatment achieving a small to moderate effect size (Cohen's d = 0.30). Therefore, the study accepts the research hypothesis H_{a9}.

Table 4.14: Significance Test for Rumination Thinking in PPT

Variables	Group/Mean±Standard Deviation		SE	*p*	Cohen's d	95%CIs	
	1.0(*n*=65)	2.0(*n*=65)				lower	upper
RT Difference	1.29±1.87	0.79±1.46	0.27	0.05*	0.30	0.31	1.07

* $p<0.05$ ** $p<0.01$

Note: a) 95% CIs are a p-value alternative to demonstrate the precision of the estimate. If the confidence interval does not contain zero, it means that the difference is significant; b) Cohen's d ranges from small (0.2), medium (0.5), large (0.8); c) Bootstrap is based on 1000 resamples; d) The number 1 represents the experimental group and the number 2 represents the control group.

H_{a10}: PPT is the applicable treatment model in treating the social aspect (perceived social support) among postpartum women with depression in China.

The study examined the posttest scores for PSS in the PPT group and its control group. The results for homogeneity of variance indicate that the change scores for PSS (F = 0.33, p = 0.57 > 0.05) should utilize the results from the equal variance column. Table 4.15 presents the means, p-values, standard errors, 95% confidence intervals, and effect sizes. The results indicate that PPT had a significant effect on PSS (p = 0.01, CIs = 0.80, 5.51), with the treatment achieving a small to moderate effect size (Cohen's d = 0.47). Therefore, the study accepts the research hypothesis H_{a10}.

Table 4.15: Significance Test for Perceived Social Support in PPT

Variables	Group/Mean±Standard Deviation		SE	*p*	Cohen's d	95%CIs	
	1.0(*n*=65)	2.0(*n*=65)				lower	upper
Post-PSS	55.78±7.01	52.63±6.53	1.188	0.01**	0.47	0.80	5.51

* $p<0.05$ ** $p<0.01$

Note: a) 95% CIs are a p-value alternative to demonstrate the precision of the estimate. If the confidence interval does not contain zero, it means that the difference is significant; b) Cohen's d ranges from small (0.2), medium (0.5), large (0.8); c) Bootstrap is based on 1000 resamples; d) The number 1 represents the experimental group and the number 2 represents the control group.

4.3.3 Summary

According to the inferential statistics, the independent variables included the groups (CBT group and control group, as well as PPT group and control group), while the dependent variables comprised insomnia, fatigue, hope, RT, and PSS. The study first examined the pretest variables to ensure no significant differences existed between the experimental and control groups. If differences were identified, the change between the pretests and posttests needs to be compared. Following the independent samples t-test, the results indicated that the CBT group experienced different levels of improvement in insomnia, fatigue, PSS, and RT. Specifically, insomnia, fatigue, RT, and PSS showed small to moderate changes, but CBT did not lead to any improvement in participants' levels of hope. This indicates that CBT is an applicable treatment model in treating insomnia, fatigue, RT, and PSS, but not for hope. Consequently, the study rejects research hypothesis H_{a3} and accepts H_{a1}, H_{a2}, H_{a4}, and H_{a5}. For the PPT group, significant improvements were noted in fatigue, hope, PSS, and RT, with all showing small to moderate changes, but PPT did not improve participants' insomnia. Therefore, PPT is an applicable treatment model in treating fatigue, hope, RT, and PSS. The study rejects research hypothesis H_{a6} and accepts H_{a7}, H_{a8}, H_{a9}, and H_{a10}.

4.4 Comparing the Effect sizes of CBT and PPT in the Variables

CBT and PPT demonstrated different effects when addressing the physical (insomnia and fatigue), psychological (hope and ruminative thinking) and social (perceived social support) aspects of postpartum depressed women. The study found that CBT was applicable in improving insomnia, fatigue, RT, and PSS, but not hope, while PPT was applicable in improving fatigue, hope, RT, and PSS, but not insomnia.

Further analysis of the effect sizes revealed that CBT had similar effects on insomnia, fatigue, and PSS, with Cohen's d values between 0.3 and 0.4. CBT had the strongest effect on RT, with a Cohen's d of 0.41. PPT had similar effects on fatigue and RT, with Cohen's d values ranging from 0.3 to 0.4, and was more effective for PSS and hope, with Cohen's d ranging between 0.4 and 0.5. When comparing different models, the study found that the efficacy of CBT and PPT varied for some variables (fatigue, RT, PSS). Figure 4.3 illustrates that CBT and PPT had similar efficacy in improving fatigue. PPT was more effective in enhancing participants' PSS, while CBT showed greater efficacy in reducing participants' RT. Therefore, PPT is more applicable to improving PSS, whereas CBT is more applicable to reducing RT.

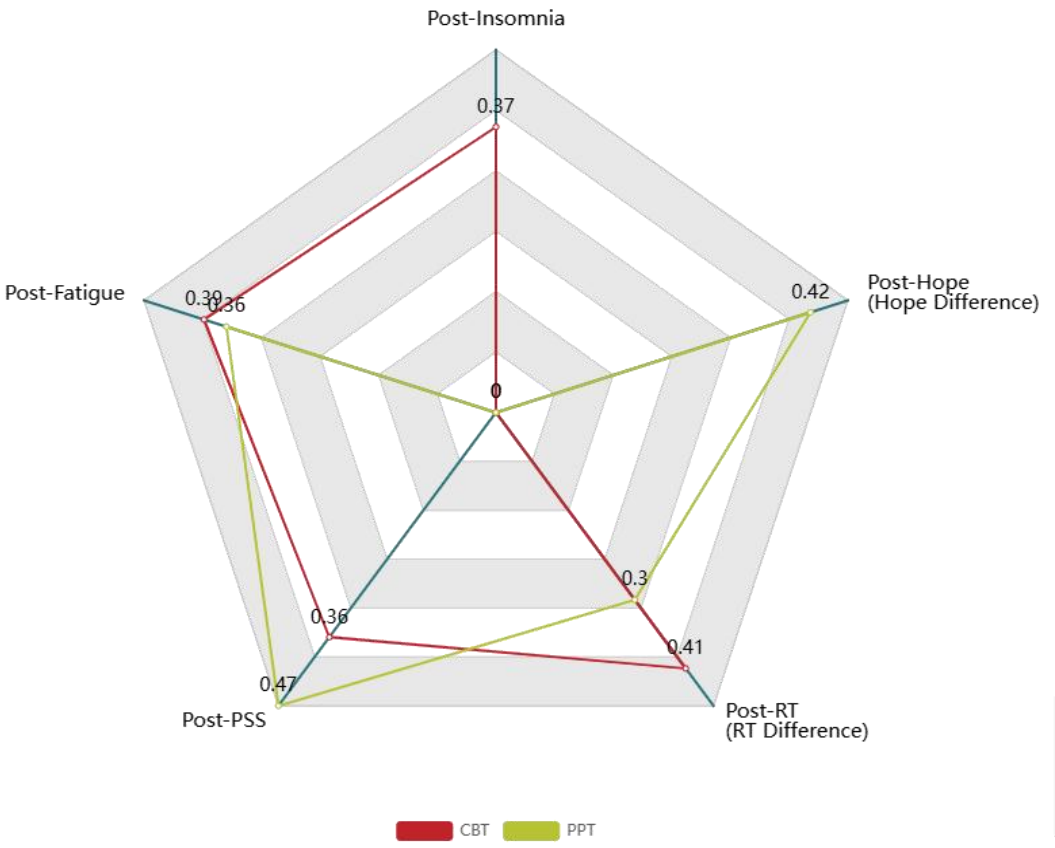


Figure 4.1: Comparison of Effect Sizes

4.5 Chapter Summary

This chapter begins with descriptive statistics to report demographic details of the 130 women with postpartum depression, along with their pretest and posttest scores on the IDQ. This overview helps other researchers understand the degree of dispersion and distribution. Then, the study conducted inferential statistics, including control for pretest differences, inferential analysis based on research hypotheses, and calculation of effect sizes. The results confirmed that CBT improved insomnia, fatigue, RT, and PSS, but had no effect on hope. PPT improved fatigue, hope, RT, and PSS, but was ineffective for insomnia. Further analyses demonstrated that CBT was more applicable than PPT in treating RT, while PPT was more applicable than CBT in enhancing PSS. These results supported research hypotheses H_{a3} and H_{a6}, while rejecting H_{a1}, H_{a2}, H_{a4}, H_{a5}, H_{a7}, H_{a8}, H_{a9}, and H_{a10} (see Table 4.16). It is evident that CBT and PPT have distinct strengths and play different roles in treating the physical, psychological and social aspects among postpartum depressed women. The main findings of this chapter are discussed and explained further in chapter five.

Table 4.16: Summary of Results

Research Questions	Research Hypotheses	Findings	Criterion
Research question 1: Is CBT applicable in treating the physical aspect (insomnia,fatigue) of postpartum depression?	H_{a1}: CBT is the applicable treatment model in treating the physical aspect (insomnia) among postpartum women with depression in China.	Accept	$p < 0.05$; Cohen's d=0.37

Table 4.16 continued

	H_{a2}: CBT is the applicable treatment model in treating the physical aspect (fatigue) among postpartum women with depression in China.	Accept	$p < 0.05$; Cohen's d=0.39
Research question 2: Is CBT applicable in treating the psychological aspect (hope,rumination thinking) of postpartum depression?	H_{a3}:CBT is the applicable treatment model in treating the psychological aspect (hope) among postpartum women with depression in China.	Reject	$p > 0.05$
	H_{a4}: CBT is the applicable treatment model in treating the psychological aspect (rumination thinking) among postpartum women with depression in China.	Accept	$p < 0.05$; Cohen's d=0.41
Research question 3: Is CBT applicable in treating the social aspect (perceived social support) of postpartum depression?	H_{a5}:CBT is the applicable treatment model in treating the social aspect (perceived social support) among postpartum women with depression in China.	Accept	$p < 0.05$; Cohen's d=0.36

Table 4.16 continued

Research question 4: Is PPT applicable in treating the physical aspect (insomnia,fatigue) of postpartum depression?	H_{a6}: PPT is the applicable treatment model in treating the physical aspect (insomnia) among postpartum women with depression in China.	Reject	$p > 0.05$
	H_{a7}: PPT is the applicable treatment model in treating the physical aspect (fatigue)among postpartum women with depression in China.	Accept	$p < 0.05$; Cohen's d=0.36
Research question 5: Is PPT applicable in treating the psychological aspect (hope,rumination thinking) of postpartum depression?	H_{a8}: PPT is the applicable treatment model in treating the psychological aspect (hope) among postpartum women with depression in China.	Accept	$p < 0.05$; Cohen's d=0.42
	H_{a9}: PPT is the applicable treatment model in treating the psychological aspect (rumination thinking) among postpartum women with depression in China.	Accept	$p \leq 0.05$; Cohen's d=0.30

Table 4.16 continued

Research question 6: Is PPT applicable in treating the social aspect (perceived social support) of postpartum depression?	H_{a10}: PPT is the applicable treatment model in treating the social aspect (perceived social support) among postpartum women with depression in China.	Accept	$p < 0.05$; Cohen's d=0.47

CHAPTER 5

DISCUSSION, CONCLUSION AND RECOMMENDATIONS

5.1 Overview

The purpose of the study was to evaluate the applicability of CBT and PPT in treating the physical, psychological and social aspects of postpartum depression among Chinese women. This study examines the effects of CBT and PPT on participants' insomnia, fatigue, hope, ruminative thinking (RT), and perceived social support (PSS), and reports the findings from descriptive and inferential statistics. This chapter summarizes the research results and discusses the significance and effect sizes of the different variables. Then, the chapter highlights research limitations and suggests future directions. These insights assist healthcare professionals, counselors, and psychologists in implementing effective treatments and interventions to enhance the health and well-being of women with postpartum depression.

5.2 Summary of Findings

The study proposes the following research questions:

i. Is CBT applicable in treating the physical aspect (insomnia, fatigue) of postpartum depression?

ii. Is CBT applicable in treating the psychological aspect (hope, ruminative thinking) of postpartum depression?

iii. Is CBT applicable in treating the social aspect (perceived social support) of postpartum depression?

iv. Is PPT applicable in treating the physical aspect (insomnia, fatigue) of postpartum depression?

v. Is PPT applicable in treating the psychological aspect (hope, ruminative thinking) of postpartum depression?

vi. Is PPT applicable in treating the social aspect (perceived social support) of postpartum depression?

The study answers them as follows:

i. CBT is an applicable model in treating the physiological aspect (insomnia and fatigue) among postpartum depressed women.

ii. CBT is an applicable model in treating the psychological aspect (ruminative thinking), but not for treating psychological aspect (hope) among postpartum depressed women.

iii. CBT is an applicable model in treating the social aspect (perceived social support) among postpartum depressed women.

iv. PPT is an applicable model in treating the physiological aspect (fatigue), but not for physiological aspect (insomnia) among postpartum depressed women.

v. PPT is an applicable model in treating the psychological aspect (hope and ruminative thinking) among postpartum depressed women.

vi. PPT is an applicable model in treating the social aspect (perceived social support) among postpartum depressed women.

Considering the effect sizes, the findings are summarized as follows:

CBT is an applicable treatment model for improving insomnia, fatigue, ruminative thinking, and perceived social support among postpartum depressed women, but it does not apply to boost hope. In contrast, PPT is an applicable treatment model for addressing fatigue, hope, ruminative thinking, and perceived social support among postpartum depressed women, but it does not apply to treat insomnia. Additionally, the improvement in ruminative thinking was greater for CBT compared to PPT, while the enhancement in perceived social support was more significant in PPT than in CBT.

5.3 Discussion

5.3.1 The Effects of CBT in Treating Physical Aspects

The first research question concerned whether CBT is applicable in treating the physical aspect (insomnia, fatigue) of postpartum depression. This involved examining Hypothesis one and Hypothesis two.

Hypothesis 1

Hypothesis 1 stated that CBT is the applicable treatment model in treating the physical aspect (insomnia) of postpartum depression among women in China. This hypothesis was accepted.

Several studies support these findings. Felder et al. (2022) found that a digital form of CBT was highly beneficial for insomnia among perinatal women. Manber et al. (2023) established that CBT for insomnia improved sleep wakefulness after falling asleep and

reduced insomnia severity among perinatal women. This suggests that CBT is effective for treating insomnia. Other studies have also found that CBT alleviated sleep problems during pregnancy and improved sleep two years postpartum (Bei et al., 2021). Although these studies did not focus exclusively on the postpartum period, their findings demonstrate the long-term, breadth, and stability of CBT throughout the perinatal period (prenatal to postnatal) for treating insomnia. In summary, CBT can be regarded as an effective model in treating postpartum insomnia.

CBT for treating insomnia involves various mechanisms that address cognitive, behavioral, and physiological factors. Some studies have found that CBT improves insomnia by changing clients' maladaptive beliefs and attitudes towards sleep, reducing selective attention and rumination, and altering hyperarousal (Altena et al., 2023). These mechanisms are supported by neuroscientific and physiological evidence (McCrae et al., 2018). Firstly, individuals with insomnia often experience excessive worry and rumination about sleep or other issues. Harvey (2002) suggested that negative beliefs and attitudes can disrupt the natural transition from arousal to sleep, affecting the automatic sleep process. The CBT module in this study addressed these adverse beliefs through cognitive therapy and by providing sleep health education, which contributed to treatment's success. Secondly, it has been found that insomniacs exhibit increased arousal and alertness in their Electroencephalogram readings, showing brain dissonance between sleep and wakefulness (Losert et al., 2020). This supports the hyper-arousal hypothesis of sleep (Zou et al., 2021). The CBT module taught clients relaxation exercises and meditation techniques to reduce physical and cognitive over-arousal, facilitating the natural onset of sleep. This was another factor contributing to the treatment's success. Lastly, sleep restriction is a key approach in CBT for insomnia treatment (Blom et al., 2021). This method increases sleep

pressure by limiting opportunities for sleep outside a defined sleep window. The CBT module in this study enhanced participants' sleep efficiency and driving force through sleep diaries and restrictions on time spent in bed, serving as a third contributing factor. In conclusion, these factors interacted synergistically to improve insomnia among postpartum depressed women in CBT.

Hypothesis 2

Hypothesis 2 stated that CBT is the applicable treatment model in treating the physical aspect (fatigue) among postpartum depressed women in China. The hypothesis was accepted.

Fatigue is a multidimensional concept that encompasses subjective feelings and somatic symptoms. Childbirth marks the beginning of significant changes within a family and often presents a major role challenge for both women and men. Women face a demanding daily workload and child-rearing responsibilities, which consume considerable time and resources, making the experience of giving birth a potential source of stress. Consequently, postpartum women may expend significant physical and mental energy in coping with various challenges or maintaining heightened alertness. Over time, this can lead to a state of disorder in the cells and nervous system, contributing to fatigue. Although there is a lack of research samples specifically focused on the postpartum depressed population, relevant studies confirm that CBT is effective in alleviating fatigue (Wakanno & Irawati, 2024; Poort et al., 2021). This supports the results of our study.

Poort et al. (2021) attribute the effects of CBT on fatigue to cognitive changes. This perspective aligns with the views of Folkman, Lazarus (1986), and Thoits (1995), who argued that stress is closely linked to cognitive appraisal, social support, and coping styles.

These variables are interrelated and form a balanced system; when this balance is disrupted, individuals may experience increased stress and illness. Thus, the good applicability of CBT in treating fatigue may arise from its ability to modulate cognition, enhance social support, and improve coping strategies among postpartum depressed women through various treatment techniques. For the CBT module of this study, the counselor utilizes Rational-Emotive Behavior Therapy (ABC Model) during the cognitive therapy stage to assist participants in changing their maladaptive cognitive appraisals. In the behavioral therapy stage, techniques such as relaxation, meditation, and the development of action plans help participants engage in reasonable and effective behaviors, allowing them to complete tasks within their capabilities and reducing fatigue caused by ineffective coping strategies. Additionally, group counseling serves as a form of self-help and mutual support. Participants can gain emotional support and reassurance through interactions with their peers. This indicates that CBT may alleviate participants' stress by addressing cognition, coping styles and social support, which, in turn, helps reduce both physiological and psychological fatigue.

5.3.2 The Effects of CBT in Treating Psychological Aspects

The second research question concerned whether CBT is applicable in treating the psychological aspect (hope, rumination thinking) of postpartum depression among women in China. This involved examining Hypothesis three and Hypothesis four.

Hypothesis 3

Hypothesis 3 stated that CBT is the applicable treatment model in treating the psychological aspect (hope) of postpartum depression among women in China. This hypothesis was rejected.

Hope is recognized as an important factor in effective psychotherapy; however, it may not be essential in the context of CBT (Dastani et al., 2022; Venning et al., 2009). While there is some controversy surrounding this issue, it provides valuable insight and support for the study, as it questions the strong link often assumed between CBT and hope.

The study suggests several reasons why the CBT module fails to enhance hope for women with postpartum depression: a) Insufficient agency: According to hope theory, individuals need to possess sufficient mental strength to follow a reasonable path towards achieving their goals (Snyder et al., 2000), which ultimately fosters hope. However, without adequate encouragement and stimulation during CBT treatment sessions, participants may lack the intrinsic motivation to consistently progress toward their goals over time. As a result, the three essential components of hope (goal, path, and agency) may not effectively cycle together, hindering the development of hope. b) Role of the counselor: In CBT, the counselor's role primarily involves listening, modeling, and providing support. Counselors aim to guide the group in mastering the general techniques of CBT, analyzing their own problems, and formulating plans for resolution. If certain counselor functions—such as empowerment, guidance, and stimulation—are not adequately performed, participants may struggle to cultivate a sufficient sense of hope. This may be influenced by preferences for different therapeutic approaches and the counselor's specific role. c) Focus of the CBT module: The CBT module addresses multiple aspects of depression without an exclusive emphasis on hope. The essence of CBT requires counselors to facilitate participants' beliefs, thoughts, and various behavioral outcomes. In a treatment model focused on problem-solving, hope as a state or personality trait might be overshadowed by other goals. Therefore, CBT may not be applicable in treating hope among postpartum depressed women in China.

Hypothesis 4

Hypothesis 4 stated that CBT is an applicable treatment model in treating the psychological aspect (ruminative thinking) among postpartum women with depression in China. The hypothesis was accepted. Furthermore, the study found that CBT is more effective than PPT in reducing ruminative thinking.

Recent studies have confirmed that CBT effectively reduces RT. For example, Mirzaian et al. (2023) divided high school students into experimental and control groups, conducting twelve 90-minute group sessions of CBT for the experimental group. The results indicated that CBT led to improvements in their RT. For postpartum depressed women, CBT was also effective in reducing persistent RT (Kalmbach et al., 2021), further supporting the role of CBT in this context. The efficacy of CBT in this regard may stem from its ability to enhance the specificity of thinking (Watkins, 2009). Individuals who frequently engage in rumination often exhibit generalized or overly broad thinking patterns, frequently drawing general conclusions or applying sweeping rules to various situations. Counselors encourage participants to analyze specific problems in detail, utilizing situational analysis to help reduce their focus on themselves and negative information. This approach aids in clarifying generalizations and diminishing RT.

Specifically, during the cognitive therapy phase of CBT in the study, participants are asked to examine distressing and troubling postpartum events, identify maladaptive thinking patterns and beliefs, and discuss these issues with the guidance of their peers and the counselor. Ultimately, this process helps participants untangle their perceptions, develop more flexible cognitive patterns, and increase the specificity of their thinking, moving away from narrow-minded perspectives. Additionally, counselors encourage

participants to brainstorm and communicate with one another throughout the CBT sessions, exposing them to different knowledge and ideas. This interaction can broaden their cognitive flexibility and breadth, fostering new thoughts and insights when facing difficulties.

Compared to PPT, the stronger effect size of CBT may be attributed to the fact that the problem-solving therapy directly and explicitly targets RT. Within CBT, cognitive therapy primarily addresses irrational perceptions and thought patterns, while the PPT module focuses on resource and emotional dimensions to influence RT. Since the process of PPT does not have a direct effect on the RT, it may be influenced or inhibited by other factors, resulting in a smaller effect size. This is merely one possible explanation, and there is currently no evidence to confirm it. More research is needed to evaluate the mechanisms and reasons behind the differences between the two approaches.

5.3.3 The Effects of CBT in Treating Social Aspects

The third research question concerned whether CBT is applicable in treating the social aspect (perceived social support) among postpartum women with depression in China. This involved examining Hypothesis five.

Hypothesis 5

Hypothesis 5 stated that CBT is the applicable treatment model in treating social aspect (perceived social support) among postpartum women with depression in China. The hypothesis was accepted. Several studies have confirmed that CBT contributes to improving social functioning among mildly depressed individuals and PTSD patients, leading to increased levels of perceived social support (PSS) after treatment (Fredette et al., 2016; Zhang et al., 2016). These findings illustrate the positive effect of CBT on PSS,

corroborating the results of this study. This positive impact may be attributed to the activity design and therapeutic techniques used in CBT, which provide participants with both informational and emotional support. Sharing experiences and interacting with fellow group members, along with new skills taught by the counselor, help participants achieve emotional relief. Additionally, research has shown that effective cognitive reappraisal and lower levels of depression are associated with better perceived social support (Sachs-Ericsson et al., 2019). This suggests that strong cognitive and emotional regulation skills may predict higher perceived social support and lower depression, which means that CBT intervention is applicable and effective. Because these techniques are all included in this CBT module. In summary, this study combines evidence to confirm that CBT has a positive effect on PSS in women with postpartum depression.

5.3.4 The Effects of PPT in Treating Physical Aspects

The fourth research question concerned whether PPT is applicable in treating the physical aspect (insomnia, fatigue) of postpartum depression. This involved examining Hypothesis six and Hypothesis seven.

Hypothesis 6

Hypothesis 6 stated that PPT is an applicable treatment model in treating the physical aspect (insomnia) among postpartum women with depression in China. This hypothesis was rejected. PPT is a resource-oriented model that focuses on abilities and values (Peseschkian & Remmers, 2020). Currently, there is insufficient evidence to suggest that PPT effectively improves insomnia in depressed patients. This aligns with the results of the study, because the focus of PPT does not adequately address several barriers, such as somatic and cognitive hyperarousal, stress, and sleep response (Dressle & Riemann, 2023;

Van, 2020). These barriers are important physiological and psychological factors that can trigger insomnia. Consequently, without providing targeted strategies to address these issues, PPT is unlikely to alleviate insomnia. However, it is important to acknowledge that PPT does have an ameliorative effect on depression (Lim & Tierney, 2022). Nevertheless, the current study and existing evidence have yet to support the conclusion that PPT improves insomnia in women with postpartum depression.

Hypothesis 7

Hypothesis 7 stated that PPT is an applicable treatment model in treating the physical aspect (fatigue) among postpartum women with depression in China. This hypothesis was accepted. Similar to CBT, the concepts presented by Poort et al. (2021), Folkman et al. (1986), and Thoits (1995) help to explain the mechanisms of PPT in relation to fatigue, suggesting that cognition, social support, and coping styles are crucial factors to influence fatigue.

Firstly, counselors leverage women's abilities in PPT module, allowing them to thoroughly explore their personal resources and strengths to address problems. This process helps participants shift away from narrow, one-dimensional coping styles they may have relied on previously. Effective coping strategies enable participants to overcome difficulties and create more space and time for themselves to alleviate fatigue. Secondly, the treatment may enhance self-awareness among some women, encouraging them to reflect on negative evaluations shaped by cultural constraints in the past. This reflection can reduce the impact of these perceptions on individual decision-making. By alleviating mental fatigue at the cognitive level, women who recognize their rights are less likely to blame and oppress themselves. They begin to accept themselves and confront life’s

challenges more openly. Lastly, PPT, rooted in positive psychology, provides participants with information and emotional support through engaging and inspiring activities, further reducing both physical and mental fatigue. A supportive and friendly atmosphere contributes to the relaxation of participants.

5.3.5 The Effects of PPT in Treating Psychological Aspects

The fifth research question concerned whether PPT is applicable in treating the psychological aspect (hope, rumination thinking) of postpartum depression. This involved examining Hypothesis eight and Hypothesis nine.

Hypothesis 8

Hypothesis 8 stated that PPT is an applicable treatment model in treating the psychological aspect (hope) among postpartum women with depression in China. The hypothesis was accepted. The efficacy of PPT in increasing hope has been demonstrated in several experimental studies. For instance, Heydari et al. (2023) conducted a single-blind clinical trial where the experimental group participated in six sessions of PPT, while the control group received no treatment. The results indicated that PPT significantly enhanced the mental health and sense of hope among cancer patients. Similarly, another study involving infertile women showed that PPT improved their sense of hope (Yanık & Kavak, 2024). These findings supported the hypothesis eight by strong evidence.

Why is PPT applicable in fostering hope among participants? Joseph (2015) proposed that strategies to enhance the sense of hope include finding, bonding, enhancing, and reminding. Specifically, these strategies can involve: a) Seeking resources to facilitate change based on participants' personal stories. b) Listening to others' stories to gain insights and reflections. c) Establishing positive personal connections between group

members and therapists. d) Reminding participants to engage in positive cognition on a daily basis. The PPT treatment strategy used in our study aligns closely with these ideas. In the three sessions of PPT, counselors encourage participants to tap into their strengths, record positive experiences every day from their lives, share helpful insights, listen to inspirational stories, and develop a positive professional relationship with the counselor. This approach likely contributes to treatment success.

Another explanation for fostering hope involves the three elements of hope: goals, pathways, and agency. In simpler terms, these three factors represent targets, available options, and motivation, respectively. Although PPT may not explicitly outline goals and pathways as clearly as the problem-oriented CBT, it still guides participants in identifying their goals and directions while encouraging them to utilize their strengths and positive resources to resolve challenges. Furthermore, PPT fosters a humanistic treatment atmosphere that is relaxed, optimistic, and inspiring, fully motivating participants. Thus, the interaction of goals, pathways, and agency promotes hope, forming a positive cycle.

In summary, a variety of approaches in PPT, such as stress-reducing activities, clear goals and directions for implementation, and documenting positive experiences and useful insights, contribute to fostering hope.

Hypothesis 9

Hypothesis 9 stated that PPT is an applicable treatment model in treating the psychological aspect (rumination thinking) among postpartum women with depression in China. The hypothesis was accepted.

There is currently no direct empirical research supporting the findings of this study regarding the effectiveness of PPT in improving RT. However, several studies provide reasonable explanations from different perspectives. For example, Diener et al. (2020) found that positive emotions influence individuals' cognitions and beliefs in the workplace. Additionally, Li, Gow, and Zhou (2020) demonstrated that positive emotions broaden attentional scope, enhance decision-making quality, and positively affect thinking and cognition. These findings suggest that positive emotions can benefit cognitive processes, supporting this study to some extent. Because positive emotions are an important part of PPT. PPT is effective in increasing participants' positive emotions, resources, and cognitions, which may help counteract negative thoughts and ruminative thinking, enabling individuals to break free from these patterns. Positive emotions encourage individuals to focus on current positive experiences rather than lingering on past negative events.

There are several reasons why PPT is an applicable model for addressing ruminative thinking:

Providing positive stimuli and facilitating cognitive resource allocation: PPT promotes a rational allocation of cognitive resources by providing positive stimuli and encouraging positive behaviors. Levens & Gotlib (2009) found that depressed patients demonstrated lower responses to various types of positive stimuli and behaviors in a working memory task compared to non-depressed patients, while differences in responses to neutral and negative stimuli were not significant. This indicates that depression impairs the ability to allocate cognitive resources effectively toward positive information. Based on this view, PPT is a form of therapy that focuses on resources and strengths with techniques that provide positive stimuli and behaviours. Constant stimulation and reinforcement may

be able to improve reactivity and degree of responsiveness, which in turn inhibits participants' ruminative thinking and facilitates the proper allocation and flow of cognitive resources.

Promotion of cognitive scope and flexibility: According to the broaden-and-build theory of positive emotions (Johnson et al., 2021), positive emotions—such as happiness, love, and contentment—help to widen an individual's cognitive pool and promote cognitive openness. The theory suggests that positive emotions are closely linked to numerous cognitive functions and cognitive development. Positive emotions help individuals to build lasting physical, intellectual, social and psychological resources. Many of the techniques and activities in the PPT treatment enable participants to feel sufficiently happy, understood and supported. Therefore, the positive factors brought about by the PPT can promote cognitive functions, thereby fostering innovative and creative perspectives to alleviate ruminative thinking.

Educational function: Education plays a crucial role in the changes. Assimilation and accommodation are key stages in the learning process, wherein old and new concepts compete, integrate, and ultimately reach equilibrium. Group counseling serves both educational and therapeutic purposes. The theories, case studies, and member sharing in the PPT framework facilitate shifts in participants' ingrained concepts. For example, the PPT module employs Social Role Theory (Gender Role) to influence the self-awareness of women with postpartum depression. This can particularly encourage rural women to reflect on traditional gender concepts and behaviors, leading some to embrace modern family labor divisions and occupational roles, ultimately reducing RT.

5.3.6 The Effects of PPT in Treating Social Aspect

The sixth research question concerned whether PPT is applicable in treating the social aspect (perceived social support) of postpartum depression. This involved examining Hypothesis ten.

Hypothesis 10

Hypothesis 10 stated that PPT is an applicable treatment model in treating the social aspect (perceived social support) among postpartum women with depression in China. The hypothesis was accepted. Furthermore, the study also found that PPT is more effective than CBT in PSS.

Although there is no direct empirical evidence supporting the efficacy of PPT on PSS, various studies have shown that different forms of psychological interventions are effective for PSS, differing primarily in treatment intensity (Hogan et al., 2002; Laurila et al., 2024). This indicates that PPT is likely to be as applicable in improving PSS as other psychological interventions. Moreover, research has demonstrated a significant positive correlation between social support and well-being, with resilience playing a mediating role (Mei et al., 2021). PPT has been shown to positively influence well-being, resilience, and relationships (Tulip et al., 2020). These interrelated concepts suggest a strong positive association between PPT and various positive resources—emotional, cognitive, and behavioral—thereby positively impacting social support and PSS. Furthermore, positive psychology plays a buffering, supportive, and constructive role. Participants who received positive psychology interventions showed significant improvements in courage, self-compassion, gratitude, hope, and interpersonal relationships (Waters et al.,2021). As a

result, participants often feel more empowered and supported socially. These evidences confirm the effect of PPT on PSS in many perspectives.

The study found that PPT provided a greater effect size of PSS than CBT, which may be explained by the fact that PPT is more conducive to stimulating a sense of intrinsic support. Standardised PPT involves a range of techniques and activities such as recalling positive events, relaxation, identifying character strengths, and fostering optimistic thinking. It focuses on participants' awareness, allocation and mobilisation of their own resources and allows them to effectively do something active or passive. The most noticeable change in participants after treatment is a sense of power. The treatment process of PPT is similar to psychological empowerment. It can be defined as a cognitive, subjective and motivational process. In the field of employment, employers motivate employees and gain a sense of purpose by identifying conditions of powerlessness and providing self-efficacy information to eliminate them (Llorente-Alonso et al.,2023). When feelings of powerlessness are reduced, the employee's sense of support improves. This psychological empowerment in the workplace is similar to the nature of the PPT. Although CBT also pays attention to the interpersonal interaction in group counselling, giving members the opportunity for social learning and communication, this part is mostly with randomness or it only serves to play a secondary role. Because the therapeutic emphasis of CBT is not on enhancing people's ability to perceive the support of the external environment and not on focusing on psychological empowerment. Instead, attention is given to whether cognition is rational, whether behavior needs adjustment, and which techniques can directly address the problem. This affects the applicability of CBT in treating PSS. In other words, CBT is a clear problem-focused, present-focused treatment model and one that is readily summarised in manuals (Cattie et al.,2020) and lacks the

language of focusing on strengths and positive emotions (Dias et al.,2017), which are detrimental to PSS. Therefore, PPT promotes postnatal women's self-awareness, perception and utilisation of resources, which may explain the superiority of treating PSS.

5.4 Implications

The study found that CBT is an applicable model in treating insomnia, fatigue, ruminative thinking and perceived social support among postpartum depressed women, but is ineffective for hope. Its treatment strength for ruminative thinking was greater than PPT; PPT was an applicable model in treating fatigue, hope, ruminative thinking, and perceived social support among postpartum depressed women, but was ineffective for insomnia. Its treatment strength for perceived social support exceeded that of CBT. These results suggest that both CBT and PPT possess distinct advantages in addressing physical, psychological and social aspects, with varying levels of efficacy. Therefore, this study presents several theoretical implications:

Promote the integration of CBT and PPT appropriately: Given the diversity and complexity of participants' issues, integrating elements of positive psychology with CBT is a novel approach undertaken by counselors. This may help address the challenges faced by women with PPD. Several studies have attempted to integrate CBT and positive psychology. For example, Geschwind et al. (2020) suggested that positive CBT can combat depressive symptoms and build a sense of well-being. It has also been evaluated better than traditional CBT. This suggests that CBT and PPT could try to integrate. However, it is necessary to remain cautious at this stage, because more research and practice are needed to validate its theoretical rationale and feasibility.

Expand the applicability of different theories: The treatment approaches of CBT and PPT originate from Western contexts, posing challenges when applied in diverse countries and populations. This study analyzed their applicability among Chinese women with PPD, taking into account the physical, psychological and social characteristics of the local sample. This analysis helps advance the development of these theories and supports their application within different cultural settings.

Facilitate in building a model of PPD: By focusing on the physical, psychological and social factors affecting women with PPD, this study may contribute to a multidimensional understanding of PPD. It could also inspire further exploration of the associations and structures between these variables.

The implications at the practice level include:

Improvements in clinical interventions: This study highlights that different treatment models have varying effects and strengths on different variables, aiding counselors in selecting the most appropriate approach to improve PPD outcomes. Some scholars have suggested that precise psychotherapy may be a better option for certain populations. For example, Delgadillo and Gonzalez (2020) noted that "subgroups of patients with specific characteristics respond more favorably to specific psychotherapies, and targeted, well-prescribed psychotherapies may improve clinical outcomes." This perspective is supported by studies emphasizing precise, personalized treatments, suggesting that selecting the applicable treatment can lead to better outcomes (Bauer-Staeb et al., 2023; Moggia et al., 2023). This indicates that in highly constrained environments, providing precise and efficient treatment will be an important direction for future practice.

Providing a reference for addressing PPD: The study's findings can offer valuable references for counselors to conduct postpartum psychological services. Additionally, it can provide clinical evidence for the government and health policymakers to refine existing service programs and develop supportive policies for postpartum women.

5.5 Limitation of the Study

The study has some limitations, which serve as references and considerations for other scholars and practitioners:

Differences between experimental and control groups: Although the experimental and control groups were randomly assigned, met the same screening criteria, and kept pretest differences strictly controlled to minimize error, individual differences still persisted. As a result, the groups could not be entirely identical, which introduces the potential for errors. Researchers should remain cautious and meticulous when drawing conclusions.

Variable and model limitations: This study focused on CBT and PPT to examine critical physical, psychological and social aspects of postpartum depression, specifically targeting variables such as insomnia, fatigue, hope, ruminative thinking, and perceived social support. However, this focus inherently limited the study's scope to these two treatment models and the selected variables.

Limitations of the sample. The study sample was selected from several hospitals in Guizhou province. This affected the representability of the study. In addition, the experimental and control groups needed to take into account the research condition and the efficacy of group counselling to determine the sample size, so it was not possible to

increase the sample size. In conclusion, the limited sample affected the coverage of the research findings.

Uncertainty of long-term efficacy: The posttests for CBT and PPT were conducted one week after treatment, allowing the results to reflect changes in physical, psychological and social indicators only in the short term. However, the long-term efficacy (beyond one month) remains unknown. Therefore, when good research conditions are available, it is best to conduct multiple follow-up tests on easily traceable sample groups to assess efficacy.

Potential bias in self-reports: The survey instruments used in the study consisted of standardized scales that required participants to respond based on their own circumstances. Although the questionnaires have good reliability and validity, with cover instructions and answer requirements, participants may still have judgement errors. These errors can be minimized, but cannot be completely eliminated. Therefore, further research is needed to validate and support the findings of this study.

Limitations of the counselor: Counselors play a crucial role in treatment. Counselors' skills, competence, personality traits, and counselling styles all affect outcomes more or less. Therefore, conducting more empirical research and making cautious inferences are valid approaches to address this issue.

Impact of missing values: This study included 22 missing values and outliers, representing only 8% of the total sample (a relatively small proportion). The data primarily comprised quantitative continuous variables with distributions approximating normality. Therefore, in such cases, mean imputation introduces minimal statistical error and is particularly suitable for clinical studies with limited sample sizes, where maximizing data

use is essential. Nevertheless, to minimize potential statistical distortion, future studies should consider assessing outliers separately to enhance the robustness of results.

5.6 Recommendations for Future Research

Expand the scope and sample size: Future studies should aim to include women of diverse races, ethnicities, and religions. For instance, researchers could conduct stratified sampling across different regions of a country, followed by random assignment to experimental and control groups. This approach would enrich the variety and scope of the sample. If conditions permit, increasing the sample size would also enhance statistical power.

Increase the number of treatment sessions: Considering the participants' physical condition and time constraints, the number of treatment sessions in this study was relatively limited, which restricted both the reliability of the experimental results and the depth of the intervention to some extent. Future research could appropriately increase the number of sessions, particularly for non-pregnant or non-breastfeeding women, allowing for the inclusion of more variables in the design and the exploration of more complex treatment protocols. This would provide greater scope and potential for an in-depth examination of intervention effects.

Diversify treatment models and study variables: In addition to CBT and PPT, more treatment models should be explored. For instance, with the ongoing advancement of AI and internet technology in the humanities and social sciences, new treatment models and approaches utilizing different media need to be validated. Furthermore, researchers can evaluate additional physical, psychological and social indicators based on their research interests and the clinical performance of participants. This expanded focus will facilitate a deeper understanding of the mechanisms and characteristics of various treatment models.

Using diverse research instruments: Standardized scales are typically used to collect data on various types of variables. However, to minimize fill-in errors in questionnaires, it may be beneficial for researchers to combine textual data, physiological measurements, and images. Future research could incorporate in-depth interviews, audio recordings, electroencephalograph data, and functional magnetic resonance imaging to explore the applicability of different treatment models on various aspects of postpartum depressed women. These research tools can be utilized individually or in combination.

Evaluating long-term efficacy: The study conducted only one posttest, which helped avoid familiarization effects associated with multiple posttests; however, this limited the opportunity to assess long-term efficacy. Future studies should consider employing equivalent scales to measure outcome variables multiple times, which could yield more robust evidence. Additionally, reflecting some variables through physiological indicators would enhance accuracy, as these indicators do not exhibit familiarization or practice effects with repeated measurements. For instance, participants with phobias could be assessed multiple times to observe changes in blood pressure and heart rate during phobic situations. Unfortunately, many high-level psychological and social variables are currently challenging to describe accurately and define operationally by physiological indicators. Therefore, it is essential to develop more scales or questionnaires to measure the same variables in future research.

Conducting mixed-methods research: This study was purely quantitative and did not incorporate qualitative data, thereby missing the opportunity to examine participants' personal experiences and perceptions during the intervention. As a result, vivid and detailed textual or visual records of their multidimensional changes were not captured. Future research could integrate qualitative and quantitative approaches to gain a more

comprehensive and in-depth understanding of the applicability of CBT and PPT in treating postpartum depression, ultimately producing findings that are both more compelling and credible.

5.7 Conclusion

Postpartum depression is a serious public health issue, with a notably high prevalence in China. Women with postpartum depression often encounter challenges across physical, psychological and social domains. The primary aim of this study was to evaluate the applicability of CBT and PPT in treating these aspects of postpartum depressed women in China though a quasi-experimental design. This study focuses on important factors such as insomnia, fatigue, hope, ruminative thinking, and perceived social support, employing ten hypotheses to evaluate whether CBT and PPT are applicable in treating these specific variables.

The results indicated that: a) CBT significantly improved insomnia, fatigue, ruminative thinking, and perceived social support, but was ineffective in enhancing hope; PPT was effective in improving fatigue, ruminative thinking, hope, and perceived social support, while not impacting insomnia. b) CBT demonstrated a stronger effect on eliminating ruminative thinking compared to PPT, whereas PPT had a greater impact on enhancing perceived social support than CBT. These findings suggest that, within the scope of this study, CBT and PPT may have differing effects on the physical, psychological and social aspects of postpartum depression, each exhibiting its characteristics and strengths.

The study offers empirical evidence supporting the applicability of CBT and PPT in addressing various important indicators of postpartum depression. It not only enriches the

existing literature and resources for future studies but also enables counselors and healthcare workers to improve the mental health of postpartum women and promote family and social well-being.

Despite implementing various error control measures, the study faced limitations, including a limited sample size, a narrow research scope, and potential subjective measurement bias. In the future, researchers should consider evaluating different treatment models and variables using a larger sample size and broader research scope, along with multiple assessment instruments to evaluate long-term efficacy. This approach would assist counselors in selecting the precise and applicable treatment model based on the specific needs and issues faced by postpartum women.

5.8 Chapter Summary

This chapter serves as the final part of the thesis, where the researcher addresses the research questions, analyzes the reasons behind the results, and discusses the study's limitations and future outlook. All of these contribute to answering the question of whether CBT and PPT are applicable models in treating the physical, psychological and social aspects among postpartum depressed women in China.

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APPENDICES

Appendix A: Research Instruments

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Instrument 1: Beck Depression Inventory Chinese Version II (BDI-II-C)

Beck Depression Inventory Chinese Version II (BDI-II-C)

贝克抑郁量表第二版（BDI-II-C）

Guideline:

Thank you for participating in this questionnaire. The main purpose of this questionnaire is to find out if you are at risk for postpartum depression so that we can provide you with better postpartum health care.

There are 21 sets of statements in this questionnaire. Please read each set of sentences carefully and choose one item from each set that best suits your situation based on how you have been feeling for the last two weeks (including today). If more than two of the items in a question apply to you, please choose the one that is the most acute. Please note that only one item can be selected from each question.

All information on this questionnaire will be kept confidential and used for scientific research only. This research aims to evaluate the applicability of Cognitive Behavioral Therapy and Positive Psychotherapy in treating the physical, psychological and social aspects among postpartum women with depression in China. Filling out this questionnaire will not have any bad effects on you. Please feel free to fill it out. Thank you again for your cooperation

指导语：

感谢你参与本次调查。本次调查主要是了解您是否存在产后抑郁的风险，以便为你提供更好的产后保健服务。

本问卷有21 组陈述句，请仔细阅读每个句子，然后根据您近两周（包括今天）的感觉，从每一组中选择一条最适合您情况的项目。如果一组句子中有两条以上适合您，请选择最严重的一个。请注意，每组句子只能选择一个条目。

您的所有信息将保密，只作为研究使用。这项研究旨在探讨认知行为疗法与积极心理疗法在治疗我国产后抑郁症妇女的生理、心理和社会等方面的适合的模式。填写此问卷不会对你有任何不好的影响。请放心填写。再次感谢您的配合。

Informed Consent Form

知情同意书

Research Project:

"Evaluating the applicability of Cognitive Behavioral Therapy and Positive Psychotherapy in Treating the Physical, Psychological and Social Aspects among Postpartum Women with Depression in China"

Researcher's Name: ZHENG SHIYU

Identification: PHD student

Workplace: University Malaysia Sarawak

Faculty: Cognitive Sciences and Human Development

Tel: 01116052298/18585032073

1. I understand that participation in this study is voluntary, the data provided will be treated with confidentiality, and I can withdraw at any time.

2. I understand the purpose, content, and requirements of the questionnaire (please refer to the questionnaire guidelines for further details).

3. This survey may require less than 5 to 10 minutes to complete.

4. For any questions, please feel free to contact the researcher.

研究项目： "评估认知行为治疗与积极心理治疗在我国产后抑郁症妇女生理、心理和社会等方面适合的治疗模式"

研究员姓名：郑莳雨

身份：在读博士生

单位：马来西亚砂拉越大学

系部：认知科学与人类发展

联系电话：01116052298/18585032073

1.我理解参与本研究是自愿的，所提供的数据将被保密处理，我可以随时退出。

2.我理解问卷的调查目的，内容和要求（详见问卷指导语）。

3.这个调查可能需要 5 到 10 分钟才能完成。

4.有任何疑问可以与研究人员取得联系。

Signature/签名_____ **Date/日期**_____

Demographic information/人口信息

A)Nicknames/昵称：_____

B)Medical record numbers/病例号：_____

C)Telephone number/联系电话：_____

Instruction: Please tick (✓) ONE for questions

D)Education level/学历：

Primary and below/小学及以下 [ ]	Middle school/初中[ ]
High school/高中[ ]	Undergraduate/本科[ ]
Master and above/硕士及以上[ ]	

E)Whether taking psychotropic drugs, especially antidepressants, anxiolytics, and sleeping drugs/是否服用精神药物，尤其是抗抑郁，抗焦虑和安眠类药物

YES/是 [ ]	NO/不是[ ]

F)Whether there is a disability or a disease that seriously affects your life/是否有残疾或严重影响生活的疾病

YES/是 [ ]	NO/不是[ ]

G)Do you have a background in psychology or counselling (including previously received similar treatment)?/你有心理学或咨询专业的背景吗？

YES/是 [ ]	NO/不是[ ]

Example/例子

[**2**]Question number/题号

0= item 1/选项 1

1 = item 2/选项 2

2= item 3/选项 3

3 = item 4/选项 4

Formal test/正式测试

[ ]One/一

0=I do not feel sad./我不觉得悲伤

1 = I feel sad. /很多时候我都感到悲伤

2= I am sad all the time and can't snap out of it./所有时间我都感到悲伤

3 = I am so sad or unhappy that I can't stand it./我太悲伤或太难过，不堪忍受

[ ]Two/二

0 = I am not particularly discouraged about the future. /我没有对未来感到气馁

1 = I feel discouraged about the future./和过去相比，我对未来感到更加气馁

2 = I feel I have nothing to look forward to/我不指望事情变得更好

3 = I feel that the future is hopeless and that things cannot improve./我觉得未来毫无希望，且只会变得更糟

[ ]Three/三

0 = I do not feel like a failure./我不觉得自己是个失败者

1 = I feel I have failed more than the average person. /我犯下的错误我本可以避免

2 = As I look back on my life, all I can see is a lot of failures./回首往事，我觉得我经常失败

3 = I feel I am a complete failure as a person./我觉得自己是一个彻底的失败者

[ ]Four/四

0 = I get as much satisfaction out of things as I used to./我和过去一样能从喜欢的事情中得到乐趣

1 = I don't enjoy things the way I used to./我不能像过去一样从喜欢的事情中得到乐趣

2 = I don't get real satisfaction out of anything anymore./我从过去喜欢的事情中获得的快乐很少

3 = I am dissatisfied or bored with everything. /我完全不能从过去喜欢的事情中获得快乐

[ ]Five/五

0 = I don't feel particularly guilty./我没有特别的内疚感

1 = I feel guilty a good part of the time./我对自己做过或该做但没做的许多事感到内疚

2 = I feel quite guilty most of the time. /在大部分时间里我都感到内疚

3 = I feel guilty all of time/我任何时候都感到内疚

[ ]Six/六

0 = I don't feel I am being punished. /我没觉得自己在受惩罚

1 = I feel i may be punished/我觉得自己也许会受到惩罚

2 = I expect to be punished/我觉得自己会受到惩罚

3 = I feel i am being punished/我觉得正在受到惩罚

[ ]Seven/七

0 = I don't feel disappointed in myself./我对自己的感觉同过去一样

1 = I am disappointed in myself./我对自己丧失了信心

2 = I am disgusted with myself./我对自己感到失望

3 = I hate myself./我讨厌我自己

[ ]Eight/八

0 = I don't feel I am worse than anybody else./与过去相比，我没有更多的责备或批评自己

1 = I am critical of myself for my weaknesses or mistakes./我比过去责备自己更多

2 = I blame myself all the time for my faults./只要我有过失，我就责备自己

3 = I blame myself for everything bad that happens./只要发生不好的事情，我就责备自己

[ ]Nine/九

0 = I don't have any thoughts of killing myself. /我没有任何自杀的想法

1 = I have thoughts of killing myself, but I would not carry them out./我有自杀的想法，但我不会去做

2 = I would like to kill myself./我想自杀

3 = I would kill myself if I had the chance./如果有机会我就会自杀

[ ]Ten/十

0 = I don't cry any more than usual./和过去比较，我哭的次数并没有增加

1 = I cry more now than I used to./我比过去哭得多

2 = I cry all the time now./现在任何小事都会让我哭

3 = I used to be able to cry, but now I can't even cry even though I want to./我想哭，但哭不出来

[ ]Eleven /十一

0 = I am no more irritated by things than I ever am./我现在没有比过去更加烦躁

1 = I am slightly more irritated now than usual./我现在比过去更容易烦躁

2 = I am quite annoyed or irritated a good deal of the time./我非常烦躁或不安，很难保持安静

3 = I feel irritated all the time now./我非常烦躁不安，必须不停走动或做事情

[ ]Twelve/十二

0 = I have not lost interest in other people./我对其他人或活动没有失去兴趣

1 = I am less interested in other people than I used to be./和过去相比，我对其他人或事的兴趣减少了

2 = I have lost most of my interest in other people./我失去了对其他人或事的大部分兴趣

3 = I have lost all of my interest in other people./任何事情都很难引起我的兴趣

[ ]Thirteen/十三

0 = I make decisions about as well as I ever could./我现在能和过去一样作决定

1 = I put off making decisions more than I used to./我现在作决定比以前困难

2 = I have greater difficulty in making decisions than before./我做决定比以前困难了很多

3 = I can't make decisions at all anymore./我作任何决定都很困难

[ ]Fourteen/十四

0 = I don't feel that I look any worse than I used to./我不觉得自己很糟糕

1 = I am worried that I am looking old or unattractive./我认为自己很老还没有吸引力

2 =I feel that there are permanent changes in my appearance that make me look unattractive./我觉得自己有永久性变化，这让我看起来没有吸引力

3 = I believe that I look ugly./我觉得自己很丑

[ ]Fifteen/十五

0 = I can work about as well as before./我和过去一样有精力

1 = It takes an extra effort to get started at doing something./我不如从前有精力

2 = I have to push myself very hard to do anything./我没有精力做很多事情

3 = I can't do any work at all./我做任何事情都没有足够的精力

[ ]Sixteen/十六

0 = I can sleep as well as usual./我没觉得睡眠有什么变化

1 = I don't sleep as well as I used to./我的睡眠比过去略少，或略多

2 = I wake up 1-2 hours earlier than usual and find it hard to get back to sleep./我的睡眠比以前少了很多，或多了很多

3 = I wake up several hours earlier than I used to and cannot get back to sleep./我根本无法睡觉，或我一直想睡觉

[ ]Seventeen/十七

0 = I don't get tired more than usual./我并不比过去容易累

1 = I get tired more easily than I used to./与过去相比，我比较容易累

2 = I get tired from doing almost anything./与过去相比，我非常容易累

3 = I am too tired to do anything./我做什么都很累

[ ]Eighteen/十八

0 = My appetite is no worse than usual./我没觉得食欲有什么变化

1 = My appetite is not as good as it used to be./我的食欲比过去略差

2 = My appetite is much worse now./我的食欲比起过去差了很多

3 = I have no appetite at all anymore./我完全没有食欲

[ ]Nineteen/十九

0 = I haven't lost much weight, if any, lately./最近我没有减肥

1 = I have lost more than five pounds./我已经减了 5 磅

2 = I have lost more than ten pounds./我已经减了 10 磅

3 = I have lost more than fifteen pounds. /我已经减了 15 磅

[ ]Twenty/二十

0 = I am no more worried about my health than usual./我并不比平时更担心自己的健康了

1 = I am worried about physical problems such as aches or pains, or upset stomach, or constipation./我担心身体问题，如疼痛，或胃不适，或便秘

2 = I am very worried about physical problems and it's hard to think of much else./我非常担心身体问题，很难想出别的了

3 = I am so worried about my physical problems that I cannot think about anything else./我太担心我的身体问题了，所以我什么都想不起了

[ ]Twenty-one /二十一

0 = I have not noticed any recent change in my interest in sex/我没觉得最近对性的兴趣有什么变化

1 = I am less interested in sex than I used to be./我对性的兴趣比过去少了

2 = I am much less interested in sex now/现在我对性的兴趣少多了

3 = I have lost interest in sex completely/我对性的兴趣已经完全丧失

Score/得分: _____(0-13/14-19/20-28/29-63)

The End,Thank you/问卷结束，谢谢

Source:

Beck, A.T., Steer, R.A., & Brown, G.K. (1996). *Manual for the Beck Depression Inventory-II*. Psychological Corporation.

Instrument 2: Integrated Dimension Questionnaire



Integrated Dimensions Questionnaire (IDQ)

综合维度问卷 (IDQ)

Guideline:

Thank you for participating in this questionnaire. This questionnaire is designed to understand your changes in insomnia, fatigue, hope, rumination thinking, and navigating social support.

There are seven sections in this questionnaire: Section A: Demographic Information, Section B: Insomnia Severity Index (ISI), Section C: Fatigue Scale (FS-14), Section D: Herth Hope Index (HHI), Section E: Rumination Response Scale (RRS), Part F: Multidimensional Scale of Perceived Social Support (MSPSS). These are all made available in the Chinese version.

Please note that for every question, you can only choose one item that best matches your situation. All your information will be kept confidential and used for scientific research only. This research aims to evaluate the applicability of Cognitive Behavioral Therapy and Positive Psychotherapy in treating the physical, psychological and social aspects among postpartum women with depression in China. Filling out this questionnaire will not have any bad effects on you. Please feel free to fill them out. Thank you.

指导语：

感谢你参与本次调查。本次调查是为了解您在失眠，疲劳，希望，反刍思维和感知社会支持方面的变化。

本问卷共七个部分。A 部分：人口统计学信息，B 部分：失眠严重程度指标（ISI），C 部分：疲劳量表（FS-14），部分 D：Herth 希望指数（HHI），部分 E：反刍思维量表（RRS），部分 F：多维感知社会支持量表（MSPSS）

请注意，每个题目只能选择一个最符合你情况的条目。您的所有信息将保密，只作为科学研究使用。这项研究旨在调查认知行为治疗和积极心理治疗在我国产后抑郁症妇女生理、心理和社会等方面的合适的治疗模式。填写问卷不会对你有任何不好的影响。请放心填写。再次感谢您的配合。

Informed Consent Form

知情同意书

Research Project:

"Evaluating the applicability of Cognitive Behavioral Therapy and Positive Psychotherapy in Treating the Physical, Psychological and Social Aspects among Postpartum Women with Depression in China"

Researcher's Name: ZHENG SHIYU

Identification: PHD student

Workplace: University Malaysia Sarawak

Faculty: Cognitive Sciences and Human Development

Tel: +60 1116052298/+86 18585032073

1. I understand that participation in this study is voluntary, the data provided will be treated with confidentiality, and I can withdraw at any time.

2. I understand the purpose, content, and requirements of the questionnaire (please refer to the questionnaire guidelines for further details).

3. This survey may require less than 15 to 20 minutes to complete.

4. For any questions, please feel free to contact the researcher.

研究项目： "评估认知行为治疗与积极心理治疗在我国产后抑郁症妇女生理、心理和社会等方面适合的治疗模式"

研究员姓名：郑莳雨

身份：在读博士生

单位：马来西亚砂拉越大学

系部：认知科学与人类发展

联系电话：+60 11160522987/+86 18585032073

1.我理解参与本研究是自愿的，所提供的数据将被保密处理，我可以随时退出。

2.我理解问卷的调查目的，内容和要求（详见问卷指导语）。

3.这个调查可能需要 15 到 20 分钟才能完成。

4.有任何疑问可以与研究者取得联系。

Signature/签名_____ **Date /日期**_____

Section A　Demographic information/人口信息

A)Nicknames/昵称：_____

B)Medical record numbers/病例号：_____

C)Telephone number/联系电话：_____

D)Emergency contact number/紧急联系电话:_____

E)Age/年龄：_____

F)Identity (rural population/urban population)/户籍（农村/城市）：_____

Instruction: Please tick (✓) ONE　for this question

G)Education level/学历

Middle school/初中[　　]	High school/高中[　　]
Undergraduate/本科[　　]	Master and above/硕士及以上[　　]

H)Number of births/生育婴儿数量

Zero(miscarriage or infant death)/0 个（流产或者婴儿死亡）[　　]	One/1 个[　　]
Two/2 个[　　]	Three or above/3 个或以上[　　]

I)Mode of birth/生育方式：

Natural birth (without surgical operation) / 顺产[　　]	Caesarean section/剖腹产[　　]

J)Form of family residence/居住形式

Self, mate and child/自己，伴侣和孩子 [ ]
Self, mate, children and parents) /自己，伴侣，孩子及父母[ ]
Live with your children or with yourself alone/自己和孩子或仅自己居住[ ]

K)Economic condition/经济状况

Well off/富裕 [ ]
Moderate/适中[ ]
Difficult/困难[ ]

Section B　Insomnia Severity Index Chinese version (ISI-C)

失眠严重指数（ISI-C）

Instruction: Please tick (✓) ONE for every question.

Describe the severity of your insomnia in the last two week/描述您最近 2 周内失眠问题的严重程度

1.Difficulty falling asleep/入睡困难

None/无（0）	Mild/轻度（1）	Moderate/中度（2）
Severe/重度（3）	Very/极重度（4）	

2.Difficulty staying sleep/维持睡眠困难

None/无（0）	Mild/轻度（1）	Moderate/中度（2）
Severe/重度（3）	Very/极重度（4）	

3.Problem waking up too early/早醒

None/无（0）	Mild/轻度（1）	Moderate/中度（2）
Severe/重度（3）	Very/极重度（4）	

4. How satisfied/dissatisfied are you with your current sleep pattern?/对您当前睡眠模式的满意度？

Very satisfied/很满意（0）	Satisfied/满意（1）	Fair/一般（2）
Dissatisfied/不满意（3）	Very dissatisfied /很不满意（4）	

5.To what extent do you consider your sleep problem to interfere with your daily functioning(e.g. daytime fatigue,ability to function at work/daily chores,concentration, memory,mood,etc.)/您认为您的睡眠问题在多大程度上干扰了您的日间功能（如：日间疲劳、处理工作和日常事务的能力、注意力、记忆力、情绪等）？

Not at all /一点也不（0）	A little/有一点（1）	Somewhat/一般（2）
Much/很大程度（3）	Very much /极大程度（4）	

6.How **noticeable** to others do you think your sleeping problem is in terms of impairing the quality of your life?/您的失眠问题对您的生活质量有多大程度的影响或损害？

Not at all /一点也不（0）	A little/有一点（1）	Somewhat/一般（2）
Much/很大程度（3）	Very much /极大程度（4）	

7.How worried/distressed are you about your current sleep problem?/你多大程度担心你的睡眠问题？

Not at all /一点也不（0）	A little/有一点（1）	Somewhat/一般（2）
Much/很大程度（3）	Very much /极大程度（4）	

Score/总分:（0-7/8-14/15-21/22-28）

Source:

Morin, C. M., Belleville, G., Bélanger, L., & Ivers, H. (2011). The insomnia severity index: psychometric indicators to detect insomnia cases and evaluate treatment response. *Sleep, 34*(5), 601-608. https://doi.org/10.1093/sleep/34.5.601

Section C　Fatigue Scale Chinese version（FS-14-C）

疲劳量表（FS-14-C）

Please judge whether the content of the following questions corresponds to your actual situation by answering "yes" or "no" and ticking the appropriate box.

请您判断以下问题内容与您实际情况是否相符，回答“是”或“否”，并在相应的选项上打√。

Number 序号	**Question/问题**	**Yes/ 是**	**No/ 否**
1	Do you have problems with tiredness? /你有疲劳的问题吗？	1	0
2	Do you need to rest more? /你是否需要更多的休息？	1	0
3	Do you feel sleepy or drowsy? /你感觉到犯困或昏昏欲睡吗？	1	0
4	Do you have problems starting things? /你在做的事情是否感到费力？	1	0
5	Do you start things without difficulty but get weak as you go on?/你在做的事情并不感到费力，但继续进行时是否感到力不从心?	1	0
6	Are you lacking in energy? /你感觉体力不够吗？	1	0
7	Do you have less strength in your muscles? /你感觉你的肌肉力量比以前减小了吗？	1	0

Number 序号	Question/问题	Yes/ 是	No/ 否
8	Do you feel weak?/你感觉到虚弱吗？	1	0
9	Do you have difficulty concentrating? /你集中注意力有困难吗？	1	0
10	Do you have problems thinking clearly? /你在思考时头脑像往常一样清晰，敏捷吗？	0	1
11	Do you make slips of the tongue when speaking? /你在讲话时出现口头不利落吗？	1	0
12	Do you find it more difficult to find the correct word? /讲话时，你发现找到一个合适的字眼很困难吗？	1	0
13	How is your memory?/你现在的记忆力如何？	0	1
14	Have you lost interest in the things you used to do?/ 你还喜欢做过去习惯做的事情吗？	0	1
Score/总分：			

Source:

Chalder, T., Berelowitz, G., Pawlikowska, T., Watts, L., Wessely, S., Wright, D., & Wallace, E. P. (1993). Development of a fatigue scale. *Journal of Psychosomatic Research, 37*(2), 147-153.

Section D　Herth Hope Index Chinese version（HHI-C）

Herth 希望量表（HHI-C）

Guideline:

The following 12 statements are a questionnaire about your current attitudes and beliefs about life. Each item is divided into 4 levels. Please read each item carefully and tick the appropriate box.

指导语：

以下 12 条陈述是关于目前您对生活的态度及信念等方面的描述。每个条目分为 4 个等级，请您仔细阅读每个条目，并在相应的位置处打勾。

1.I have a positive outlook toward life/我对生活持积极的态度

Strongly disagree/非常反对(1)	Disagree/反对(2)
Agree/同意（3）	Strongly agree/非常同意（4）

2.I have short and/or long-range goals/我有短期和/或长期的目标

Strongly disagree/非常反对(1)	Disagree/反对(2)
Agree/同意（3）	Strongly agree/非常同意（4）

3.I feel alone/我感到孤独

Strongly disagree/非常反对(1)	Disagree/反对(2)
Agree/同意（3）	Strongly agree/非常同意（4）

4.I can see possibilities in the midst of difficulties/我能在困难中看到各种可能性

Strongly disagree/非常反对(1)	Disagree/反对(2)
Agree/同意（3）	Strongly agree/非常同意（4）

5.I have faith that gives me comfort/我充满信心

Strongly disagree/非常反对(1)	Disagree/反对(2)
Agree/同意（3）	Strongly agree/非常同意（4）

6.I feel scared about my future/我害怕自己的未来

Strongly disagree/非常反对(1)	Disagree/反对(2)
Agree/同意（3）	Strongly agree/非常同意（4）

7.I can recall happy/joyful times/我能回忆起快乐/快乐的时光

Strongly disagree/非常反对(1)	Disagree/反对(2)
Agree/同意（3）	Strongly agree/非常同意（4）

8.I have deep inner strength/我有深厚的内在力量

Strongly disagree/非常反对(1)	Disagree/反对(2)
Agree/同意（3）	Strongly agree/非常同意（4）

9.I am able to give and receive caring/love/我能够给予和接受关怀/爱

Strongly disagree/非常反对(1)	Disagree/反对(2)
Agree/同意（3）	Strongly agree/非常同意（4）

10.I have a sense of direction/我有一种方向感

Strongly disagree/非常反对(1)	Disagree/反对(2)
Agree/同意（3）	Strongly agree/非常同意（4）

11.I believe that each day has potential/相信每天都有潜力

Strongly disagree/非常反对(1)	Disagree/反对(2)
Agree/同意（3）	Strongly agree/非常同意（4）

12.I feel my life has value and worth/我觉得我的生命很有价值

Strongly disagree/非常反对(1)	Disagree/反对(2)
Agree/同意（3）	Strongly agree/非常同意（4）

Score/总分:

Source:

Kaye Herth PhD, R. N. (1991). Development and refinement of an instrument to measure hope. *Research and theory for nursing practice, 5*(1), 39.

Chan, K. S., Li, W., Chan, S. W., & Lopez, V. (2011). Herth hope index: psychometric testing of the chinese version. *Journal of Advanced Nursing, 68*(9), 2079-2085. https://doi.org/10.1111/j.1365-2648.2011.05887.x

Section E　Rumination Response Scale Chinese version(RRS-C)

反刍思维量表（RRS-C）

Guideline:

People think and do many different things when they feel depressed. Please read each of the items below and indicate whether you almost never, sometimes, often, or almost always think or do each one when you feel down, sad, or depressed. Please indicate what you generally do, not what you think you should do.

指导语：

人们在郁闷的时候,通常会想或会做的一些事。请阅读下面的每一个，并指出当你感到沮丧、悲伤或沮丧时，你是否几乎从不、有时、经常，或几乎总是思考或做下面的事。请说明你通常会做什么，而不是你认为应该做的。根据符合程度选择答案，在对应位置打勾。

1.Think about how alone you feel/想想你的感觉有多孤独

Almost never/几乎从来不(1)	Sometimes/有时(2)
Often/经常（3）	Almost always/几乎一直（4）

2. Think “I won’t be able to do my job if I don’t snap out of this”/想想“如果我不放弃，我就做不到我的工作”

Almost never/几乎从来不(1)	Sometimes/有时(2)
Often/经常（3）	Almost always/几乎一直（4）

3. Think about your feelings of fatigue and achiness/想想你的疲劳感和疼痛感

Almost never/几乎从来不(1)	Sometimes/有时(2)
Often/经常（3）	Almost always/几乎一直（4）

4. Think about how hard it is to concentrate/想想集中注意力有多困难

Almost never/几乎从来不(1)	Sometimes/有时(2)
Often/经常（3）	Almost always/几乎一直（4）

5. Think “What am I doing to deserve this?”/想想“我做了什么才应该得到这个？”

Almost never/几乎从来不(1)	Sometimes/有时(2)
Often/经常（3）	Almost always/几乎一直（4）

6. Think about how passive and unmotivated you feel./想想你的被动和没有动力。

Almost never/几乎从来不(1)	Sometimes/有时(2)
Often/经常（3）	Almost always/几乎一直（4）

7. Analyze recent events to try to understand why you are depressed/分析最近发生的事件，试图理解你为什么会抑郁

Almost never/几乎从来不(1)	Sometimes/有时(2)
Often/经常（3）	Almost always/几乎一直（4）

8. Think about how you don’t seem to feel anything anymore/想想看，你似乎现在什么都感觉不到了

Almost never/几乎从来不(1)	Sometimes/有时(2)
Often/经常（3）	Almost always/几乎一直（4）

9. Think “Why can’t I get going?”/想想“为什么我不能走呢？”

Almost never/几乎从来不(1)	Sometimes/有时(2)
Often/经常（3）	Almost always/几乎一直（4）

10. Think “Why do I always react this way?”/想想“为什么我总是这样反应？”

Almost never/几乎从来不(1)	Sometimes/有时(2)
Often/经常（3）	Almost always/几乎一直（4）

11. Go away by yourself and think about why you feel this way/一个人走开，想想你为什么会这么想

Almost never/几乎从来不(1)	Sometimes/有时(2)
Often/经常（3）	Almost always/几乎一直（4）

12. Write down what you are thinking about and analyze it/写下你正在思考的想法并分析它

Almost never/几乎从来不(1)	Sometimes/有时(2)
Often/经常（3）	Almost always/几乎一直（4）

13. Think about a recent situation, wishing it had gone better/想想最近的情况，希望情况有所好转

Almost never/几乎从来不(1)	Sometimes/有时(2)
Often/经常（3）	Almost always/几乎一直（4）

14. Think “I won’t be able to concentrate if I keep feeling this way.”/想想：“如果我一直有这种感觉，我就无法集中注意力。

Almost never/几乎从来不(1)	Sometimes/有时(2)
Often/经常（3）	Almost always/几乎一直（4）

15. Think “Why do I have problems other people don’t have?”/想想“为什么我有别人没有的问题？”

Almost never/几乎从来不(1)	Sometimes/有时(2)
Often/经常（3）	Almost always/几乎一直（4）

16. Think “Why can’t I handle things better?”/想想看：“为什么我不能更好地处理一些事情呢？”

Almost never/几乎从来不(1)	Sometimes/有时(2)
Often/经常（3）	Almost always/几乎一直（4）

17. Think about how sad you feel./想想你有多难过。

Almost never/几乎从来不(1)	Sometimes/有时(2)
Often/经常（3）	Almost always/几乎一直（4）

18. Think about all your shortcomings, failings, faults, mistakes/想想你所有的缺点，失败，错误，错误

Almost never/几乎从来不(1)	Sometimes/有时(2)
Often/经常（3）	Almost always/几乎一直（4）

19. Think about how you don’t feel up to doing anything/想想你怎么会觉得自己不愿意做任何事

Almost never/几乎从来不(1)	Sometimes/有时(2)
Often/经常（3）	Almost always/几乎一直（4）

20. Analyze your personality to try to understand why you are depressed/分析你的性格，试着理解你为什么会抑郁

Almost never/几乎从来不(1)	Sometimes/有时(2)
Often/经常（3）	Almost always/几乎一直（4）

21.Go someplace alone to think about your feelings/独自去一个地方思考你的感受

Almost never/几乎从来不(1)	Sometimes/有时(2)
Often/经常（3）	Almost always/几乎一直（4）

22. Think about how angry you are with yourself/想想你对自己有多生气

Almost never/几乎从来不(1)	Sometimes/有时(2)
Often/经常（3）	Almost always/几乎一直（4）

Score/总分:

Source:

Treynor, W., Gonzalez, R., & Nolen-Hoeksema, S. (2003). Rumination reconsidered: A psychometric analysis. *Cognitive therapy and research*, *27*, 247-259.

Section F　Multidimensional Scale of Perceived Social Support

Chinese version (MSPSS-C)

感知社会支持量表 (MSPSS-C)

Guideline:

We are interested in how you feel about the following statements. Read each statement carefully. Indicate how you feel about each statement.

For example, item (1) means that you very strongly disagree, which means that your actual situation does not match this sentence; item (7) means that you very strongly agree, which means that your actual situation matches this sentence.

Circle the "1" if you **Very Strongly Disagree**

Circle the "2" if you **Strongly Disagree**

Circle the "3" if you **Mildly Disagree**

Circle the "4" if you are **Neutral**

Circle the "5" if you **Mildly Agree**

Circle the "6" if you **Strongly Agree**

Circle the "7" if you **Very Strongly Agree**

指导语：

我们对您感受很感兴趣。仔细阅读每一条陈述。选择您对每个句子的看法。

例如，条目（1）表示您极不同意，即说明您的实际情况与这一句子极不相符；条目（7）表示您极同意，即说明您的实际情况与这一句子极相符。

如果你**非常不同意**，请圈出"1"

如果你**强烈不同意**，请圈出"2"

如果你**轻度不同意**，请圈出“3”

如果你是**中性的**，请圈出“4”

如果你**稍微同意**，请圈出“5”

如果你**强烈同意**，请圈出“6”

如果你**非常强烈地同意**，请圈出“7”

Items/问题	**Options/选项**						
1.There is a special person who is around when I am in need./当我需要的时候，有一个特别的人在我身边	1	2	3	4	5	6	7
2.There is a special person with whom I can share my joys and sorrows./有一个特别的人，我可以和他分享我的欢乐和悲伤。	1	2	3	4	5	6	7
3.My family really tries to help me./我的家人真的很想帮助我。	1	2	3	4	5	6	7
4.I get the emotional help and support I need from my family./我从家人那里得到了我需要的情感帮助和支持。	1	2	3	4	5	6	7
5.I have a special person who is a real source of comfort to me./我有一个特别的人，他是我真正的安慰的源泉。	1	2	3	4	5	6	7
6.My friends really try to help me./我的朋友们真的很想帮助我。	1	2	3	4	5	6	7
7.I can count on my friends when things go wrong./当事情出错时，我可以指望我的朋友们出现。	1	2	3	4	5	6	7

8.I can talk about my problems with my family./我可以和我的家人谈论我遇到的问题。	1	2	3	4	5	6	7
9.I have friends with whom I can share my joys and sorrows./我有一些朋友，我可以和我分享我的喜怒哀乐。	1	2	3	4	5	6	7
10.There is a special person in my life who cares about my feelings./在我的生活中，有一个特别的人关心我的感情。	1	2	3	4	5	6	7
11.My family is willing to help me make decisions./我的家人愿意帮助我做出决定。	1	2	3	4	5	6	7
12.I can talk about my problems with my friends./我可以和我的朋友们谈论我的问题。	1	2	3	4	5	6	7
Score/总分:							

The End,Thank you/问卷结束，谢谢

Source:

Zimet, G. D., Dahlem, N. W., Zimet, S. G., & Farley, G. K. (1988). The multidimensional scale of perceived social support. *Journal of personality assessment*, *52*(1), 30-41.

Appendix B: Informed Consent Form/Treatment Protocol (English-Chinese version)

Group Counselling (Therapy) Protocol

团体咨询（治疗）协议

Dear Participants:

First of all, thank you for your interest in this program. This treatment is based on the researcher's project titled "Evaluating the Applicability of Cognitive Behavioral Therapy and Positive Psychotherapy in Treating the Physical, Psychological and Social Aspects of Postpartum Women with Depression in China". The aim is to help individuals alleviate postpartum depression and restore their physical, psychological, and social well-being.The treatment consists of three sessions, each lasting 2.5 hours, conducted once a week. Questionnaires will be administered in the first and fourth weeks, so you will need to set aside time each week during a month to participate in the sessions. Activities will include educating participants about depression, addressing negative cognition, creating action plans, discovering personal strengths, and learning emotional relief skills. A small task will be assigned after each session, and timely completion of these tasks is expected to help reinforce the effects of the treatment.The activities will take place in the group activity hall at Guiyang Maternal and Child Health Hospital. The specific timing for each session will be communicated by the counselor via message.

To ensure your comfort during group activities and to protect the therapeutic environment and everyone’s safety, all participants are required to sign the Group Counseling (Therapy) Protocol and agree to the following terms.

1. I do not suffer from heart disease, high blood pressure, or any other illnesses that are easily affected by emotions. I am also capable of engaging in normal physical activities.
2. I have not taken any psychiatric medication, including medication for insomnia.
3. I have not received mental health counseling or psychotherapeutic services, nor have I undergone any education or training in psychology.
4. I will not take pictures, videos, or recordings during the program. I will keep all information confidential and will not discuss members' private information or any other content outside of the event. I acknowledge that I am willing to accept all consequences and legal responsibilities if I violate these rules.
5. The treatment activities are very safe. I will take responsibility for my own self-care if I experience any discomfort during the treatment. I will promptly inform the counselor of any issues and will not do or say anything that may harm myself or others.
6. This program has been approved by the Human Research Ethics Committee (HREC).
7. During the treatment, the counselor will ask you to complete a questionnaire. Please fill it out after carefully reading the requirements and the informed consent form. The data collected will only be used for the researcher’s thesis, kept strictly confidential, and deleted promptly after use.
8. I am participating in this activity voluntarily and accept the terms of this study. I can withdraw my consent and leave the treatment site at any time.

9. The leader of the treatment has a professional qualification in psychological counseling licensed by the Chinese government. He/she is qualified to provide relevant mental health services, and a physician will be present on-site to assist with counseling. If anyone experiences physical discomfort, they will receive timely help.

10. The treatment will be divided into treatment and non-treatment groups. To ensure the rights and interests of the non-treatment group, all members will be able to participate in the postpartum lecture and online question-and-answer session after the treatment. The lecture will be presented by Director Liu Lan from Guiyang Maternal and Child Health Care Hospital.

11. If you have any questions about the conduct of this study, you may contact the Chair of the UNIMAS Ethics Committee at 082-582278 or email hrec@unimas.my.

12. The signed protocol will be retained by the researcher. If you have any questions regarding the treatment, you can contact the counselor.

Additional information

Researcher's Name/counselor: ZHENG SHIYU

Identification:PHD student

Workplace:University Malaysia Sarawak

Faculty:Cognitive Sciences and Human Development

Tel: +60 1116052298/+86 18585032073

I have read the above and agree to the protocol. Please sign.

亲爱的参与者：

首先感谢您对本次治疗活动感兴趣。本次治疗活动依托研究者的课题“评估认知行为疗法与积极心理疗法对我国产后抑郁症妇女生理、心理、社会等方面治疗的应用模式”，旨在帮助大家缓解产后抑郁，恢复身体，心理和社会功能的。整个治疗一共三次，每次两个半小时。每周进行一次治疗。第一周和第四周进行问卷调查。所以你需要在一个月内每周留出一定的时间参与治疗。活动的内容包括教授大家抑郁知识，调节不良认知，建立行动计划，发现自己的优势，学会情绪疏导的技能等。每次治疗后会给大家一个小任务，希望大家按时完成。这有助于巩固治疗的效果。活动的场地是在贵阳市妇幼保健院的团体活动大厅。具体活动时间由咨询师短信通知。

为了让大家更安心的投入团体活动，保障活动的治疗效果和大家的安全。现在大家需要签署团体咨询（治疗）协议，并同意以下条款。

1. 我没有患心脏病、高血压或其他易于受到情绪影响的疾病。同时也能进行正常的肢体活动。

2.我没有服用过任何精神药物，包括失眠药物。

3.本人没有接受过心理咨询或心理治疗服务，也没有接受过心理学教育或培训。

4.活动期间不拍照、不摄影、不录音。全程做到信息保密。不在活动外跟任何人谈论成员的隐私信息等内容。若有违反，本人愿承担一切后果及法律责任。

5.治疗的活动十分安全。若因治疗引发不适情绪，我愿承担起自我照顾的责任。我及时让咨询师知晓，绝不做伤害自己及伤害他人的言行。

6.本着互相尊重与支持的态度，我愿意做到不攻击、不指责、不批评其他人的观点和隐私。

7.本项目已经获得 HREC 的批准

8.治疗过程中，咨询师会让大家填写问卷。请大家认知阅读问卷要求和知情同意书后填写。收集到的数据仅作为研究者毕业论文。数据做到严格保密，并且在使用后及时销毁。

9.治疗的负责人具备中国政府许可的心理咨询职业资格。其具备开展相关心理健康服务的能力和素质。活动现场配有医生协助。若任何人因为身体不适出现问题都能的得到及时的帮助。

10.实验会分成治疗组和非治疗组。为了保证非治疗组的权益。所有成员在治疗后都可以参加产后知识讲座及咨询（线上）。讲座主讲人是贵阳市妇幼保健院的刘兰主任。

11.如果你对本研究开展有任何疑问，可以联系 UNIMAS 伦理委员会主席，电话 082-582278; 邮箱: hrec@unimas.my.

12.签署后由研究者保留。如果有疑问可以与咨询师联系。

其他信息

研究员姓名：郑莳雨

身份：在读博士生

单位：马来西亚砂拉越大学

系部：认知科学与人类发展

联系电话：+60 1116052298/+86 18585032073

我已经阅读完以上内容，并且同意协议内容。请签字。

Signature/签字： **Date/时间：**

Appendix C: Treatment modules

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Module 1 Cognitive Behavioral Therapy (CBT)

The treatment in the CBT group comprised three sessions, held once a week, with a total of 65 participants involved. The treatment is provided free of charge and is led by a counselor. The overall goal of the treatment is to alleviate participants' physical difficulties (insomnia and fatigue), psychological challenges (hope and ruminative thinking), and social issues (perceived social support).

First group session

1. Theme: Warming you and me
2. Specific objectives: To establish a new group where members can get to know each other; To define the group's objectives and main activities; To promote open communication and interaction among members; To build an external supportive environment that enhances members' social support and sense of hope.
3. Guiding Theory: Social Learning Theory
4. Activity time: June 2024 (within 2.5 hours)
5. Venue: Group Activity Room of Guiyang Maternal and Child Health Care Hospital
6. Material: movable tables and chairs, coloured pens, white paper, movable whiteboards, multimedia equipment, and small gifts.
7. Activity :

Activities sequences	**Activities time (minutes)**	**Stage Objectives**	**Content**
One	15-20	Pretest	Participants complete the IDQ

			questionnaires and sign a treatment agreement/protocol.
Two	5	Get to know counselor	The counselor introduces himself/herself first.
Three	20	Generate interest among group members in participating activities, promote mutual acquaintance among group members, and contribute to team morale	Nine Grids. Everyone completes the form by interacting with as many people as possible in ten minutes. The form is divided into nine sections: name, whether you are having a boy or a girl on recent birth, personality traits, favourite food, favourite colour, pet peeves, what you would like to do in the future, what you are most happy with about yourself, and other (additional information found out) After ten minutes, the counselor starts with one of the group members and asks her to present the information she has gathered. The counselor asked the participant not to read what was noted. Those who say more and more accurately will be awarded a gift.

Four	10	Introduce the purpose and content	The counselor will introduce the purpose and content of the group so that the group members will have an understanding of the group. At the same time, the counselor also needs to introduce the type of group activities and answer the questions of the group members so that the group activities can be carried out smoothly.
Five	10	Determine the group rules	The counselor works with group members to develop a code of behavior for the group's activities. This has led to a more disciplined process of group interaction and greater trust among group members.
Six	50	Speak from the heart. Express your emotions and get support in the communication	The counselor encouraged group members to openly discuss the physical, psychological, and social changes of becoming a mother, sharing both the most enjoyable moments and the greatest challenges of motherhood. This open communication and sharing have a cathartic effect, fostering social support and hope. Through this activity, participants came to understand that many worries are common among new mothers,

			and they can explore solutions together. For members who find it difficult to express themselves verbally, drawing a picture to convey their thoughts is also an option. The counselor plays a guiding, encouraging, and supportive role throughout the process. Each member is encouraged to be a non-interrupting, non-judgmental listener who offers encouragement. When appropriate, the counselor may also introduce techniques such as role-playing and imitation.
Seven	10	Summary and End	The counselor summarizes and concludes the first activity, highlighting its main focus and informing members of the next meeting time. Additionally, the counselor invites group members to share any comments or suggestions they may have about the group.
Assignment: Participants are asked to record on paper something that has recently upset them—whether a feeling or a behavior. They are encouraged to include as much detail and content as possible.			

Second group session

1. Theme: Cognitive Therapy
2. Specific objectives: The counselor reviews the process of the previous session and further strengthens group cohesion. Techniques commonly used in cognitive therapy, along with mental health knowledge, are introduced to help members develop skills for alleviating depression. The ultimate goal is for members to achieve self-care, self-direction, and acceptance of life's uncertainties.
3. Guiding Theory:Rational Emotive Behavior Therapy(ABC Model)
4. Activity time: June 2024 (within 2.5 hours)
5. Venue: Group Activity Room of Guiyang Maternal and Child Healthcare Hospital
6. Materials: moveable tables and chairs, coloured pens, mobile whiteboards, sticky notes, cardboard boxes, multimedia equipment, Reasonable Self-Analysis (RSA) sheets, and a number of small gifts.
7. Activities:

Activities sequences	**Activities time (minutes)**	**Stage Objectives**	**Content**
One	5	Give a brief review of the last activity and the results achieved	The counselor reviews the focus of the previous activity,checks the completion of the homework, and provides small gifts as positive reinforcement for those who completed it.
Two	15	Introduce the theme through	Untying Knots. First, divide the participants into small groups of 10-12

		warm-up activities to boost group members' interest in participating and help everyone recognize the team's collective strength and wisdom	people. Each group forms a circle, with each person holding hands with someone on their right and left, noting who they are holding. As music plays, everyone lets go and walks around randomly. When the music stops, each person finds and holds hands again with their original right and left partners. This creates an intricate "knot" among the group. The facilitator then challenges the group to untangle this knot by any means possible—without letting go of each other's hands.
Three	20	Popularising Mental Health Knowledge	The counselor provides mental health knowledge, covering topics like sleep management and the causes and treatment of depression. This evidence-based information encourages group members to engage in thoughtful discussion and reflection in future sessions.

Four	20	Introduce Rational Emotive Behavior Therapy(ABC Model) and assists team members in identifying irrational beliefs	A) The counselor introduces the Rational Emotive Behavior Therapy (ABC Model) using a projector to explain the characteristics and types of irrational beliefs. The theory is presented in a simple, accessible way to accommodate varying literacy levels among group members. B) At this stage, the focus is on helping the group identify irrational beliefs and understand why these thoughts are irrational. C) The counselor addresses any questions from group members to ensure the activities proceed smoothly.
Five	10	Promote participants' understanding and change	The participants discuss irrational beliefs and ideas, using techniques such as questioning, hyperbole, and Socratic questioning. They write these down on white paper and mark which irrational beliefs they can address and which they are unable to tackle at the moment.
Six	30	Form new ideas, rebuild	Group members discuss the highlighted cognitive biases related to postpartum

		cognition, and improve emotions	depression. They write unsolved questions on sticky notes and place them in a cardboard box. Participants randomly select a sticky note to answer someone else's question, and they can consult with others for advice. If there are questions that no one can solve, they seek help from the counselor during an open question-and-answer session.
Seven	10	Make a reasonable self-analysis form (RSA)	In combination with the process described above, group members write their own analyses, which include detailing events, emotions, beliefs, arguments, and effects. Anything that prompts them to think and question can be included in the rebuttal section. This analysis sheet serves as an example for them to explore and challenge irrational ideas.
Eight	10	Summary and End	The counselor wraps up the second session by summarizing its focus and informing the group of the next meeting time. Additionally, the counselor advises the group members to be diligent in completing their assignments, as this is a

			crucial part of the process for achieving change.
Assignment: Participants record the bad emotions, perceptions and behaviors that have emerged in the new week and use Reasonable Self Analysis (RSA) to address them. The deeper the analysis, the better.			

Third group session

1. Theme: Behavioral Therapy
2. Specific objectives: The counselor reviews the content of the last session, consolidating the effectiveness of cognitive therapy. This session aims to help group members clarify their treatment goals, master skills, and formulate commitments. Participants are encouraged to actively engage and take initiative in making decisions to address the challenges they face.
3. Guiding Theory: Reality Therapy
4. Activity time: June 2024 (within 2.5 hours)
5. Venue: Group Activity Room of Guiyang Maternal and Child Health Hospital
6. Materials: movable tables and chairs, white paper, diaries, coloured pens, mobile whiteboards, multimedia equipment.
7. Activity :

Activities sequences	**Activities time (minutes)**	**Stage Objectives**	**Content**
One	5	To review the	The counselor reviews the highlights of

		previous event and introduce the new theme	the last treatment and introduce the content and requirements of this treatment.
Two	5	Focus on reality and identify specific goals to change	The counselor asks participants to write down a problem, desire, or need on a white piece of paper. The requirements should be specific, quantifiable, simple to implement, and focused on issues that have the greatest impact on their current lives or that they most wish to achieve. For example, they might aim to get ten more minutes of sleep today than yesterday or to accomplish one of their favorite activities each week
Three	25	Group members share the solution strategies	The counselor grouped the members' similar goals and wrote them on a mobile whiteboard. The group then engaged in brainstorming to generate treatment strategies, which needed to be both diverse and feasible. In the end, the counselor summarized the discussion and reminded group members to document the helpful approaches they came up with,

			encouraging them to consider how they could apply these strategies to address their challenges.
Four	45	The counselor provides professional strategies	A) To better facilitate group members in achieving their goals, the counselor introduced several techniques, including meditation, relaxation training, positive reinforcement, behavioral diaries, and acupressure. Meditation and relaxation training are beneficial for managing stress and improving sleep; positive reinforcement helps enhance motivation and perseverance during goal implementation; a behavioral diary enables group members to track their behavioral changes, organize daily tasks, and plan their time effectively; and the counselor taught acupressure techniques to assist group members with their daily health care." B) The counselor guided the group in experiencing the effects of these techniques, such as a ten-minute session of

			meditation and relaxation.
Five	15	Self-evaluation and guidance	Do these strategies and behaviors lead you in the direction you want to go? Will they help you achieve your goals? If you have any questions or concerns regarding these issues, the counselor is available to provide guidance.
Six	15	Developing action plan and making promises	A) The counselor guides the members in reviewing their goals and strategies, allowing them to select the aspects they feel most comfortable with. B) The group members then create an action plan that is simple, feasible, manageable, and easy to monitor. Once the plan is established, it should be adhered to until the problem is fully addressed. For example, a sleep schedule might include a consistent bedtime and wake-up time, limitations on activities before bed, precautions, incentives, and designated supervisors.

Seven	10	Summary and end	The counselor addresses feelings of separation and summarizes the key techniques and concepts from the treatments. Moreover, the counselor encourages group members to continue practicing and reinforcing the experiences they have learned.
Assignment: Summarize the behavioral therapy techniques you have learned and apply them in your daily life to reinforce the effects of the therapy. Post-test: The counselor conducts a post-test at the same time next week. The post-test instrument is the IDQ. Follow-up services: Test results can be obtained after treatment, and both the experimental and control groups can receive an online postpartum health care and question and answer services.			

Module 2 Positive Psychotherapy (PPT)

The treatment in the PPT group comprised three sessions, held once a week, with a total of 65 participants involved. The treatment is provided free of charge and is led by a counselor. The overall goal of the treatment is to alleviate participants' physical difficulties (insomnia and fatigue), psychological challenges (hope and ruminative thinking), and social issues (perceived social support).

First group session

1. Theme: Warming you and me
2. Specific objectives: To establish a new group where members can get to know each other; To define the group's objectives and main activities; To promote open communication and interaction among members; To build an external supportive environment that enhances members' social support and sense of hope.
3. Guiding Theory: Social Learning Theory
4. Activity time: June 2024 (within 2.5 hours)
5. Venue: Group Activity Room of Guiyang Maternal and Child Health Hospital
6. Material: movable tables and chairs, coloured pens, white paper, movable whiteboards, multimedia equipment, and small gifts.
7. Activity :This section of the treatment differs from the CBT only in the final assignments.

Activities sequences	**Activities time (minutes)**	**Stage Objectives**	**Content**

One	15-20	Pretest.	Participants complete the IDQ questionnaires and sign a treatment agreement/protocol.
Two	5	Get to know counselor.	The counselor introduces himself/herself first.
Three	20	Generate interest among group members in participating activities, promote mutual acquaintance among group members, and contribute to team morale.	Nine Grids. Everyone completes the form by interacting with as many people as possible in ten minutes. The form is divided into nine sections: name, whether you are having a boy or a girl on recent birth, personality traits, favourite food, favourite colour, pet peeves, what you would like to do in the future, what you are most happy with about yourself, and other (additional information found out) After ten minutes, the counselor starts with one of the group members and asks her to present the information she has gathered. The counselor asked the participant not to read what was noted. Those who say more and more accurately will be awarded a gift.
Four	10	Introduce the purpose and	The counselor will introduce the purpose and content of the group so that the group

		content.	members will have an understanding of the group. At the same time, the counselor also needs to introduce the type of group activities and answer the questions of the group members so that the group activities can be carried out smoothly.
Five	10	Determine the group rules.	The counselor works with group members to develop a code of behavior for the group's activities. This has led to a more disciplined process of group interaction and greater trust among group members.
Six	50	Speak from the heart. Express your emotions and get support in the communication.	The counselor encouraged group members to openly discuss the physical, psychological, and social changes of becoming a mother, sharing both the most enjoyable moments and the greatest challenges of motherhood. This open communication and sharing have a cathartic effect, fostering social support and hope. Through this activity, participants came to understand that many worries are common among new mothers, and they can explore solutions together. For members who find it difficult to

			express themselves verbally, drawing a picture to convey their thoughts is also an option. The counselor plays a guiding, encouraging, and supportive role throughout the process. Each member is encouraged to be a non-interrupting, non-judgmental listener who offers encouragement. When appropriate, the counselor may also introduce techniques such as role-playing and imitation.
Seven	10	Summary and End.	The counselor summarizes and concludes the first activity, highlighting its main focus and informing members of the next meeting time. Additionally, the counselor invites group members to share any comments or suggestions they may have about the group.
Assignments: 1. Reflect on and record the feelings in your life that are often overlooked (e.g., eating slowly, savoring the taste of food). The more detailed your descriptions, the better. 2. Record three happy events from the past week in any format you prefer. These can be words, drawings, audio recordings, crafts, or anything else that helps you cherish positive memories.			

Second group session

1. Theme: Exploring Strengths and Self-Care
2. Specific objectives: The counselor reviews the process of the last session to further strengthen the cohesiveness among members. The counselor also helps group members develop a strong gender awareness and self-awareness, identify their own strengths and uniqueness, and accumulate positive resources by enhancing their inner strengths.
3. Guiding Theory: Social Role Theory(Gender role), Resilience Theory
4. Activity time: June 2024 (within 2.5 hours)
5. Venue: Group Activity Room of Guiyang Maternal and Child Health Care Hospital
6. Materials: moveable tables and chairs, coloured pens, white paper, lychee, mobile whiteboards, multimedia equipment, several small gifts
7. Activities:

Activities sequences	**Activities time (minutes)**	**Stage Objectives**	**Content**
One	5	A brief summary review of the last treatment and the results achieved.	The counselor reviews the focus of the previous activity,checks the completion of the homework,and provides small gifts as positive reinforcement for those who completed it.

Two	15	Introduce the theme through warm-up activities to boost group members' interest in participating and help everyone recognize the team's collective strength and wisdom.	Untying Knots. First, divide the participants into small groups of 10-12 people. Each group forms a circle, with each person holding hands with someone on their right and left, noting who they are holding. As music plays, everyone lets go and walks around randomly. When the music stops, each person finds and holds hands again with their original right and left partners. This creates an intricate "knot" among the group. The facilitator then challenges the group to untangle this knot by any means possible—without letting go of each other's hands.
Three	35	Participants discuss the impact of gender on postpartum women.	This discussion will help women develop a correct understanding of gender, which, in turn, will lead to the establishment of reasonable expectations and goals. A) The counselor leads the group in a discussion about the differences between sex and gender. B) The counselor guides the group in exploring the stereotypical effects of

			gender and their consequences. C) The counselor assists the group in self-analysis and goal clarification by addressing the following questions: What does one feel pressured to do because of gender? What does one want to avoid doing due to gender expectations? What is something one wants to do that gender norms discourage? D) The counselor and group members summarize their discussions together such as abandoning gender stereotypes, respecting and accepting gender differences, and seeking broader opportunities for personal development.
Four	40	Identify your strengths and characteristics to enhance your self-esteem and self-efficacy.	Provide group members with a deep awareness of their uniqueness and excellence, and to proactively recognise and utilise these strengths in the future. A) Make a Difference: Each member of the group is given a lychee and spends half a minute connecting with it by touching, looking at, and smelling it. After this time, the lychees are mixed together in a

			disorganized manner, and members are asked to find their own lychee as quickly as possible. The challenge increases in the second round, where members must find their exclusive lychee with their eyes closed. B) Merit Bombing: The group forms a circle. Each member writes down as many personal merits as possible on a piece of paper they hold (e.g., 'I am good-looking,' 'I am hard-working'). They then write their name on the back of the paper. Each member takes turns passing their paper to the right. When someone receives another person's paper, they write as many positive attributes, words of encouragement, or supportive comments as they can until the paper makes its way back to the original owner. Finally, 15 individuals are randomly chosen to read their merits aloud to the group, encouraging confidence and affirmation from everyone. C) The counselor leads the group in summarizing the activity.

Five	20	Self care	Remember the past happiness, experience the pleasure of the present. A) The counselor selects a group member to report on the assignment from the last treatment session and provide feedback. Participants are encouraged to use a 21-day cycle to continue recording joyful experiences and moments of happiness, thereby accumulating psychological resources associated with well-being. B) Body Percussion: The counselor guides the group in following the rhythm of the music by clapping their hands, tapping their chests, patting their legs, and stomping their feet. This activity combines music and movement, allowing participants to experience the joy of connecting their bodies and minds.
Six	5	Summary and end	The counselor summarizes and concludes the second session, highlighting its main focus. The counselor also informs the group of the time for the next session. Additionally, the counselor emphasizes the importance of diligently completing

			their assignments, as this is a crucial step in the process of personal change.
Assignment: Each group member prepares a short parenting tip to share at the next session.			

Third group session

1. Theme: Empowerment
2. Specific objectives: The counselor will assist group members in enhancing their skills in three key areas: communication skills, emotion management, and resource utilization. The counselor will help participants integrate their experiences, skills, and available resources to reach their potential and overcome depression.
3. Guiding Theories: Social Role Theory(Gender Role), Resilience Theory.
4. Activity time: June 2024 (within 2.5 hours)
5. Venue: Group Activity Room of Guiyang Maternal and Child Health Care Hospital.
6. Materials: moveable tables and chairs, coloured pens, coloured cardboard, white paper, mobile whiteboards, multimedia equipment, several small gifts.
7. Activities:

Activities sequences	**Activities time (minutes)**	**Stage Objectives**	**Content**
One	5	A brief summary review of the	The counselor reviews the focus of the previous activity,checks the completion of the homework,and provides small gifts as

		last treatment and the results achieved.	positive reinforcement for those who completed it.
Two	30	Share your parenting experience and improve your communication skills	A) Group members are encouraged to share their parenting experiences on stage, allowing them to improve their problem-solving abilities through communication and observation. Participants who take the opportunity to share are rewarded with small gifts. B) The counselor discusses several tips focused on family relationships and communication. For example, these tips include learning to listen, avoiding the mindset of winning or losing in an argument, paying attention to tone of voice, and recognizing that the other person may not understand everything.
Three	25	Learning to manage emotions and acquiring emotional	A) Mood Thermometer: The thermometer ranges from 0 to 10, representing levels of unhappiness to happiness. Group members are asked to indicate their

		management Skills	emotional temperature for the week using this scale. The counselor then divides the group into three smaller groups based on their indicated temperatures. Members discuss why they chose their specific temperature and what factors have influenced their mood. The group with the highest happiness level is invited to share their experiences in managing their emotions. B) The counselor summarizes the activities and shares various techniques for emotion management, such as Rational Catharsis, Positive Thinking Techniques, and Daily Self-Suggestion.
Four	20	Get rejuvenated with de-stressing tips.	A) The counselor teaches time management techniques and offers sleep tips. B) Learn to take care of yourself. The counselor advises group members to plan their tasks effectively and give themselves enough time to rest. For example, they can

			work strictly according to the Pomodoro technique, engage in postpartum health exercises, and read books. Allow yourself to enjoy a pleasurable immersion experience.
Five	25	Assemble resources and develop problem-solving skills.	A) The counselor distributes round pieces of cardboard with a missing corner and asks the group to write down their goals, aspirations, or issues they wish to address in that empty space. B) Resource Circle: The counselor encourages the group to brainstorm as many resources and abilities as possible that they can mobilize to achieve these goals, such as family and friends, as well as skills and experiences gained during this session. Members should write these responses in the other sections of the cardboard, focusing on richness and feasibility. The counselor and group members can add to the cardboard, with the counselor reminding everyone not to overlook resources like women's rights laws, volunteer associations, women's

			federations, and nearby counseling centers. C) Facilitate communication and sharing among group members.
Six	10	Building resilience to re-embrace your new role	This part of the session enhances the participants' motivation to change. The counselor shares a true story about 46-year-old Li Shujuan from Jiangsu Province, who has remained self-reliant amid hardship and has brought hope and warmth to many families through her love and dedication. In the process, she has also discovered a sense of achievement and self-worth. The counselor hopes to use this example to inspire expectations and hope in the final stage of treatment, encouraging group members to believe in their capabilities and to understand that being a woman does not equate to being weak. Everyone has the potential to create a better life.
Seven	5	Summary and end	The counselor addresses the emotions surrounding departure and summarizes the key techniques and concepts covered in

			these sessions. Participants are encouraged to reflect on how they felt during the activities and to effectively utilize their psychological resources to overcome challenges.
Assignment: Summarize the experiences, feelings, skills, and resources you have gained during therapy to reinforce their effectiveness. Post-test: The counselor conducts a post-test at the same time next week. The post-test instrument is the IDQ. Follow-up Services: Participants can access their test results after treatment, and both the experimental and control groups can receive online postpartum health care and question-and-answer services.			

Appendix D: Ethics memorandum

Deputy Vice Chancellor's Office
(Research and Innovation)
Human Research Ethics Committee
(Non-Medical)
Tel: 082 581222/1223
Fax: 082 665115

UNIVERSITI MALAYSIA SARAWAK
94300 Kota Samarahan

MEMORANDUM

Reference : UNIMAS/TNC(PI)/09 – 65/02 (85)

To : Zheng Shiyu
Faculty of Cognitive Sciences & Human Development

From : Chair
Human Research Ethics Committee (Non-Medical)

Date : 22 March 2024

Subject : **Research Ethics Approval for Non-Medical Research on Humans**

With reference to the above, I would like to inform you that your application for research ethics clearance was discussed in the 10th Human Research Ethics Committee (Non-medical) meeting 1/2024 on 01st March 2024. Your application for research ethics has been approved.

Title of project :	Investigation of the Applicable Treatment Model Through Cognitive Behavioural Therapy and Positive Psychotherapy on Treating the Physical, Psychological and Social Aspects Among Postpartum Women with Depression in China.
No. Ethics Approval :	HREC(NM)/2024 (1)/63
Principal Investigator :	Zheng Shiyu (Universiti Malaysia Sarawak)
Co-researcher(s) :	Assoc Prof Dr Nor Mazlina Ghazali (Universiti Malaysia Sarawak) Dr Voon Siok Ping (Universiti Malaysia Sarawak)

Yours sincerely,

Professor Dr Ting Su Hie

c.c: Deputy Vice Chancellor (Research & Innovation)
Director, UNIMAS Publisher
Deputy Dean (Research & Commercialisation), FCSHD