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Uncovering Gaps in Maternal Mental Health Screening Within Routine Antenatal Care as a Foundation for Developing an Integrated Counselling Model: An Exploratory Study in Primary Health Care, Medan Indonesia

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ABSTRACT: Depression and anxiety during pregnancy are underreported public health issues, particularly in low- and middle-income countries. This study identified a lack of attention to maternal mental health in antenatal care (ANC) services at Indonesian community health centers. A mixed-methods approach was used to explore barriers to the integration of mental health into ANC. An Integrated Antenatal Counseling Model was developed and tested on 107 pregnant women, showing a significant increase in screening completion rates from 0% to 94.4%. The findings indicate a need for rigorous mental health screening and training for health workers; however, the study's limited design suggests the need for further studies with a control group to validate the results and inform implementation recommendations in a broader context.

1. INTRODUCTION

High-quality maternal and child health care requires good maternal mental health. Pregnancy can exacerbate mental health issues and affect a woman's well-being as well as her interactions with her baby, partner, and family. The WHO recommends incorporating the promotion, identification, assessment, support, and referral of perinatal mental health into maternal and child health services, tailoring these efforts to local resources and sociocultural contexts.

Integrating mental health into routine maternal health care is challenging, particularly in primary care settings with limited resources. Capacity constraints, inadequate training, stigma, and unclear clinical and referral processes can hinder the detection and management of psychological disorders. Routine antenatal care (ANC) is provided, but emotional and psychological issues are addressed only on an ad hoc basis. Health screenings during routine ANC and the lack of standard operating procedures (SOPs) for maternal mental health counseling underscore the need for a locally adapted, integrated mental health approach to routine ANC.

The Edinburgh Postpartum Depression Scale (EPDS) have been validated for the assessment of postpartum depression. These screening tests can help identify women who require further evaluation. Screening tests do not replace a clinical diagnosis. Positive screening results require clinical evaluation, consideration of safety and psychosocial factors, and the necessary support,

treatment, or referral. They require clinical evaluation, consideration of safety and psychosocial factors, and the necessary support, treatment, or referral. Thus, the utility of screening in primary care depends on the specific instrument used and whether it can be integrated into clinical workflows. Screening in primary care depends on the specific instrument used and whether it can be integrated into clinical workflows.

The gaps in the evidence addressed by this study go beyond simply measuring the burden of psychological symptoms. One crucial implementation issue is how to integrate maternal mental health screening and brief counseling into routine antenatal care in a way that is feasible for frontline health workers, acceptable to pregnant women, and consistent with the structure of primary care and referral resources. Stakeholder perspectives and operational conditions for an integrated pathway must be taken into account.

This study employed a sequential exploratory mixed-methods design (QUAL→QUAN) to develop and test a model for maternal mental health counseling within routine antenatal care at the Bromo Community Health Center in Medan, Indonesia. (1) To explore the perspectives and needs of pregnant women and key stakeholders regarding barriers and feasible strategies for integrating maternal mental health into ANC; (2) to use these qualitative findings to develop an integrated maternal mental health counseling model; and (3) to conduct a preliminary quantitative evaluation of outcomes related to implementation and participant engagement following the model's implementation. (1) to identify key stakeholders regarding barriers and viable strategies for integrating maternal mental health into ANC; (2) to use these qualitative findings to develop an integrated maternal mental health counseling model; and (3) to conduct a preliminary quantitative evaluation of outcomes related to implementation and participant-level outcomes following the model's implementation.

The mixed-methods design was intentionally developed. The design is developmental in nature. The findings were used to inform the structure and operational components of the intervention, as well as to guide the selection of quantitative evaluation domains. The research design focuses on the integration of qualitative and quantitative aspects, which allows for the consideration of preliminary evidence and contextual findings, given the study's focus on qualitative-quantitative integration. This includes barriers, requirements, and workflows related to preliminary evidence of participant-level outcomes in implementation.

2. MATERIALS AND METHODS

2.1 Study design and methodological rationale

This study employed a pragmatic sequential exploratory design (QUAL-QUAN). Methodology phases (QUAL-QUAN). Phase 1 involved collecting quantitative data to identify barriers, enablers, user needs, and operational procedures for integrating maternal mental health into routine ANC. Data were collected to identify barriers, enablers, user needs, and operational procedures for integrating maternal mental health into routine ANC. This phase involved developing an intervention model, counseling activities, observations, and evaluation domains. In Phase 2, the models were implemented and used to develop quantitative and meta-inferential domains that examine the convergence and divergence of quantitative and qualitative data.

Quantitative components do not include a concurrent control group or random allocation; therefore, changes following implementation are interpreted as concurrent pre- and post-changes rather than causal effectiveness. control group or random allocation; therefore, changes following implementation are interpreted as pre- and post-changes, rather than causal effectiveness.

2.2 Setting and study population

The Bromo Community Health Center (Puskesmas Bromo), an urban primary health care facility in Medan, North Sumatra, Indonesia, served as the site for this study. Sumatra, Indonesia, was the location of this study. This facility offers routine antenatal care (ANC) as well as maternal and child health care. The qualitative study population included health workers and pregnant women with experience receiving antenatal care (ANC) or maternal health care during childbirth. The measurable population included pregnant women attending routine antenatal care (ANC) visits and primary care health staff involved in implementation and evaluation. Women attending routine antenatal care visits and primary care health staff involved in implementation and evaluation.

2.3 Sampling and participants

In the qualitative phase, participants who were well-informed and had firsthand experience with antenatal care (ANC), maternal health program management, health promotion, or service utilization were recruited using purposive sampling. Participants with experience in ANC, maternal health program management, health promotion, or service utilization were recruited using purposive sampling. In the qualitative phase, 8 people participated: six midwives, two general practitioners, two Maternal and Child Health (MCH) coordinators, one health promotion officer, and five pregnant women. Providers with at least six months of experience in providing or supporting ANC services at the study site were eligible. Study participants were pregnant women who had direct experience with ANC services at the study site and provided informed consent based on the information provided.

In the quantitative phase of implementation, pregnant women and health care staff involved in the delivery of ANC or the implementation of the integrated counseling model were recruited using a stratified random sampling method. Pregnant women and health care staff involved in the delivery of ANC or the implementation of the integrated counseling model were recruited using a stratified random sampling method (successive convenience sampling). This phase involved 107 pregnant women and 8 primary care health workers. The study involved 107 pregnant women and 8 primary care health workers. During the study, pregnant women in their second or third trimester visited routine prenatal care (ANC) appointments at the study site and provided informed consent based on the information provided. In the second or third trimester of pregnancy, they visited routine ANC facilities at the study site and provided informed consent. The 8 health workers provided ANC services or implemented an integrated approach to maternal mental health.

2.4 Qualitative Data Collection and Expert Review

Qualitative data were collected through semi-structured focus group discussions (FGDs) and in-depth interviews (IDIs). The interview and discussion guides examined current antenatal care (ANC) procedures, identified psychological issues, assessed the feasibility of integrating counseling into standard ANC, examined operational barriers, reviewed existing screening methodologies, explored opportunities for task sharing, considered privacy and confidentiality, examined family participation, and reviewed referral systems. The study examined current antenatal care (ANC) procedures, the identification of psychological issues, the feasibility of integrating counseling into standard ANC, operational barriers, existing screening methodologies, opportunities for task sharing, privacy and confidentiality considerations, family participation, and referral systems. Each session lasted approximately 90 minutes, was audio-recorded with the participants' consent, and was transcribed verbatim for analysis.

The results from the qualitative phases were combined to identify key needs, barriers to service delivery, and the prospects for integrating maternal mental health support into standard antenatal care. Key needs, barriers to service delivery, and the prospects for integrating maternal mental health support into standard antenatal care. The research findings guided the development of a preliminary Integrated Maternal Mental Health Counseling Model, which includes recommended screening methodologies, risk categorization, counseling materials, task-sharing protocols, family involvement, and referral and follow-up strategies.

The initial model was then evaluated by a diverse panel of specialists with relevant expertise in maternal mental health, maternal health care, and public health. The expert evaluation was conducted to assess the relevance, clarity, feasibility, appropriateness, and coherence of the proposed model in relation to the provision of standard ANC services. It was conducted to evaluate the relevance, clarity, feasibility, appropriateness, and coherence of the proposed model in relation to the provision of standard ANC services. The panel consisted of specialists in the fields of psychology, maternal health, and public health. The model elements utilized a systematic review template and provided feedback and recommendations regarding the content and operational methods.

The research team conducted a comprehensive review of the input provided by experts. A comprehensive review of the input from experts. Screening procedures, risk categorization, counseling materials, task-sharing protocols, family involvement, and referral pathways were evaluated for their relevance to the research context and their practicality within standard ANC services. Elements requiring clarification or modification were adjusted as needed, while those deemed appropriate and feasible were retained. The updated models were then evaluated to ensure internal coherence among all elements and to create a clear and practical pathway from screening and risk assessment through counseling, referral, and follow-up.

Sintesis kualitatif dan evaluasi ahli, Model Konseling Kesehatan Mental Ibu Terpadu yang konklusif terdiri dari lima elemen fungsional: (1) penilaian psikologis universal; (2) kategorisasi risiko; (3) konseling dan psikoedukasi ringkas yang diberikan melalui pembagian tugas oleh petugas lapangan terlatih; (4) keterlibatan pasangan atau anggota keluarga bila sesuai dan disetujui oleh wanita; dan (5) rujukan dan tindak lanjut bertingkat. Strategi ini dikembangkan untuk meningkatkan pengenalan masalah psikologis dan memberikan dukungan awal yang sesuai selama pemeriksaan ANC standar, sambil tetap menjaga pemisahan yang jelas antara konseling perawatan primer dan evaluasi serta intervensi psikologis atau psikiatrik khusus.

2.5 Measures and instruments

This study employed a Research and Development (R&D) approach using a mixed-methods exploratory sequential design. This approach was chosen because the study aimed to systematically and practically develop a model for integrating mental health counselling into antenatal care (ANC) services at community health centres. The study was conducted through the following stages: problem exploration, needs analysis, model development, expert validation, limited implementation, and evaluation of the model's effectiveness.

2.6 Qualitative analysis

Qualitative transcripts were examined through reflective thematic analysis. The researchers studied the transcripts, developed preliminary codes inductively, assessed and refined potential themes, and articulated and established the main themes. The transcripts were analyzed; preliminary codes were developed inductively; potential themes were assessed and refined; and the main themes were formulated and established. NVivo was used to facilitate the organization and coding of data. The original manuscript details the ongoing dialogue within the research team and verification with selected individuals. To ensure transparency in reporting, the reporting paper must disclose the analysts, their academic roles, the methods used to address conflicts or differences in interpretation, and whether the team maintained reflective notes. The final paper must disclose the analysts, their academic roles, the methods used to address conflicts or differences in interpretation, and whether the team maintained reflective notes.

2.7 Quantitative and statistical analysis

Quantitative data were carefully analyzed to ensure completeness, logical consistency, and the absence of data entry errors prior to analysis using IBM SPSS Statistics (Version 29.0). Descriptive statistics summarized the fundamental characteristics of the participants and clinical indicators, with the normality of continuous variables evaluated using the Shapiro-Wilk test and QQ plots. Continuous variables that followed a normal distribution were presented as mean and standard deviation (Mean $\pm$ SD), while variables that did not follow a normal distribution were presented as median and interquartile range (Median, IQR). Categorical variables were presented as absolute frequencies and percentages (n, %).

For paired pre-post implementation analyses, the statistical method is determined by the type of variable and its distribution characteristics. Variations in paired nominal proportions (such as screening completion, detection, and referral success) are analyzed using the McNemar test. Changes in normally distributed continuous scores (such as diagnostic confidence and consultation duration) are evaluated using the paired t-test, while differences in non-normally distributed continuous variables are assessed using the Wilcoxon signed-rank test. All statistical hypotheses are two-sided, with the significance level set at $\alpha = 0.05$ ($p < 0.05$). The accuracy of effect estimates was assessed using 95% confidence intervals (95% CI), while the magnitude of change was quantified by Cohen's d for continuous parameters (0.2 = small, 0.5 = moderate, >0.8 = large) and odds ratios (OR) for categorical outcomes. Missing data were handled using a complete-cases analysis, given that the proportion of missing data was less than 5%.

2.8 Mixed-methods integration

The integration was carried out using a collaborative view that links qualitative topics with their respective quantitative metrics. A collaborative view that links qualitative topics with their respective quantitative metrics. The purpose of this study is to determine whether quantitative trends support, reinforce, or contradict qualitative explanations regarding barriers and enabling factors for implementation. The final interpretation prioritizes cohesive meta-conclusions rather than presenting qualitative data as separate, parallel findings. Cohesive meta-inference, rather than presenting qualitative and quantitative data as separate, parallel findings.

3. RESULTS AND DISCUSSION

3.1 Participant flow and characteristics

Variabel	%	mean	Minimal-maksimal	sd	pvalue
age	100%	28,90	18-43	5,098	0,001*
Education					
Kindergarten		2,10	0-4	0,94	0,000**
Elementary School	2,8				
Middle School	5,6				
High School	41,3				
Diploma	1,1				
Master's degree	8,9				
Occupation		0,57	0-5	1,30	0,000**
Housewife	48,6				
Civil Servant	0,6				
Private-sector employee	2,8				
Entrepreneur	4,5				
Farmer	1,7				
Family income		1,05	0-3	0,98	0,000**
<1.500.000	22,3				
1.500.000 – 2.500.000	16,8				
2.500.000 – 3.500.000	15,6				
>3.500.000	5,0				
Marital status		1,05	0-3	0,98	0,000**
Married	59,8				
Gestational		1,29	0-2	0,79	0,000**
Trimester 1(0-12 weeks)	12,3				
Trimeste 2(13-27 weeks)	17,3				
Trimester 3(28-40 weeks)	30,2				
Pregnancy		1,17	0-3	1,14	0,001**
First	21,8				
Second	18,4				
Third	6,7				
>3x	12,8				
Has Given Birth		0,67	0-3	1,07	0,000**
1x	39,7				
2x	7,3				
3x	5,6				
>3x	7,3				
Has had an arbotus		0,87	0-2	0,92	0,000**
Yes	9,5				
No	48,0				
Frequency of visits		1,70	0-5	1,67	0,000**
1 times	19,6				
2 times	12,3				
3 times	11,7				
4 times	5,6				

5 times	3,9				
>5 times	6,7				
Planned pregnancy		0,36	0-1	0,48	0,005**
Yes	38,0				
No	21,8				
History of complication		0,92	0-1	0,26	0,000**
Yes	4,5				
No	55,3				
History of mental health		0,95	0-1	0,21	0,000**
Yes	2,8				
No	57,0				
Spousal support		0,00	0-0	0,00	0,000**
Yes	59,8				
Support Family		0,01	0-1	0,13	0,000**
Supportive	58,7				
Unsupportive	1,1				
Counselling Experience		0,60	0-1	0,49	0,026**
Yes	23,5				
No	36,3				
Mental health screening		0,88	0-1	0,31	0,000**
Yes	6,7				
No	53,1				
Mental health questionnaire		1,82	1-4	0,73	0,000**
1	21,8				
2	27,4				
3	10,1				
4	6				
Able to see the funny side of things		2,34	1-4	1,28	0,000**
Often	22,9				
Sometimes	12,8				
Rarely	4,5				
Never	19,6				
Waiting		2,24	1-4	1,18	0,014**
Often	22,9				
Sometimes	12,8				
Rarely	10,6				
Never	13,4				
Blaming		3,17	1-4	1,02	0,000**
Often	6,1				
Sometimes	8,4				
Rarely	14,0				
Never	31,3				

Anxious		0,28	1-4	1,02	0,000**
Often	8,4				
Sometimes	15,1				
Rarely	12,8				
Never	23,5				
Afraid		3,03	1-4	1,10	0,000**
Often	7,8				
Sometimes	11,7				
Rarely	10,6				
Never	29,6				
Struggling		3,28	1-4	1,06	0,000**
Often	7,3				
Sometimes	9,3				
Rarely	16,8				
Never	61,7				
Sad		3,20	1-4	1,08	0,000**
Often	7,8				
Sometimes	6,7				
Rarely	10,6				
Never	34,6				
Annoyed		3,21	1-4	1,01	0,001**
Often	4,5				
Sometimes	20,6				
Rarely	15,0				
Never	57,0				
Crying		3,15	1-4	1,04	0,000**
Often	6,1				
Sometimes	10,1				
Rarely	11,7				
Never	31,8				
Thoughts of self-harm		3,90	1-4	0,46	0,000**
Often	1,1				
Sometimes	0,6				
Rarely	1,1				
Never	57,0				

This study involved 8 stakeholders in its qualitative phase, including one head doctor at the health centre, one doctor in charge of maternal and child health services, five practising midwives, and one head of administration at the health centre., and pregnant women, along with a quantitative cohort consisting of 107 pregnant women and 8 health workers. A participant flowchart is recommended to illustrate the study stages. The average age of the mothers was reported as 28.90 years, with variation across various demographic and health-related factors. Importantly, the inclusion of diverse professional perspectives underscores the integration of maternal mental health into routine care, as clinical roles influence screening practices. The presence of pregnant women ensures that the feasibility of mental health integration addresses practical issues such as privacy and stigma. The findings indicate the need for tailored mental health interventions based on a comprehensive stakeholder assessment rather than a one-size-fits-all model. The diverse participant structure in this study highlights differences in mothers' mental health needs, underscoring the importance of creating adaptive mental health counseling pathways within primary ANC services. Ultimately, the multidisciplinary approach from the qualitative sample supports a model that aligns service providers' capabilities with the needs of pregnant women to deliver effective care.

3.2 Mental Health Counselling Data

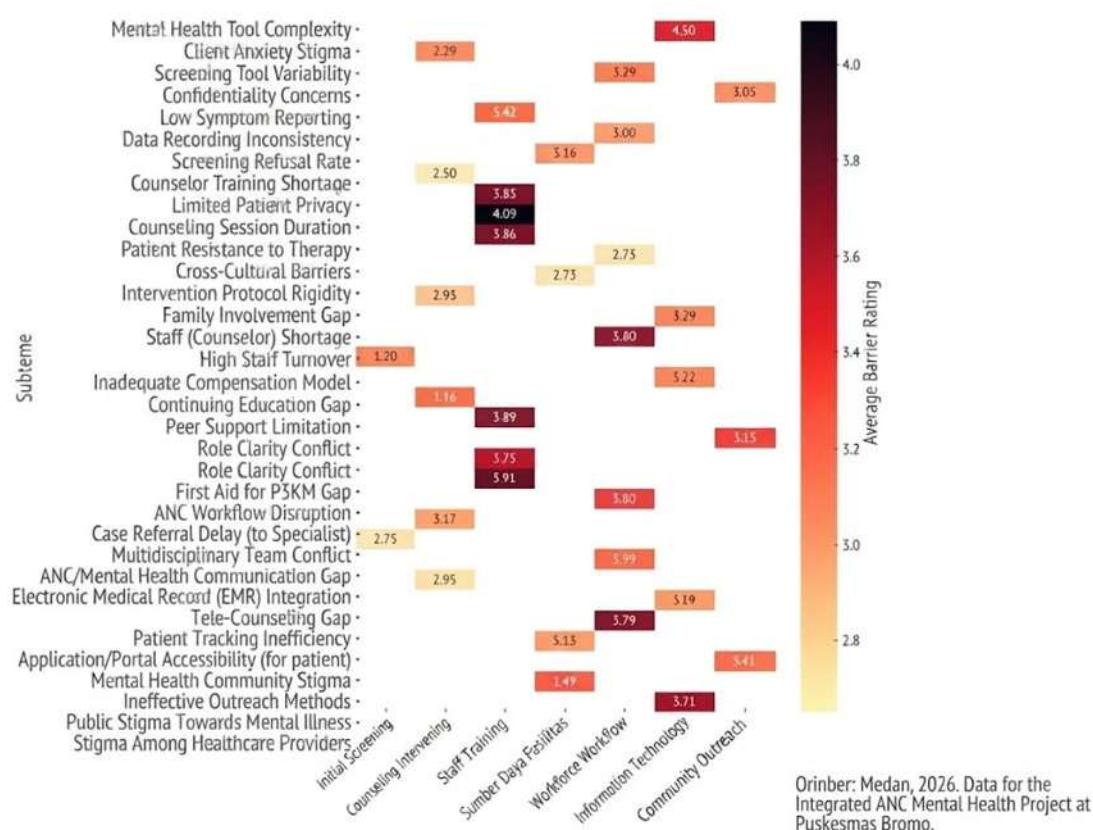
Being able to laugh and see the funny side of certain things	22,9	12,8	4,5	19,6
Feeling as though I've been eagerly looking forward to doing something	22,9	12,8	10,6	13,4
I feel like I'm getting worked up when something doesn't go well	6,1	8,4	14	31,3
Feeling anxious or worried for no apparent reason	8,4	15,1	12,8	23,5
Feeling afraid or panicked for no apparent reason	7,8	11,7	10,6	29,6
Feeling like everything is hard to do	7,3	9,3	16,8	61,7
Feeling so sad that it's hard to sleep	7,8	6,7	10,6	34,6
Feeling sad or irritable for no apparent reason	4,5	20,6	15	57
Feeling so sad that I cried	61	10,1	11,7	31,8
I often have thoughts of harming myself	1,1	0,6	1,1	57

This figure illustrates the low rates of mental health screening (6.7%) and counseling (23.5%) among antenatal care (ANC) participants, indicating a lack of systematic integration of mental health services into routine procedures. Emotional and behavioral indicators, such as anxiety and suicidal ideation, were recorded; however, these responses should not be immediately interpreted as psychiatric diagnoses without adequate validation. The findings suggest that discussions about mental health occur reactively rather than through structured screening procedures. Qualitative analysis indicates barriers such as workload, stigma, and inadequate policies, underscoring that improving mental health screening requires organizational transformation rather than merely the introduction of screening tools. Family support is acknowledged but should not replace professional care. The findings of this study underscore the need for integrated, continuous mental health care for mothers—including screening, counseling, and follow-up—with the participation of various stakeholders. This study lays the foundation for designing counseling models tailored to the local context, highlighting the importance of structured procedures and addressing systemic barriers within the ANC setting before efficient implementation can be achieved.

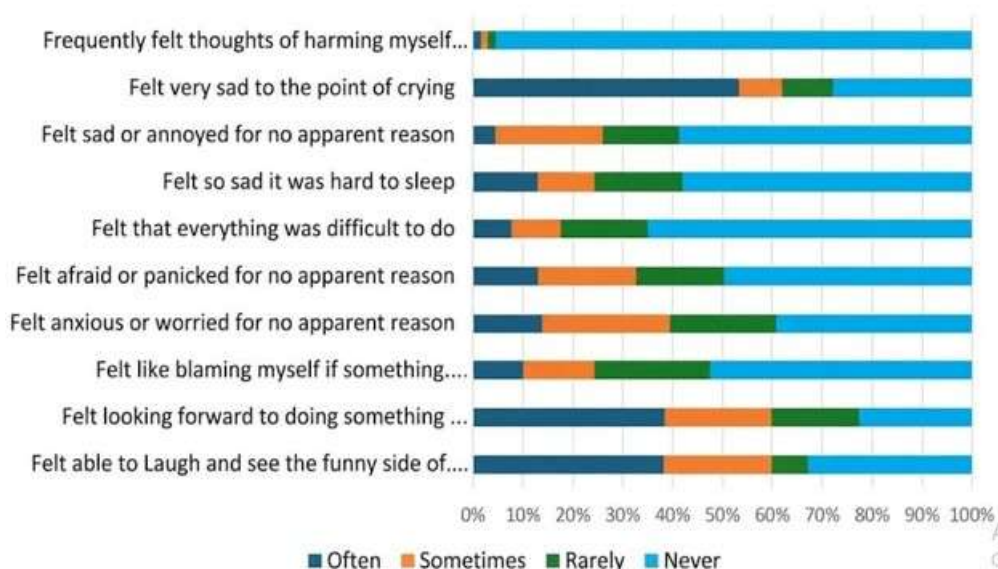
3.3 Qualitative findings

An analysis of key areas in antenatal care reveals that physical and obstetric evaluations are conducted, but the focus on mental health remains weak. Mental health screening is rarely performed, which can lead to undetected psychological problems. Challenges in implementing screening include stigma, concerns about disclosure, excessive workloads, and a lack of standard procedures and professional training. Participants called for better training and standardized screening procedures integrated into the ANC workflow. A tiered referral system to link primary care with psychological services was also recommended. Family involvement is considered important but must be tailored to individual preferences and safety considerations.

The qualitative phase employed purposive sampling. Participants were identified based on their potential to provide detailed and substantial insights regarding service demands and the development of a model for the integration of maternal mental health counseling. This involved health workers directly involved in antenatal care (ANC)—such as doctors, midwives, nurses, health promotion agents, and maternal and child health (MCH) program supervisors—as well as stakeholders who provided administrative, technical, and operational support at community health centers. This strategy allows for the collection of diverse perspectives and helps achieve a comprehensive understanding of both individual (pregnant women) and systemic (health care providers) experiences related to the challenges and supports in integrating mental health services. The initial sample size was set to meet the requirements for needs assessment and problem investigation, with the final qualitative sample size determined by thematic saturation, indicating that no further themes or data were needed. The data were generated through extensive interviews and Focus Group Discussions (FGDs). Qualitative findings.



In the quantitative phase, convenience/purpose sampling was used based on the sampling method employed. The study included a broader demographic, comprising pregnant women (primarily in the second and third trimesters) attending antenatal care appointments at the Bromo Community Health Center in Medan, along with relevant health care providers. The limited scope of the study area, which focused on primary care services at the Bromo Medan Community Health Center, necessitated modifications to the population and sample size in accordance with the actual frequency of ANC (Antenatal Care) visits during the study period. This study area, which focuses on primary care services at the Bromo Medan Community Health Center, required modifications to the population and sample size based on the actual frequency of ANC (Antenatal Care) visits during the study period. Quantitative data collection and evaluation were conducted to assess the effectiveness of the integrated counseling model, which includes improvements in the early identification of psychological disorders, levels of mental health awareness among pregnant women, and the ability of health care providers to deliver comprehensive antenatal care services. The evaluation was conducted to assess the effectiveness of the integrated counseling model, which includes improvements in the early identification of psychological disorders, levels of mental health awareness among pregnant women, and the ability of health care providers to deliver comprehensive antenatal care services.



3.4 Quantitative Evaluation & Integration

The implementation of the integrated model showed significant structural and clinical improvements across all measured parameters

Themes and Subthemes	Quantitative Data (Measured indicators)	Quantitative Findings/Representative Quotes	Integrated Interpretation
Health counseling in antenatal care (ANC) services	23,5% (Mean±SD:0,60±0,49)	“Everything has already been done, but the steps may vary from person to person.” “As soon as they voice their concerns... intervene immediately. Address the issue while educating them at the same time.”	The implementation of health counseling in antenatal care (ANC) services remains low in quantitative terms (23.5%). Qualitative findings indicate that this low coverage is due to the lack of standardized service protocols (counseling is conducted flexibly and varies among healthcare providers)

			and a counseling approach that remains reactive or incidental (provided only when a mother expresses specific complaints).
Mental Health Screening	6,7% (Mean $\pm$ SD:0,88 $\pm$ 0,31)	“There's that 20-item SRQ, right?” and “The EPDS... is more focused on the postpartum period.”	The coverage of mental health screening for pregnant women is very low in quantitative terms (6.7%). Qualitative data indicate that although health workers are aware of and familiar with screening instruments (such as the SRQ-20 and EPDS), their use in the field has not been routinely integrated into antenatal care (ANC) and tends to be focused only on the postpartum period.
Family Support	58,7% (Mean $\pm$ SD :0,01 $\pm$ 1,13)	“We still recommend ... family support and spousal support to help manage anxiety.”	Family support was reported at a very high rate (58.7%). This is consistent with qualitative findings, in which healthcare providers consistently and actively recommended the involvement of husbands and family members as a key strategy for reducing mothers' anxiety levels during pregnancy.

This study revealed significant gaps in maternal mental health screening at primary health care facilities in Medan, Indonesia. Although more than a quarter of pregnant women experience psychological distress, standard antenatal care protocols do not address it. A midwife-led screening framework successfully increased the screening rate from 0% to over 94%, revealing high prevalences of depressive symptoms (28.0%) and anxiety (22.4%). Structural issues and sociocultural barriers hindered screening, with midwives facing time constraints and patients expressing distress through somatic complaints due to stigma. The intervention introduced validated screening tools EPDS and trained midwives, enabling effective mental health screening without a significant increase in consultation time. This study suggests revising national health policies to incorporate mental health into antenatal care and adopting a division-of-labor model for sustainable solutions in resource-limited settings. Its strengths include a mixed-methods approach and validated tools, although its limitations include being a single-site study with a small sample size, thus requiring further research.

4. CONCLUSION

A mental health counseling framework can be organized around five interrelated roles in standard antenatal care: universal screening, risk stratification, brief and task-based therapy and psychoeducation, individualized family involvement, and tiered

referrals with subsequent follow-up. In the context of the Bromo Community Health Center, qualitative findings revealed operational barriers distinct from users' specific needs for integration, while preliminary quantitative data indicated a minimal foundation for the implementation of screening and counseling. At the Bromo Community Health Center, qualitative findings revealed distinct operational barriers and specific user needs for integration, while preliminary quantitative data indicated a minimal foundation for the implementation of screening and counseling. This contextually grounded approach offers a foundation for future implementation research. Given that the current assessment was conducted at a single center and used a single-group design, conclusive statements regarding causal efficacy or generalizability should be deferred until a controlled, multicenter evaluation is conducted. Since the study design involved only a single treatment group at a single center, conclusive statements regarding causal efficacy or generalizability should be deferred until controlled evaluations are conducted at multiple research centers.

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AUTHOR CONTRIBUTIONS

Diah L Nasution: Conceptualization, Investigation.

Liza M. S. Psi., Psikolog: Data Curation, Formal Analysis.

Bina M Girsang: Methodology, Laboratory Analysis

Evi I Br Karo: Supervision, Writing, Review & Editing.

ETHICS STATEMENT

This study complies with the ethical standards issued by the Universitas Sumatera Utara, with research ethics approval number 2609953-KEPK-USU.

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