

ORIGINAL RESEARCH ARTICLE

Teaching music, shaping care: the role of music-based educational interventions in postpartum depression reproductive awareness among female university students

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Abstract

This study examined the role of music-based educational interventions in enhancing postpartum depression awareness and related psychosocial outcomes among female university students in China. Using a quasi-experimental design, the study was conducted across selected public and private universities and involved 350 female undergraduate and postgraduate students. Participants were divided into intervention-exposed and non-exposed groups based on their participation in a structured music-integrated educational program focused on reproductive mental health and postpartum depression awareness. Data were collected using a structured, self-administered questionnaire measuring postpartum depression awareness, reproductive health awareness, mental health literacy, emotional regulation, and psychological resilience. Comparative analyses and multivariate regression were employed to assess the effectiveness of the intervention while controlling for sociodemographic factors. Results indicated that students exposed to the music-based educational intervention demonstrated significantly higher levels of postpartum depression awareness, reproductive health awareness, mental health literacy, emotional regulation, and psychological resilience compared to their non-exposed counterparts ($p < 0.001$). Regression analysis identified intervention exposure as the strongest predictor of postpartum depression awareness. The findings suggest that music-based educational interventions offer a culturally resonant, non-stigmatizing, and effective approach to promoting early reproductive mental health awareness among female university populations. Integrating music-based mental health education within university settings may contribute to preventive strategies aimed at reducing the long-term burden of postpartum depression. (*Afr J Reprod Health* 2026; 30 [9s]: 149-157).

Keywords: Music-based education; Postpartum depression; Reproductive health awareness; Female university students; Mental health literacy; China

Résumé

Cette étude a examiné la répartition du personnel et des équipements radiologiques à Wenzhou, en Chine, en portant une attention particulière à la participation et à l'évolution de carrière des techniciennes. À l'aide d'une enquête transversale, le personnel d'imagerie d'institutions publiques et privées a fourni des données via un questionnaire structuré incluant des informations démographiques, les qualifications, l'allocation des équipements, la charge de travail, les opportunités de formation et la progression de carrière. Les résultats ont révélé une représentation significative des femmes dans la main-d'œuvre, mais ont noté des déséquilibres entre les sexes dans les postes de direction, l'accès aux outils d'imagerie avancés et les opportunités de formation spécialisées. La distribution des équipements a montré des disparités marquées, les installations de haute technologie supportant une charge de travail disproportionnée. Les techniciennes ont rencontré des défis plus prononcés en matière d'avancement professionnel, d'équilibre travail-vie personnelle et de reconnaissance professionnelle par rapport à leurs homologues masculins. L'étude souligne les obstacles structurels et liés au genre dans le développement de la main-d'œuvre. Résoudre les problèmes de distribution des équipements et promouvoir des politiques soutenant la croissance professionnelle des techniciennes pourrait améliorer la durabilité de la main-d'œuvre et la qualité des services d'imagerie, tout en contribuant à une planification fondée sur des données probantes pour les systèmes de santé locaux et à l'élaboration de politiques sensibles au genre en imagerie médicale. (*Afr J Reprod Health* 2026; 30 [9s]: 149-157).

Mots-clés: Imagerie radiologique, répartition de la main-d'œuvre, allocation des équipements, techniciennes, développement de carrière, Chine

Introduction

Postpartum depression is a major public health concern that has psychological consequences for women's wellbeing during the perinatal and postnatal periods and has long-term consequences for maternal functioning, infant development, and family stability. In China, rapid social changes, changing family structures and growing academic and working pressures on women have contributed to growing vulnerability to perinatal mental health disorders. Empirical evidence suggests that postpartum depression is common among Chinese women and is affected by sociocultural expectations, low levels of mental health literacy and inadequate preventive education before childbirth¹.

Within Chinese society, reproductive health awareness and mental health literacy are uneven and especially low among young women in institutions of higher education. Female university students comprise an important population because they are future mothers on the one hand and are exposed at the same time to academic pressures, career dilemmas, and changing gender roles. Studies conducted in Chinese university settings show that knowledge of reproductive health, emotional regulation and maternal mental wellbeing is often fragmented or delayed until pregnancy to limit opportunities for early prevention of postpartum psychological distress².

Educational interventions targeting reproductive awareness prior to childbirth had been increasingly identified as an effective approach in reducing the postpartum mental health risks. In the Chinese context, culturally sensitive and non-stigmatizing approaches are of special importance, since mental health problems related to childbirth are still subject to social silence and traditional norms such as *zuoyuezi*. Research suggests that preventive education within wider health and wellbeing programs can enhance emotional readiness and help seeking behaviors of women before motherhood³.

Music-based educational interventions are a promising and culturally-relevant way of promoting mental health in university communities. Music has extensive historical and therapeutic roots in Chinese culture and has been empirically proven to lower anxiety, temper mood and facilitate the expression of emotions. Recent Chinese research shows

structured music interventions can help to reduce depressive symptoms and psychological stress for pregnant and perinatal women, making them a potentially useful preventive tool as well as clinical treatment⁴.

Despite increasing evidence on music therapy in clinical maternal settings, little research has been conducted to explore music-based educational interventions as a prevention strategy in postpartum depression awareness among non-clinical populations such as female university students. The nexus of music education, reproductive health literacy, and mental wellbeing within the university context is understudied in the Chinese context. Addressing this gap is crucial in developing early and culturally grounded interventions that will prepare women emotionally and cognitively for future reproductive transitions⁵. This study therefore explores the role of music-based educational interventions in improving the reproductive awareness and influencing attitudes of postpartum depression in female university communities in China. Situating music in the context of an educational and preventive approach to health, the study has added to an interdisciplinary work in mental health promotion, reproductive education and intervention strategies that are culturally embedded in order to reduce the risk of postpartum depression before motherhood begins.

Literature review

Music-based interventions and mental health in the Chinese context

Music has always been embedded inside the Chinese cultural, philosophical traditions as a tool to regulate emotions and psychological harmony. Contemporary psychological research conducted in China has shown the positive effects of music-based interventions in the areas of emotional processing, reducing stress responses and improving subjective wellbeing in a variety of populations⁶. Additionally, there is empirical evidence to suggest the use of music interventions that are based on culturally familiar structures, which enhance engagement and acceptance in Chinese participants and provide further support for the use of these interventions in the context of preventive mental health strategies⁷. Neurobiological research has established that music stimulation produces activation of neural pathways linked to mood regulation and emotional bonding

that are directly relevant to depressive symptomatology in maternal mental health contexts⁸.

Music interventions in perinatal and postpartum mental health

An increasing literature of Chinese research has investigated the use of music interventions during pregnancy and the postpartum period. Clinical and quasi experimental studies suggest that light music interventions have a significant effect on reduction of anxiety and depressive symptoms of primiparous women in late pregnancy and early postpartum stages⁹. Randomized and controlled trials further show that music therapy enhances emotional stability and diminishes psychological distress during the antenatal monitoring and the delivery preparation¹⁰. Protocol-based studies done in China also point out the possibility of incorporating music interventions into maternal health programs as structured preventive measures instead of crisis-oriented treatments¹¹.

Traditional and integrative methods of music therapy

In addition to Western modes of musical treatment, the Chinese researchers have investigated traditional modes such as five-element music therapy. Systematic reviews and meta-analyses show that five-element music therapy is helpful in reducing anxiety and depressive symptoms among clinical populations, showing its theoretical relevance for maternal mental health applications¹². Meta analytical findings provide further evidence that culturally embedded music frameworks do improve the therapeutic process¹³, by matching emotional rhythms with traditional Chinese medical philosophies. These findings offer a culturally-based rationale for the adoption of music-based educational interventions in Chinese reproductive health settings.

Prevalence and risk factors for postpartum depression in China

Postpartum depression has been well studied in China focusing on prevalence, determinants and sociocultural influences. Large-scale epidemiological studies report high rates of postpartum depression among Chinese women¹⁴,

indicating the need for preventive strategies to lessen the prevalence of postpartum depression. Systematic reviews and meta-analyses found psychosocial stress, lack of social support, and lack of mental health literacy are important predictors of postpartum depressive symptoms in mainland China¹⁵. It has also been shown that cultural practices such as *zuoyuezi* affect postpartum emotional experiences in a mixed way depending on family dynamics and individual autonomy.

Sociocultural practices and maternal mental health

Chinese cultural norms surrounding childbirth play an important role in influencing women's postpartum experiences. Empirical studies show that while traditional confinement practices can protect or worsen postpartum depression depending on levels of familial supports and personal agency¹⁶. Research further shows that dietary patterns, health beliefs and culturally prescribed maternal roles contribute to emotional wellbeing in the postpartum period¹⁷. These findings underscore the importance of culturally sensitive educational interventions that address psychological as well as reproductive health dimensions before motherhood.

Measurement and screening of postpartum depression in China

Reliable assessment tools are necessary for the research and prevention of postpartum depression. The Edinburgh Postnatal Depression Scale has been confirmed rigorously in Chinese populations and is a popular tool for screening for symptoms of depression in postpartum women¹⁸. Psychometric assessments have supported the reliability and cultural adequacy of the Chinese versions of the EPDS in urban and regional settings¹⁹. Additional validation research to support the utilization of alternative screening instruments such as the Chinese Postpartum Depression Screening Scale for research and educational settings²⁰.

Conceptual framework

The conceptual framework proposed is aimed at explaining how music-based educational interventions that are carried out in the context of female university communities in China can contribute to improved reproductive awareness and

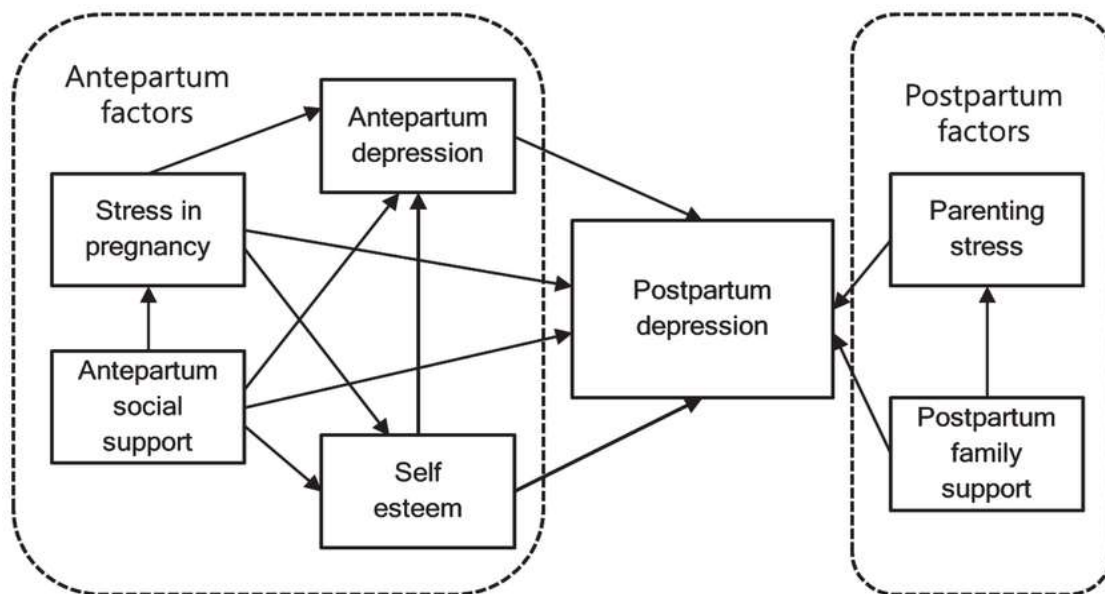


Figure 1: Conceptual framework

prevention of postpartum depression throughout the reproductive life course. The framework is based on preventive mental health theory and life-course perspectives and focuses on early intervention prior to pregnancy onset.

At the center of the framework is the music-based educational intervention, which is the main independent construct. This intervention includes structured music listening and participatory musical activities as well as reflective educational elements in an integrated way within university learning environments. Music is conceptualized not only to be used as a therapeutic medium, but also as an educational tool that enables emotional involvement, cultural resonance, and experiential learning. Within the context of China, music-based approaches are of particular relevance because of their cultural familiarity and non-stigmatizing nature, they can be used to address sensitive topics such as mental health and reproductive wellbeing.

The scheme of action proposed by the framework suggests that the effects of music-based educational interventions are mediated through a set of important mechanisms. The first mediator is reproductive health awareness, including the knowledge of maternal mental health and understanding of postpartum depression and awareness of emotional changes linked to pregnancy and childbirth. By enhancing reproductive awareness during the university stage,

female students acquire a cognitive base to prepare them for the future maternal role. The second mediator is emotional regulation which refers to the ability to handle stress, emotional processing, and psychological balance. Music helps to express emotions and relieves stress and enhances the abilities for emotional regulation. The third mediator is mental health literacy (i.e., the understanding of symptoms of psychological distress, decreased stigmatization, and positive attitudes toward professional help-seeking).

These mediating mechanisms result in immediate outcomes of the university phase of the life course. Enhanced reproductive awareness, emotional regulation and mental health literacy have a combined effect on more positive attitudes toward maternal mental health and psychological resilience, among female university students. Psychological resilience is defined as the ability to mentally deal with stressors, adapt to life changes and be emotionally healthy. These immediate outcomes are critical because they influence beliefs, attitudes and coping strategies long before women face pregnancy-related challenges.

The framework goes even further to the long-term outcomes which occur during pregnancy and the postpartum period. By building up the awareness, emotional readiness and resilience at an early stage, the framework assumes a lower risk of postpartum depressive symptoms later in life.

Improved maternal mental wellbeing is seen as a cumulative product of early preventive education as opposed to a response in the context of clinical symptoms only. This approach across the life course places a greater emphasis on prevention than treatment and is consistent with public health approaches to address the burden of postpartum depression.

Finally, the framework includes contextual moderators that are unique to the Chinese sociocultural and institutional environment. Cultural norms that relate to motherhood, family expectations, and practices such as *zuoyuezi* can shape women's perceptions and responses to maternal mental health problems. The university environment itself, such as peer networks, institutional support, and access to mental health resources, also moderates the effectiveness of the intervention. These contextual factors recognise that the dynamics of relation between music-based education and postpartum mental health outcomes is not homogenous, but rather conditioned by cultural and institutional contexts.

Methods

Study design

This study employed a quasi-experimental cross-sectional design to examine the effectiveness of a music-based educational intervention in enhancing postpartum depression awareness among female university students in China. The design involved a comparison between students who were exposed to the music-based educational program and those who were not exposed during the study period.

Study setting and participants

The study was conducted across selected public and private universities in China, representing diverse academic disciplines. The target population comprised female undergraduate and postgraduate students aged 18 years and above. Universities were purposively selected to ensure institutional diversity, followed by cluster sampling at the department and class levels. A total of 350 female students participated in the study.

Description of the music-based educational intervention

The music-based educational intervention was designed as a structured, culturally resonant educational program integrating music with reproductive mental health education. The program focused on increasing awareness of postpartum depression, emotional regulation, and mental health literacy prior to motherhood. The intervention consisted of guided music listening sessions incorporating culturally familiar music, reflective discussions, and short educational modules addressing postpartum depression, emotional wellbeing, stigma reduction, and help-seeking behaviors. Sessions were facilitated by trained educators within the university setting. Music was used as an educational and emotional engagement tool rather than as clinical therapy, allowing sensitive topics related to maternal mental health to be addressed in a non-stigmatizing and accessible manner. Participants were classified as intervention-exposed if they attended at least one standardized music-integrated educational session focused on reproductive mental health during the study period.

Data collection and study instruments

Data were collected using a structured, self-administered questionnaire distributed in the Chinese language. The questionnaire assessed the following key outcome variables: postpartum depression awareness, reproductive health awareness, mental health literacy, emotional regulation, and psychological resilience. These constructs were measured using validated scales previously applied in Chinese populations. Sociodemographic characteristics, including age, academic level, and prior exposure to reproductive health education, were also collected and treated as control variables.

Outcome measures

Postpartum depression awareness was treated as the primary outcome variable, reflecting participants' understanding of symptoms, risk factors, and preventive aspects of postpartum depression.

Secondary outcomes included reproductive health awareness, mental health literacy, emotional regulation, and psychological resilience, which were hypothesized to mediate the relationship between intervention exposure and postpartum depression awareness.

Data analysis

Statistical analysis was conducted using SPSS software. Descriptive statistics were used to summarize participant characteristics and study variables. Independent samples t-tests and chi-square tests were applied to compare outcome measures between intervention-exposed and non-exposed groups.

Multiple linear regression analysis was performed to examine the predictive effect of music-based educational intervention exposure on postpartum depression awareness while adjusting for sociodemographic covariates. Mediation analyses were conducted to assess the indirect effects of reproductive health awareness, mental health literacy, and emotional regulation on the primary outcome. Statistical significance was set at $p < 0.05$.

Ethical considerations

The study was conducted in accordance with the ethical principles outlined in the Declaration of Helsinki. Ethical approval was obtained from the Medical Research Ethics Committee of the Graduate School of China Academy of Chinese Medical Sciences (Approval Code: IRB-GSCACM-2025-078). All participants received detailed information about the study objectives and procedures and provided written informed consent prior to participation. Data were anonymized and securely stored, and participants were informed of their right to withdraw at any time without penalty.

Results

Descriptive statistics of participants

A total of 350 female university students participated in the study. The mean age of respondents was 21.8 years with a standard deviation of 2.3 years. Most participants were undergraduate students, and a majority reported no prior formal education related to postpartum mental health. Nearly half of the sample had been exposed

Table 1: Descriptive characteristics of participants (N = 350)

Variable	Category	n	%
Age	18–20	142	40.6
	21–23	128	36.6
	≥24	80	22.8
Academic level	Undergraduate	248	70.9
	Postgraduate	102	29.1
Intervention exposure	Yes	168	48.0
	No	182	52.0
Prior reproductive health education	Yes	134	38.3
	No	216	61.7

to the music based educational intervention during the study period. Table 1

The table indicates that the sample was academically diverse and that a substantial proportion of students had no previous exposure to reproductive or maternal mental health education, highlighting the relevance of preventive educational interventions at the university level.

Comparison between intervention and non-intervention groups

Independent samples t tests were conducted to compare key outcome variables between students exposed to the music based educational intervention and those who were not exposed. Table 2

Students exposed to the music based educational intervention scored significantly higher across all outcome variables. The largest mean difference was observed for postpartum depression awareness, indicating that the intervention was strongly associated with improved recognition and understanding of postpartum mental health issues.

Predictors of postpartum depression awareness

Multiple linear regression analysis was conducted to examine whether music based educational intervention exposure predicted postpartum depression awareness after controlling for sociodemographic variables. Table 3

The regression model explained a substantial proportion of variance in postpartum depression awareness. Exposure to the music based educational intervention emerged as the strongest predictor, followed by reproductive health awareness and mental health literacy. Age was not a statistically significant predictor after adjustment,

Table 2: Comparison of mean scores by intervention exposure

Variable	Intervention (Mean $\pm$ SD)	No Intervention (Mean $\pm$ SD)	t-value	p-value
Postpartum depression awareness	4.12 $\pm$ 0.58	3.41 $\pm$ 0.64	10.82	<0.001
Reproductive health awareness	4.05 $\pm$ 0.61	3.47 $\pm$ 0.67	8.96	<0.001
Mental health literacy	3.98 $\pm$ 0.55	3.52 $\pm$ 0.60	7.89	<0.001
Emotional regulation	3.87 $\pm$ 0.63	3.46 $\pm$ 0.65	6.42	<0.001
Psychological resilience	3.91 $\pm$ 0.59	3.54 $\pm$ 0.62	6.15	<0.001

Table 3: Multiple linear regression predicting postpartum depression awareness

Predictor	β	SE	t	p
Music based intervention exposure	0.42	0.04	10.31	<0.001
Reproductive health awareness	0.29	0.05	5.88	<0.001
Mental health literacy	0.21	0.05	4.32	<0.001
Emotional regulation	0.17	0.04	3.94	<0.001
Age	0.06	0.03	1.82	0.069

indicating that educational and psychosocial factors were more influential than demographic characteristics.

Discussion

This study demonstrates that music-based educational interventions are associated with an increase in postpartum depression awareness by female university students in China. Students who did the music intervention had significantly higher scores on postpartum depression awareness, reproductive health awareness, mental health literacy, emotional regulation and psychological resiliency than did those who did not. These findings are consistent with previous research in Chinese and other international studies which found that music interventions can enhance emotional processing and knowledge of mental health issues through the creation of interactive and culturally acceptable learning environments⁶.

The difference between the intervention and the control group on postpartum depression awareness is particularly worth highlighting. Introducing music-integrated educational content at universities could help students identify the symptoms of postpartum depression early on, and educate about maternal mental-health risks early on, long before pregnancy. Chinese studies have found poor awareness and late recognition of postpartum depression as one of the main reasons for the persistence and under-recognition of this syndrome¹⁵. By tackling these gaps at the earliest stages, this research adds to prior studies that were

focused primarily on postpartum or clinical populations and demonstrates the prevention potential of university-based strategies¹².

Regression analysis determined that the exposure to the music intervention was the most powerful predictor of postpartum depression awareness, even after controlling for sociodemographic variables. This is in line with Chinese studies of maternal care that have shown the effects of structured music interventions to reduce anxiety, depression, and enhance psychological readiness⁹. As opposed to clinical studies that focus on reduction of symptoms during pregnancy or after birth, this study shows awareness and literacy outcomes in an environment that is non-clinical, expanding the ways music can be used from treatment to prevention¹¹.

The mediation analysis helped to understand how the intervention works. Reproductive health awareness is also a significant mediator as it was found that greater awareness of maternal mental health and reproductive processes increases postpartum depression awareness. This is consistent with the research evidence that gaps in reproductive and mental health knowledge are key risk factors for postpartum depression in Chinese women⁷ and the studies which note that reproductive health education for university students is fragmented¹⁴.

Mental health literacy was also a mediator in the relationship between intervention exposure and postpartum depression awareness. Music education seems to do more than impart facts - it helps to reduce stigma and help students identify

mental health and seek professional help. Chinese studies have highlighted that stigma and low mental health literacy barriers affect help-seeking for postpartum depression¹⁷. Music formats being non-threatening and emotionally engaging may well overcome these barriers¹².

Emotional regulation was another important mediator which served as confirmation that music fosters emotional awareness and stress management. Neuroscientific and psychological research indicates that music affects mood control and stress related neurobiological pathways that are associated with depression⁸. Enhancing emotional regulation in early adulthood may foster long-term resilience against postpartum distress, which is commensurate with resilience-focused models of maternal mental health¹⁹.

The findings add to the body of knowledge of prevalence and cultural risk factors by providing an educational, culturally-based solution that begins before clinical vulnerability develops. From a policy and practice perspective, the inclusion of music-based reproductive-mental health education in university wellness programs may be a meaningful way to reduce the burden of postpartum depression in the future on a population level.

Implications

From a policy perspective, the Chinese universities offer a strategic platform on which to base preventive maternal mental health education. The use of music-based reproductive mental health modules for health promotion or general education curricula may help increase awareness and decrease stigma before women enter their reproductive stages. Such initiatives are in line with public-health objectives in early prevention and have the potential to reduce the burden of maternal mental health in the long term.

In educational practice, the results indicate that music can help to engage students on sensitive topics in traditional health education. Counselors, health educators, and student affairs teams may consider adding music-facilitated sessions to wellness programs in order to enhance mental health literacy and emotional regulation in female students. These interventions can also help to generate peer discussion and positive attitudes toward maternal mental health.

For future research, longitudinal studies are required to observe the consequences of a higher awareness and emotional preparedness in university years, namely if these lead to reduced symptoms of postpartum depression later. Experimental and randomized designs may be helpful in strengthening causal inference. Researchers should also consider adapting music-based interventions to other cultural contexts and testing their effectiveness with male students and the communities more widely.

Finally, on a societal level, the findings warrant the normalisation of maternal mental health education in the broader reproductive health discourse. Positioning postpartum depression awareness in culturally acceptable, emotionally engaging formats may lessen stigma and facilitate a greater environment that is supportive of women's mental health throughout the reproductive life course.

Conclusion

This study examined how music-based educational intervention influences the postpartum depression awareness and related psychosocial outcomes among female university students in China. Quantitative outcome results indicate that a structured music intervention increases postpartum depression awareness, reproductive health awareness, mental health literacy, emotional regulation, and psychological resilience. These results support the view that early-adult preventive mental health education can influence future maternal well-being by supporting the development of cognitive and emotional readiness prior to pregnancy. The research changes the emphasis of music interventions from clinical and postpartum populations in the university. Unlike previous research efforts that were focused on reducing symptoms during pregnancy or after birth, this study focuses on the preventive activity of music education as an upstream approach. By incorporating mental health and reproductive education through the cultural medium of music, the intervention provides a non-stigmatizing, accessible way of addressing the risk of postpartum depression in China. Overall, the findings confirm that music-based educational interventions are a meaningful part of the early reproductive mental health promotion effort. They give empirical support for

life-course-oriented strategies to reduce postpartum depression and the need to integrate emotional, cultural, and educational elements in reproductive health programs.

Authors contribution

Jingye Shen and Yi Shen (Co-first authors)

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