Patient Preference and Adherence

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ORIGINAL RESEARCH

Preferences of Chinese Women for Perinatal Depression Screening: A Discrete Choice Experiment

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Introduction: Perinatal depression affects 17.7% of women globally, with prevalence reaching 20–30% in China and higher in low-income regions. It poses severe risks, including adverse pregnancy outcomes, maternal suicide, and infanticide. Despite its high prevalence, many cases go undiagnosed due to low screening participation. Screening is cost-effective and reduces depression risk by 2.1–9.1%, yet current strategies often fail to align with patient preferences. In this study, a discrete choice experiment was utilized to assess women's preferences for postpartum depression screening characteristics, and to quantify trade-offs and preference heterogeneity, providing information for a more patient-centered approach.

Methods: We identified six key screening attributes through literature review, interviews, and focus groups. A D-efficiency design approach was implemented to create 36 choice sets and randomly divide them into 3 blocks. A mixed logit model was applied to analyze participants' preferences, assess the relative importance of attributes, and predict the choice probabilities of participants for screening situations.

Results: There are 291 respondents were included in analysis. Healthcare provider type emerged as the most important screening characteristic (27% relative importance), with strongest preference for doctor-led screenings. Women consistently preferred shorter screening duration (15 minutes). Younger women (18–34 years) preferred online screening, while Postpartum women showed stronger preferences for telephone screenings. The most preferred scenario—online by a physician, lasted 15 minutes, occurred every three months, and provided as a rouhad a 0.270 predicted choice probability. These findings highlight the need for tailored screening approaches based on age and pregnancy status.

Conclusion: This study identified a preference for brief, physician-led screening with follow-up. To enhance implementation in primary care, particularly in resource-limited settings, we recommend integrating short screenings into routine visits and utilizing trained non-specialists with digital support. These strategies can improve screening accessibility and long-term management.

Keywords: preferences, adherence, discrete choice experiment, perinatal depression

Introduction

Perinatal depression refers to a depressive episode that occurs during pregnancy or within 12 months postpartum. This condition can be categorized into prenatal depressive symptoms and postpartum depressive disorder and is considered one of the common mental disorders.[1] Perinatal depression poses a major threat to maternal and child health, which can not only lead to clinical symptoms such as low mood, decreased activity, and sleep disorders. If left untreated, depression during this period can lead to adverse pregnancy outcomes, including preterm birth, low birth weight, and fetal malformations, and may even lead to severe consequences such as maternal suicide or infanticide.[2–5] Globally, the prevalence of perinatal depression is approximately 17.7%, with significantly higher rates in low- and middle-income countries compared to high-income nations.[6] In China, the prevalence of perinatal depression is estimated to be approximately 20% to 30%, while in certain developing countries or regions, this proportion is notably higher.[7,8]

Despite the high prevalence of perinatal depression, a significant number of patients do not receive timely diagnosis and intervention.[5,9] Depression screening for pregnant and parturients helps to identify suspicious individuals as early as possible and arouse the attention of family members, so as to achieve early detection, early diagnosis and early treatment of perinatal

https://doi.org/10.2147/PPA.S539503
Received: 10 May 2025
Accepted: 10 December 2025
Published: 15 January 2026

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depression. A study have consistently demonstrated that the risk of depression is reduced by 2.1% to 9.1% among pregnant and postpartum women who undergo depression screening, irrespective of whether they subsequently receive treatment.[10] Additionally, evidence indicates that screening for perinatal depression is more cost-effective compared to not conducting such screenings.[11] Several countries have developed screening strategies for perinatal depression.[10,12–14] In China, The National Health Commission issued guidelines in 2020 recommending routine depression screening during pregnancy and postpartum checkups,[13] but implementation remains inconsistent across regions due to limited resources and cultural barriers. However, multiple studies have shown inadequate participation in perinatal depression screening, with even 56% of participants refusing to undergo perinatal depression screening.[5,9,15] A significant challenge in China is the persistent stigma surrounding mental health issues. Cultural factors such as fear of social discrimination, and concerns about family reputation often deter women from seeking help, which leads to a lower participation rate in perinatal depression screening. The Working Committee on Children and Women under State Council of China has stated that perinatal depression screening would be incorporated into routine prenatal and postnatal care services,[16] but the corresponding implementation details have yet to be released.

In the context of patient-centered medicine, engaging stakeholders in clinical decision-making not only enhances satisfaction but also improves health outcomes.[17,18] Health strategies aligned with individual preferences demonstrate higher adherence and effectiveness.[19] While previous studies have identified factors influencing screening participation.[20–22] they have been limited by descriptive approaches that fail to quantify the relative importance of different attributes or explore the trade-offs women are willing to make. This gap significantly limits our ability to design optimally acceptable screening programs. Rooted in consumer demand theory and random utility theory,[23] Discrete choice experiment (DCE) allows to quantify of preference weights for different screening attributes, analysis of trade-offs between competing factors, predict of acceptance rates for various screening scenarios, and identify of subgroups with distinct preference patterns. Therefore, a DCE survey was conducted to understand the screening preferences of pregnant and postnatal women for perinatal depression, aiming to inform the development of effective and more acceptable perinatal screening strategies.

Methods

Study Design

The development and implementation of this study follow the design principle of DCE. The DCE mainly consists of four stages, namely (1) identifying attributes and determining levels; (2) generating choice sets and developing questionnaires; (3) data collection; and (4) data analysis. The checklist of best practices for DCE in medical institutions developed by the International Society for Pharmacoeconomics and Outcomes Research (ISPOR) was the reporting basis followed in this study.[24]

Identifying Attributes and Determining Levels

A literature review, in-depth interviews, and focus group discussions were conducted to identify the attributes and levels of the included studies. Electronic databases such as Wanfang Database, Web of Science, Embase, China National Knowledge Infrastructure (CNKI), and PubMed were systematically searched. Additionally, to gather more comprehensive information, the snowball method was employed to review the references of the retrieved articles. After a comprehensive review of all collected literature, relevant influencing factors were identified, such as inadequate policy implementation and promotion, fragmented screening services, insufficient training of medical professionals, and resource accessibility.[25–29] We also paid attention to other DCE studies used for exploring preferencesdisease screening. Potential attributes were formulated, and interview guidelines were developed based on these attributes. Based on this guideline, one-on-one interviews were conducted with pregnant women to further explore and refine the attributes and levels. The one-on-one interviews primarily focused on the following themes: (1) awareness and attitudes toward perinatal depression; (2) factors influencing perinatal depression screening; (3) needs and preferences regarding depression screening; (4) perspectives and expectations concerning perinatal depression screening. After conducting one-on-one interviews, a total of 11 potential attributes were identified. In DCE studies, the typical range for the number of attributes is between 4 and 8, with 6 attributes often considered optimal.[27,30] Consequently, two focus group discussions were organized, each comprising two pregnant women, two parturients, and two psychiatric professionals. Through these discussions, the six most critical attributes were selected for inclusion in the study, and corresponding levels were developed for each attribute. For detailed information on the attributes and their respective levels, please refer to Table 1.

Table 1 Attributes and Levels

Attributes	Concept	Levels
Provider	Who would you prefer the screening to be provided by?	Doctor
		Nurse
		Psychologist
Method	What screening method would you prefer?	Face-to-face
		Online
		Telephone
Duration	The extra time you will spend during the screening process is in addition to your other medical procedures.	15 mins
		30 mins
		60 mins
Follow-up	Follow-up is provided for those with risk results.	Yes
		No
Frequency	How often would you like to be screened?	Once only
		Monthly
		Every 3 months
Accessibility	Do you prefer to ask or be approached for screening?	Available if you ask
		Routinely offered to everyone

Generating Choice Sets and Developing Questionnaires

The Ngene software was utilized to conduct a D-efficiency design, combining the specified attributes and levels into 24 paired choice sets. These choice sets were randomly allocated into three blocks using a computer-generated randomization algorithm in Ngene, and efforts were made to ensure that each block contained a balanced representation of all attribute levels, and the correlations between attributes were minimized. This allocation aimed to alleviate the cognitive load on respondents, with each block comprising eight tasks. To validate the design efficiency, we calculated the D-error (0.023) and confirmed that all priors fell within acceptable confidence intervals based on pilot data. The fifth choice set from each block was consistently repeated as the ninth choice set to assess selection consistency. For each choice set, in addition to the two alternative scenarios, an opt-out option was included, allowing respondents to indicate that neither scenario was preferred. This was done to prevent overestimation of participation rates. In addition to the choice task, the questionnaire also incorporated respondent characteristics, including age, history of depression, socioeconomic status, and educational attainment, to investigate whether individual preferences might vary according to sociodemographic factors. Referring to prior studies, the survey instrument (versions 1–3) underwent iterative pilot testing.[27,31] Twenty participants were recruited (five from each of the first, second, and third trimesters, as well as the postpartum period) to engage in verbal and structural evaluations of the questionnaire, with the aim of enhancing its clarity. Based on feedback obtained during the pilot phase, a sample choice task was introduced as a "warm-up" exercise preceding the formal choice task. The example choice set is presented in Figure 1, and the questionnaire is presented in Supplementary Figure 1.

Data Collection

The inclusion criteria were as follows: 1) pregnant women at or beyond 12 weeks of gestation or within 6 months postpartum; 2) aged 18 years or older; 3) capable of completing the questionnaire in Chinese; and 4) willing to voluntarily participate in this survey. The exclusion criteria were as follows: 1) individuals previously diagnosed with depression or other psychiatric disorders; 2) individuals with severe physical illnesses, such as malignant tumors or significant cardiopulmonary

 https://doi.org/10.2147/PPA.S539503

Attributes	Programme A	Programme B
Provider	Nurse	Doctor
Method	Face-to-face	Telephone
Duration	30 mins	15 mins
Follow-up	No	Yes
Frequency	Every 3 months	Once only
Accessibility	Available if you ask	Routinely offered to everyone

Which Programme do you prefer?

☐ Programme A ☐Programme B ☐Choose neither

Figure 1 An example of choice set.

diseases; 3) cognitive impairments or inability to comprehend the study content; 4) recent participation in similar studies; and 5) individuals at risk of suicide requiring immediate intervention. To ensure the representativeness of the sample within the population, participants were recruited through convenience sampling from outpatient clinics of four hospitals in Sichuan Province (two tertiary and two secondary hospitals). Trained research staff approached potentially eligible patients in clinic waiting areas during routine visits. The sample size was determined based on a rule of thumb using the following formula: $N>500c/(t\times a)$.[32,33] Here, c denotes the maximum number of levels for any given attribute, 500 is a fixed constant, t represents the number of choice sets included in each questionnaire (excluding repeated sets), and a indicates the number of options per set (excluding "opt-out" items). In this study, c = 3, a = 2, t = 8. Using this formula, the required sample size per version was calculated to be 94, leading to an overall sample size of 282.

Data were collected from July 2024 to March 2025. To ensure an adequate sample size and minimize potential bias arising from discrepancies in the number of questionnaires across versions, participants were randomly allocated into three groups of 110 individuals each using a computerized random number generator. Respondents in each group were administered the first, second, and third versions of the questionnaire, respectively. All data were collected through face-to-face interviews conducted by trained investigators using paper-based questionnaires. If a respondent provided inconsistent answers during the repeat-choice task, the corresponding questionnaire was deemed to have failed the consistency check and was subsequently excluded from the final analysis.

Data Analysis

Descriptive statistics were employed to examine the socio-demographic characteristics of the respondents. Additionally, a mixed logit model implemented in Stata 17.0 was utilized to evaluate the preferences of respondents regarding depression screening, accounting for preference heterogeneity across different samples. Attribute levels are encoded as dummy variables. The sign of the coefficient denotes the direction of preference, where positive (negative) signs suggest that individuals with depression prefer (dislike) specific attribute levels compared to reference attribute levels. The average coefficient value reflects the aggregate preference of depressed patients for specific attribute levels relative to the reference levels. Based on the utility coefficients estimated by the mixed logit model, the relative importance (RI) of the attributes was quantified by calculating the percentage of the range ($\max(\beta_{jk} - \min(\beta_{jk}))$ of the utility coefficients of each attribute to the sum of the range of all attributes. The specific formula is as follows:

$$RI_i = \frac{max\left(\beta_{jk}\right) - min\left(\beta_{jk}\right)}{\sum_{j=1}^{J}\left(max\left(\beta_{jk}\right) - min\left(\beta_{jk}\right)\right)} \times 100\%$$

Here, β represents the coefficient of the kth level of attribute i, and J is the total number of attributes. Given the established association between age and the incidence of perinatal depression, subgroup analyses were conducted stratified by age and pregnancy status.[34] Subsequently, Predict the likelihood that the combination of attribute levels constitutes the optimal scenario based on the following equation:

$$P_j = \frac{\exp\left(V_j\right)}{\sum_{k=1}^{J}\exp(V_k)}$$

In this equation, Vj represents the preference score, also referred to as the indirect utility score, where j ranges from 1 to J. In this study, only the top five highest-ranked scenarios are taken into consideration.

Results

Characteristics of Respondents

A total of 330 respondents participated in the survey. Among them, 18 failed to complete the questionnaire, and 21 did not pass the consistency test. Consequently, a final sample of 291 respondents was included in the analysis. Among them, 102 were from secondary hospitals and 189 were from tertiary hospitals. Among the respondents included in the analysis, 159 were pregnant women and 132 were postpartum women. The proportion of individuals experiencing their first pregnancy or first delivery was 62.89%, with the age group of 25–34 years being the most prevalent, accounting for 55.33%. Further details regarding the characteristics of the respondents are presented in Table 2.

Table 2 Characteristics of Respondents

Characteristics	Respondents (N=291)	
	N	%
Status of pregnancy		
Pregnant	159	54.64
Puerperal	132	45.36
Age, years		
18-24	22	7.56
25-34	161	55.33
35-44	93	31.96
45-54	15	5.15
≥55	0	0
Highest level of education		
Primary school and below	3	1.03
Junior high school	59	20.27
Senior high school	96	32.99
College degree and above	133	45.71

(*Continued*)

 https://doi.org/10.2147/PPA.S539503

Table 2 (Continued).

Characteristics	Respondents (N=291)	
	N	%
Monthly household income		
<4000	8	2.75
4000-8000	61	20.96
8000-12,000	94	32.30
12,000-16,000	76	26.12
16,000-20,000	35	12.03
≥20,000	17	5.84
Parity		
Primipara	183	62.89
Multipara	108	37.11
History of abortion		
Yes	119	40.89
No	172	59.11
History of induced labor		
Yes	76	26.12
No	215	73.88
History of embryo damage		
Yes	84	28.87
No	207	71.13
Intended pregnancy		
Yes	199	68.38
No	92	31.62
Place of residence		
City	173	59.45
Town	118	40.55
Source of Respondents		
From secondary hospitals	102	35.05
From tertiary hospitals	189	64.95

Overall results

The results of the preference assessments for all respondents are presented in Table 3. Regarding healthcare providers, doctors were the most preferred option (coefficient=0.931, p<0.01), followed by nurses (coefficient=0.664, P<0.01). Shorter screening durations were favored by the respondents, with a 15-minute screening being particularly preferred

Table 3 Mixed Logit Estimates for Total Sample (n=291)

Attribute (Reference Level)	Mean			SD		
	Coefficient (s.e)	95% CI		Coefficient (s.e)	95% CI	
Provider (Psychologist)						
Doctor	0.931** (0.084)	0.7666433	1.09438	0.277 (0.182)	−0.0794287	0.6325017
Nurse	0.664** (0.824)	0.5014052	0.8260724	0.376** (0.094)	0.1919105	0.5595666
Method (Face-to-face)						
Online	0.596** (0.083)	0.4322458	0.7587623	0.245 (0.98)	0.1428899	0.6334166
Telephone	0.045 (0.087)	−0.1264839	0.2161330	0.846** (0.083)	0.6835264	1.007771
Duration (60 mins)						
15 mins	0.724** (0.075)	0.5778923	0.8709218	0.275* (0.081)	0.1183494	0.4333886
30 mins	0.588** (0.085)	0.4226376	0.75408345	1.016** (0.102)	0.861737	1.259693
Follow-up (No)						
Yes	0.425** (0.066)	0.2961623	0.554631			
Frequency (Every 3 months)						
Once only	0.331 (0.093)	−0.0094933	0.6714889	1.129** (0.098)	1.11989	1.4636665
Monthly	−0.175* (0.060)	−0.2919928	0.0572131	0.529** (0.072)	0.3884315	0.6692699
Accessibility (Available if you ask)						
Routinely offered to everyone	0.262** (0.068)	0.1291809	0.3942741	0.216** (0.085)	0.0502712	0.3820664

Notes: *p<0.05, **p<0.01.

(coefficient=0.724, p<0.01). Additionally, the importance of follow-up after screening was acknowledged by the respondents (coefficient=0.425, p<0.01). While there was no significant preference for screening only once compared to every three months, the respondents demonstrated a negative preference for monthly screenings (coefficient=−0.175, p<0.05), suggesting a stronger inclination toward screenings conducted every three months. For the standard deviation, the p-values corresponding to all attribute levels except "Provider - Doctor" and "Method - Online" are less than 0.05, indicating that there is heterogeneity in the preferences of the participants.

Relative Importance

The RI of each attribute is presented in Figure 2. The RI of Provider was the highest (27.03%). It was followed by Duration with a RI of 21.02%. In contrast, the RI of attribute Accessibility is relatively low, which is 7.61%.

Results of Subgroup Analyses

This study investigated the heterogeneity in preferences for depression screening among pregnant woman and postnatal women through discrete choice experiments, with subgroup analyses conducted based on age and delivery status. The results are presented in Table 4.

In the age subgroup analysis (please see Table 4. Based on age), pregnant women aged 18–34 years demonstrated a higher likelihood of opting for online screening (coefficient=1.001, p<0.01), whereas those aged ≥35 years exhibited a stronger preference for telephone-based screening (coefficient=0.536, p<0.01). Furthermore, younger pregnant women showed greater acceptance of shorter screening duration (15 minutes and 30 minutes), while older pregnant women only significantly preferred the 15-minute screening option (coefficient=0.484, p<0.05). Both age groups significantly favored doctors over

https://doi.org/10.2147/PPA.S539503

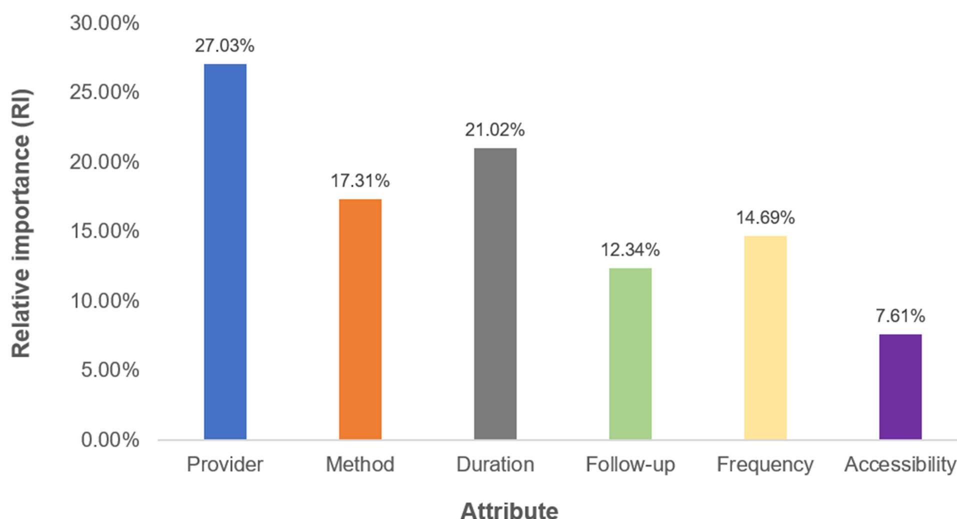

Figure 2 The relative importance of attributes.

psychologists; however, the preference for doctors was more pronounced among older pregnant women (coefficient: 0.997 vs 0.594). Pregnant women aged ≥35 years placed greater emphasis on follow-up services (coefficient=0.631, p<0.01), whereas younger pregnant women exhibited relatively lower demand for such services (coefficient=0.376, p<0.05).

Table 4 Results of Subgroup Analysis. Based on Age

Attribute (Reference Level)	18-34 (Year)		≥35 (Year)	
	Mean Coefficient (s.e)	**SD Coefficient (s.e)**	**Mean Coefficient (s.e)**	**SD Coefficient (s.e)**
Provider (Psychologist)				
Doctor	0.594** (0.139)	0.022 (0.161)	0.997** (0.141)	0.052 (0.119)
Nurse	0.470** (0.103)	0.419* (0.210)	0.312* (0.150)	1.202** (0.166)
Method (Face-to-face)				
Online	1.001** (0.132)	0.229* (0.089)	0.358** (0.110)	0.329 (0.177)
Telephone	0.516** (0.148)	0.235 (0.285)	0.536** (0.141)	0.135 (0.150)
Duration (60 mins)				
15 mins	0.299* (0.112)	0.041 (0.214)	0.484* (0.149)	0.702** (0.169)
30 mins	0.417* (0.147)	0.658** (0.181)	0.258 (0.137)	0.112 (0.120)
Follow-up (No)				
Yes	0.376* (0.150)	1.103* (0.057)	0.631** (0.173)	0.142 (0.162)
Frequency (Every 3 months)				
Once only	278* (0.133)	0.319* (0.150)	0.438** (0.109)	0.255* (0.152)
Monthly	0.307 (0.161)	0.438** (0.109)	0.298 (0.153)	0.585** (0.150)
Accessibility (Available if you ask)				
Routinely offered to everyone	0402** (0.168)	0.210 (0.120)	313* (0.150)	0.052 (0.067)

Notes: *P<0.05, **p<0.01.

In the subgroup analysis based on delivery status (please see Table 5. Based on status of pregnancy), pregnant women showed a stronger preference for online screening (coefficient=0.764, p<0.01), whereas postpartum women demonstrated a higher preference for telephone screening (coefficient=0.818, p<0.01). Regarding screening duration, both groups significantly favored the 15-minute screening option; however, the 30-minute screening was found to be significant only among postpartum women (coefficient=0.465, p<0.05). Additionally, postpartum women exhibited a greater demand for routinely provided screening services (coefficient=0.438, p<0.01) and follow-up services (coefficient=0.723, p<0.01), although their preference for these aspects remained relatively weaker.

Predicting Choice Probability

To elucidate respondent preferences regarding the combination of factors, Table 6 displays the five most appealing screening scenarios for depression. All these scenarios involved a physician as the provider and included follow-up services. The optimal

Table 5 Results of Subgroup Analysis. Based on Status of Pregnancy

Attribute (Reference Level)	Pregnant		Puerperal	
	Mean Coefficient (s.e)	SD Coefficient (s.e)	Mean Coefficient (s.e)	SD Coefficient (s.e)
Provider (Psychologist)				
Doctor	0.764** (0.139)	0.384* (0.155)	0.819** (0.117)	0.052 (0.119)
Nurse	0.175 (0.122)	0.380* (0.162)	0.251 (0.236)	1.202** (0.166)
Method (Face-to-face)				
Online	0.234 (0.137)	0.265 (0.226)	0.764** (0.139)	0.584 ** (0.106)
Telephone	0.818** (0.117)	0.367* (0.164)	0.464* (0.144)	0.598** (0.109)
Duration (60 mins)				
15 mins	0.603** (0.110)	0.229 (0.298)	0.588** (0.109)	0.227 (0.136)
30 mins	0.465* (0.144)	1.141** (0.081)	0.109 (0.21)	0.466* (0.143)
Follow-up (No)				
Yes	0.723** (0.138)	0.797** (0.108)	0.601** (0.101)	0.107 (0.120)
Frequency (Every 3 months)				
Once only	0.359* (0.116)	0.072* (0.073)	0.438** (0.117)	0.327* (0.130)
Monthly	−0.110* (0.131)	0.398** (0.119)	0.234 (0.137)	0.721** (0.137)
Accessibility (Available if you ask)				
Routinely offered to everyone	0.438** (0.117)	0.220 (0.319)	251* (0.236)	0.360* (0.148)

Notes: *P<0.05, **p<0.01.

Table 6 Preference Scores Within the Top 5 Screening Programs

Rank	Provider	Method	Duration	Follow-Up	Frequency	Accessibility	Preference Score	$P_{(j)}$
1	Doctor	Online	15 mins	Yes	Every 3 months	Routinely offered	2.652	0.270
2	Doctor	Online	30 mins	Yes	Every 3 months	Routinely offered	2.537	0.241
3	Doctor	Telephone	15 mins	Yes	Every 3 months	Routinely offered	2.355	0.201
4	Doctor	Online	15 mins	Yes	Once only	Routinely offered	2.316	0.193
5	Doctor	Face-to-face	60 mins	Yes	Every 3 months	Routinely offered	1.618	0.096

screening option was conducted online by a physician, lasted 15 minutes, occurred every three months, and was provided as a routine service. This option had a preference score of 2.652 and a choice probability of 0.270.

Discussion

Our study identified variations in depression screening preferences among women of different ages and delivery status by thoroughly examining respondents' preferences for depression screening. These results not only offer a critical foundation for designing depression screening strategies that better address the needs of pregnant women and postnatal women but also suggest novel avenues for future research and practice in this field.

Consistent with Dawson's study,[20] which demonstrated that physicians are the most frequently sought recourse by pregnant women, our study found that physicians are the most preferred providers. This finding suggests that pregnant women and parturients place significant emphasis on the professional identity and background of healthcare providers when selecting services. It further underscores the pivotal role of physicians in managing perinatal depression and the critical importance of screening for perinatal depression. Crucially, this preference aligns perfectly with China's existing healthcare infrastructure. Leveraging the authority and trust of physicians, particularly obstetricians and community general practitioners, to conduct screening represents a highly feasible and cost-effective strategy. It avoids the need for massive recruitment of specialized mental health professionals, which is a critical advantage in resource-constrained settings. In addition, nurses were also highly preferred as screening providers, which may be attributed to their frequent interaction and communication with pregnant individuals during prenatal care. The approachability and trustworthiness of nurses might further encourage pregnant women and postnatal women to willingly accept their screening services. This suggests a potential model of task-sharing, where nurses conduct initial screenings under physician supervision, optimizing the use of human resources.

Attribute "Provider" has the greatest RI. Lack of trust or lack of knowledge of providers often makes it difficult for pregnant and parturients to participate in screening when facing mental health problems.[35] Thus, the importance of "Provider" reflects the high need for professionalism and reliability among pregnant women. Many health systems have incorporated depression screening into routine prenatal care,[36] resulting in a high underlying accessibility of screening itself,[37,38] which may account for the lowest RI of the attribute "accessibility" in this study. The low relative importance of accessibility is a promising finding for policy implementation in vast or remote areas. It implies that women prioritize who delivers the service and how it is delivered over where it is delivered. This reduces the barrier of establishing screening in specialized mental health facilities, which are often concentrated in urban centers. Instead, screening can be effectively integrated into primary care settings and community health centers that are widely distributed and more accessible to the population, even in rural China.

Our findings demonstrated that face-to-face screening was the most favored modality, potentially attributable to its facilitation of immediate communication and feedback between respondents and service providers. This aligns with Hamideh Bayrampour's study,[35] which indicated that respondents prefer screening modalities enabling immediate feedback and interaction, thereby corroborating our hypothesis. In a study conducted in Japan, pregnant women favored face-to-face communication,[39] whereas puerpera preferred telephone or video conferencing. Conversely, our study revealed that pregnant women are more inclined toward online screening. This discrepancy may be attributable to variations in preferences shaped by differing cultural backgrounds.[35] Studies have demonstrated that pregnant women tend to favor online screening due to the privacy and convenience it provides.[40,41] Nevertheless, alternative research has highlighted that telephone screening might be more suitable for parturients, as it facilitates more direct human interaction and support.[35] These findings indicate that women at various stages of pregnancy may have distinct preferences regarding screening modalities, a conclusion that aligns with the results of the present study. For implementation in regions with limited digital infrastructure or lower digital literacy (eg, rural areas), the strong preference for telephone screening among postpartum women offers a practical and low-cost alternative. Phone-based screening requires minimal technology and can be administered by trained community health workers, greatly expanding its potential reach.

The higher preference for "Routinely offered to everyone" and follow-up care may indicate a heightened sensitivity and concern regarding postpartum mental health issues. This consistent with studies emphasizing the necessity of timely psychological intervention and referral support following postpartum depression screening to effectively alleviate depressive symptoms.[42,43] However, the relatively weaker preferences among pregnant women in these regions may be attributed to their limited awareness of postpartum mental health or concerns regarding the implications of screening results.[35] Integrating screening as a routine component of standard prenatal and postnatal check-ups, as advocated in

national policies like "Healthy China 2030," is the most effective way to normalize it and reduce stigma. From a resource perspective, bundling the screening with existing visits eliminates separate appointment costs and maximizes the use of available clinical time.

Pregnant women demonstrated a preference for shorter screening duration, particularly the 15-minute screening option. This finding aligns with prior research indicating that women favor rapid screening methods.[44] This may be attributed to pregnant women's emphasis on efficiency due to their demanding schedules during pregnancy. This preference for brevity is not only acceptable to patients but also highly efficient for the healthcare system. A 15-minute protocol can be more easily integrated into busy clinical workflows, increasing the likelihood of physician adoption and sustainable implementation without overburdening primary care staff. The 30-minute screening was also somewhat popular, suggesting that some women are willing to invest more time for a more comprehensive psychological assessment. While, the 30-minute screening was also moderately popular, suggesting that some participants were willing to invest more time for a more comprehensive psychological assessment, which may be associated with the perception of the severity of mental health issues among pregnant women. Notably, the preference for online screening and 15-minute screening was more pronounced among respondents in the 18–34 age group, which may be related to the familiarity of young pregnant and maternal women with the technology and the need for rapid feedback.[45] In the ≥35 age group, respondents' preference for telephone screening and 30-minute screening was more prominent, which may be due to the higher risk of depression in older pregnant women. Studies have demonstrated that older pregnant women experience increased psychological stress and require more in-depth assessments, which verifies our hypothesis.[36,45]

Consistent with the importance of continuity of care emphasized in the existing literature,[46] screening services with follow-up were more popular among pregnant women in this study. Furthermore, older pregnant women face greater psychological stress,[36] which may account for the stronger preference for subsequent follow-up among respondents over 35 years of age. Continuity of care can increase awareness of mental health problems among pregnant women and promote their active participation in screening and treatment.[46] Follow up care should be conducted to understand the psychological changes of pregnant and postpartum women, giving more attention to elderly pregnant and postpartum women, and implementing referral and intervention for those with abnormal screening results, in order to ensure the continuity of mental health care services and reduce the occurrence of perinatal depression.

Psychological stress varies across different stages of pregnancy, with a particularly notable increase in the risk of mental health issues during the third trimester,[47,48] which may account for the pronounced preference for monthly screening observed among pregnant women in this study. From an accessibility perspective, pregnant women are more likely to prefer screening services Routinely offered to everyone, which reflects the demand of pregnant women for the convenience and reliability of screening services. A study has showed that clinic is the main venue for screening for depression during pregnancy and postpartum, and the popularity of the clinic determines access to screening.[36] China is a developing country with primary health care based on community medical centers. Therefore, training community staff to perform screening for depression during pregnancy may be promising.

The findings of this study provide valuable insights for clinical practice and policy development, highlighting that effective depression screening should be based on a patient-centered, differentiated service ecosystem, rather than adopting a one-size-fits-all approach. Policy frameworks should emphasize the development of a flexible screening model that positions healthcare professionals as primary facilitators and incorporates streamlined 15-minute assessment tools to improve efficiency. Furthermore, follow-up services must be mandated as a critical element to ensure continuity of care. Implementation strategies should also consider the heterogeneity of the population: digital-first online screening may be more suitable for younger perinatal women, whereas older and postpartum individuals may benefit more from personalized phone-based support due to their greater need for interpersonal interaction. By tailoring service delivery to patient preferences and life stages, policymakers and healthcare providers can enhance participation rates, optimize resource allocation, and ultimately contribute to the development of a compassionate and effective perinatal mental health support system. Our study, by quantifying preferences for the screening process itself, addresses a critical and distinct upstream component of the perinatal mental health care pathway. This focus complements recent research that has examined patient preferences for downstream treatment options, such as a discrete choice experiment on group psychological interventions for perinatal depression.[49] Together, these lines of evidence provide a more

 https://doi.org/10.2147/PPA.S539503

complete blueprint for building a service continuum—from acceptable methods of case identification explored here, to engaging and effective treatment modalities—that is responsive to women's needs and preferences at each stage.

The results of Predicting choice probability showed that pregnant women preferred the quick, convenient and regular screening method, and had a lower preference for the face-to-face screening method that took longer. This suggests that both convenience and efficiency should be considered when designing screening programs. Medical institutions need to weigh the convenience and effectiveness of screening methods when promoting perinatal depression screening, so as to improve the participation and screening coverage of pregnant women and postnatal women. Future research could further explore how to combine the advantages of online and in-person screening to meet the needs of different individuals.

Limitations

Our study has several notable limitations that warrant discussion. First, DCE can explore individuals' stated preferences, which may be influenced by self-reporting and assumption biases. They might provide answers that conform to social expectations or exaggerate the importance of certain attributes when there are no actual consequences. Future research can validate these results by comparing them with observed real-world behaviors. Second, while our sample size aligns with common practice in DCE researches, we did not conduct a priori power calculations, which may limit our ability to detect smaller effect sizes. However, the statistically significant results observed for key attributes suggest that the sample was sufficient for the primary objectives of this study. Third, the analysis primarily relied on the mean utility values from the overall model, without further employing latent class analysis (LCA) to systematically identify and characterize patient segments with distinct preference profiles. Fourth, although subgroup analyses revealed differences in preferences among participants with varying demographic characteristics, many participants were hesitant to disclose additional personal information, possibly due to privacy concerns. This reluctance may have introduced selection bias and limited our ability to fully account for the results, particularly regarding effects on preferences such as a history of depression. Fifth, the lack of a cost attribute means we cannot estimate willingness-to-pay, which limits the ability to conduct a formal cost-effectiveness analysis of the preferred screening strategies. This is a key consideration for policymakers who must allocate resources. Finally, the interpretation of our model results primarily focused on the statistical significance and direction of the coefficient estimates, which, while crucial for understanding the relative importance of attributes, could be further enhanced by a deeper discussion of their practical implications for policy implementation in the field (eg, conducting cost-benefit analyses or informing specific resource allocation plans). Future research could address these limitations by validating DCM model outcomes against real-world behavioral data or incorporating cost attributes to enable more robust health economic evaluations, thereby providing policymakers with more actionable evidence.

Conclusion

Perinatal depression poses a significant threat to maternal and child health. This study demonstrates that women prefer physician-led, 15-minute screening with follow-up services, with preferences varying by age. The optimal strategy involves physician-led online screening every three months. To implement these findings in primary care, we recommend integrating brief screening into routine prenatal visits. In areas with limited expertise, task-sharing with trained nurses and community health workers under physician supervision can expand coverage. Digital platforms (online/telephone) offer scalable solutions for underserved regions. These approaches facilitate early detection and long-term management by ensuring timely referrals and continuous care integration. These findings highlight the importance of tailored, accessible screening strategies in perinatal mental health policy.

Abbreviations

DCE, Discrete choice experiment; RI, Relative importance.

Data Sharing Statement

Details of data and materials can be obtained by contacting the corresponding author. All data included in this study are being published for the first time and have not been partially or wholly published in any other article.

Ethics Approval and Consent to Participate

This study was performed in accordance with the Declaration of Helsinki and was approved by the Biomedical Ethics Committee of Sichuan University [Ethics Number:20221171]. We introduced the study to all participants and obtained their consent.

Acknowledgments

We are grateful to all researchers for their efforts and all people who are willing to participate the study.

Disclosure

The authors declare that this is an original, unpublished manuscript, not under consideration elsewhere. The authors report no conflicts of interest in this work. This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

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