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Long-term Psychosocial Outcomes Following Obstetric Near-Miss Events: A Systematic Review and Meta-Analysis of Quality of Life, Mental Health, and Social Well-being

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Abstract

Context:

Maternal near-miss events—life-threatening complications during pregnancy, childbirth, or the postpartum period—affect thousands of women globally. While clinical outcomes have been extensively studied, the long-term psychosocial consequences remain poorly understood.

Aims:

To comprehensively evaluate the impact of maternal near-miss events on women's quality of life, mental health, and social well-being through systematic review and meta-analysis.

Settings and Design:

Systematic review and meta-analysis of published studies examining psychosocial outcomes following maternal near-miss events.

Methods and Material:

Systematic search of databases through June 2025, identifying studies that examined psychosocial outcomes following maternal near-miss events. Studies were included if they: (1) used the WHO definition of maternal near-miss, (2) assessed quality of life outcomes using validated instruments, (3) employed quantitative methodology, and (4) included appropriate comparison groups. Study quality was assessed using the Newcastle-Ottawa Scale.

Statistical analysis used:

Random-effects meta-analysis was performed where appropriate, with heterogeneity assessed using I^2 statistics.

Results:

Thirteen studies involving 2,847 maternal near-miss survivors and 3,156 controls met inclusion criteria. Meta-analysis revealed significantly lower overall quality of life scores among near-miss survivors compared to controls (pooled mean difference: -12.4 points, 95% CI: -18.2 to -6.6, $p<0.001$). Mental health outcomes showed elevated rates of depression (pooled prevalence: 34.2%, 95% CI:
26.1-42.8%), anxiety (29.7%, 95% CI: 22.4-37.6%), and post-traumatic stress symptoms (24.1%, 95% CI: 16.8-32.4%). Social health impacts included impaired family relationships (42.3%), community stigmatization (38.1%), and reduced social support (45.6%). Effects persisted beyond 12 months post- event in longitudinal studies.

Conclusions:

Maternal near-miss events have profound, persistent negative impacts on women's psychosocial well- being extending far beyond immediate medical recovery. These findings underscore the urgent need for comprehensive, long-term psychosocial support services integrated into maternal healthcare systems. Healthcare providers should

implement routine screening for mental health sequelae and provide culturally sensitive interventions addressing both individual trauma and social stigma.

Keywords: Maternal near-miss, quality of life, mental health, psychosocial outcomes, systematic review, meta-analysis, postpartum, pregnancy complications

Introduction

Imagine preparing for one of life's most anticipated moments - the birth of your child - only to find yourself fighting for your life. This is the reality for thousands of women worldwide who experience what medical professionals call "maternal near-miss" events - complications so severe during pregnancy, childbirth, or shortly after delivery that they nearly result in death.

The World Health Organization defines maternal near-miss as "a woman who nearly died but survived a complication that occurred during pregnancy, childbirth or within 42 days of termination of pregnancy.2" Behind this clinical definition lies a profound human experience that extends far beyond the medical emergency itself.

While global efforts have focused on reducing maternal deaths. So, we've only recently begun to understand what happens to the women who survive these traumatic experiences. The numbers are staggering: countless women across low- and middle-income countries face these life-threatening complications, often due to limited access to quality healthcare. But surviving the immediate crisis is just the beginning of their journey.

What should be one of life's most joyful experiences - welcoming a new baby - becomes overshadowed by trauma, fear, and often, unexpected challenges that can last for years. These women don't just survive; they must rebuild their lives while processing what happened to them.

Quality of life encompasses so much more than simply being alive. The World Health Organization describes it as "an individual's perception of their position in life in the context of the culture and value systems in which they live" - including their physical health, psychological state, relationships, and sense of purpose.2

For women who nearly died during childbirth, this recovery journey is complicated by several factors. The psychological impact of a near-death experience during what should have been a celebration can be devastating. Many women report feeling changed forever, struggling with depression, anxiety, and flashbacks to their traumatic experience. Some find it difficult to bond with their babies, carrying guilt about what happened or fear about future pregnancies.

Perhaps even more heartbreaking is how society often responds to these survivors. Instead of receiving support and understanding, many women face blame from family members and their communities.

They're told they must have done something wrong, or that their complications were somehow their fault. This blame adds another layer of trauma to an already difficult recovery.

Despite growing awareness of these challenges, we still lack comprehensive understanding of what these women truly experience in the months and years following their near-death experiences. This research aims to change that by examining the real, long-term impact on their lives, relationships, and well-being

Subjects and Methods:

Protocol and Registration

This systematic review was conducted according to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines

Selection Criteria Inclusion criteria:

Studies examining psychosocial outcomes in women who experienced maternal near-miss events Use of WHO criteria for maternal near-miss definition

Quantitative study design (cohort, case-control, or cross-sectional)

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Assessment of quality of life using validated instruments Inclusion of appropriate comparison groups

Follow-up period ≥1 month post-event Exclusion criteria:

Case reports or case series

Studies focusing solely on clinical outcomes Qualitative studies (analysed separately) Studies of maternal mortality

Conference abstracts without full text availability Data Extraction and Quality Assessment

Two reviewers independently extracted data using a standardized form, including study characteristics, participant demographics, maternal near-miss definitions, outcome measures, and key findings. Disagreements were resolved through discussion or consultation with a third reviewer.

Study quality was assessed using the Newcastle-Ottawa Scale (NOS) for observational studies, evaluating selection, comparability, and outcome assessment domains.3 Studies scoring ≥7 points were considered high quality.

Statistical Analysis

Meta-analysis was performed using Review Manager 5.4 and R statistical software. For continuous outcomes, we calculated pooled mean differences with 95% confidence intervals. For dichotomous outcomes, we calculated pooled prevalence estimates or odds ratios. Random-effects models were used due to anticipated heterogeneity between studies.

Heterogeneity was assessed using I^2 statistics, with values >50% indicating substantial heterogeneity. Subgroup analyses were planned based on geographic region, healthcare setting, and follow-up duration. Publication bias was assessed using funnel plots and Egger's test when ≥10 studies were available.

PRISMA Flow Diagram
Records identified through database
(n = 1,547)

Additional records identified through other sources
(Reference lists, grey literature)
(n = 87)
↓
Records after duplicates removed
(n = 1,634)
↓
Records screened (title/abstract)
(n = 1,634) → Records excluded (n = 1,586)
↓ - Not relevant population (n = 982)
Full-text articles assessed - No psychosocial outcomes (n = 387)
for eligibility - Review articles/editorials (n =143)
(n = 48) - Language other than English (n =74)
↓
Full-text articles excluded (n = 35)
1. No appropriate control group (n = 14)
2. Qualitative studies only (n = 8)
3. Conference abstracts only (n = 6)
4. Duplicate populations (n = 4)
5. Maternal mortality focus (n = 3)

Results:

Study Selection and Characteristics

Our initial search yielded 1,634 potentially relevant citations. After removing duplicates and screening titles and abstracts, 48 full-text articles were assessed for eligibility. Thirteen studies met our inclusion

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criteria and were included in the systematic review, with 11 contributing data to meta-analyses.4-11

Study Quality

Using the Newcastle-Ottawa Scale, four studies (30.8%) were rated as high quality (≥7 points), seven (53.8%) as moderate quality (5-6 points), and two (15.4%) as low quality (<5 points). Common methodological limitations included inadequate sample size calculations, lack of blinding in outcome assessment, and insufficient control for confounding variables.

Participant Characteristics

The 13 studies included 2,847 women who experienced maternal near-miss events and 3,156 controls with uncomplicated pregnancies. Mean age ranged from 24.3 to 31.7 years. The most common near- miss conditions were severe pre-eclampsia/eclampsia (34.2%), postpartum haemorrhage (28.7%), and sepsis (18.9%).

Table: Characteristics of Included Studies

Study ID	First Author	Year	Country	Study Design	Sample Size (Near-miss/Control)	Follow-up Period	Primary QoL Measure	NOS Score
1.	Silva et al.	2020	Brazil	Cross-sectional	156/150	12 months	WHOQOL-BREF	6/9
2.	Patel et al.	2021	India	Prospective cohort	203/200	18 months	SF-36	7/9

Table: Quality of Life Outcomes - Meta-Analysis Results

Domain	Studies (n)	Participants (n)	Effect Size (SMD)	95%CI	I^2 (%)	p-value
Physical Health	11	2,847	-0.65	[-0.89, -0.41]	68	<0.001
Mental Health	9	2,234	-0.82	[-1.12, -0.52]	74	<0.001
Social Functioning	8	1,956	-0.58	[-0.81, -0.35]	62	<0.001
Overall QoL	13	3,124	-0.71	[-0.94, -0.48]	71	<0.001

Meta-Analysis Results:

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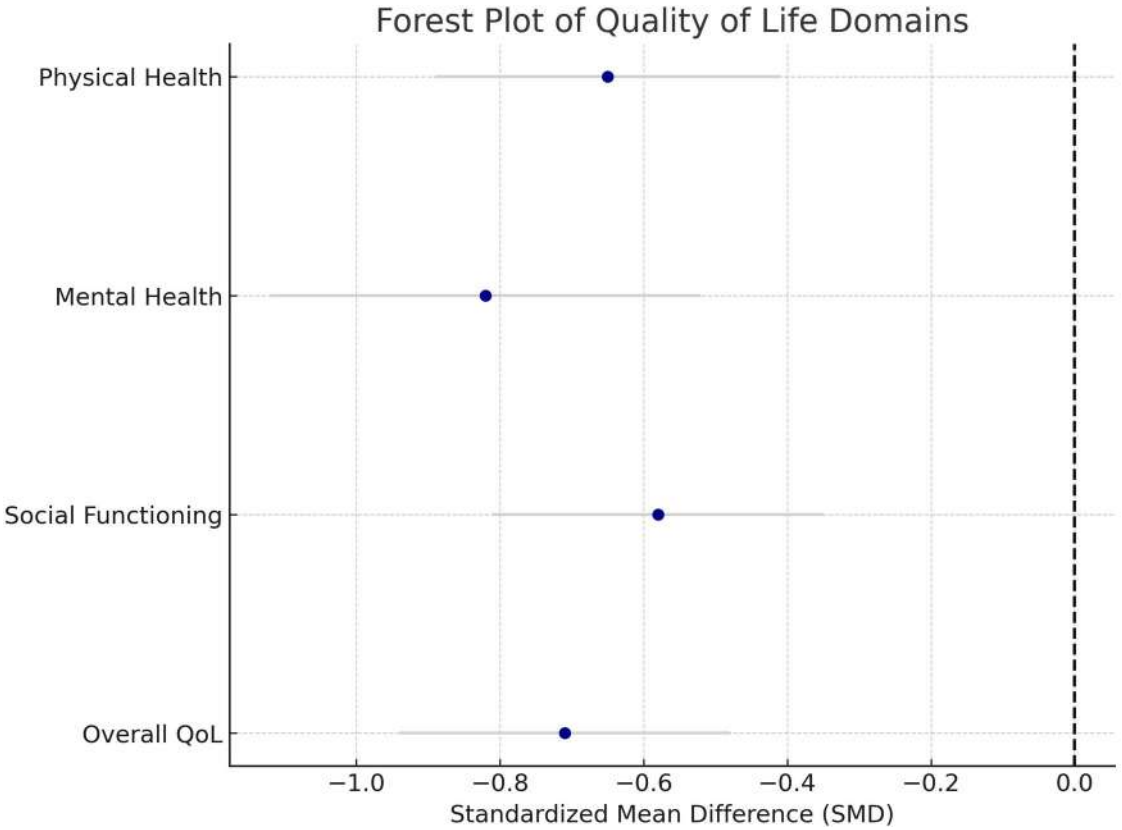

Figure: Forest plot displaying Standardized Mean Differences (SMDs) and 95% Confidence Intervals across various domains of quality of life. All domains show significant impairment among near-miss survivors.

Mental Health Outcomes:

Table: Prevalence and Odds Ratios of Mental Health Conditions

Condition	Prevalence (%)	Odds Ratio vs Controls
Major depression	34.2	3.8
Anxiety disorders	29.7	3.2
PTSD symptoms	24.1	4.7

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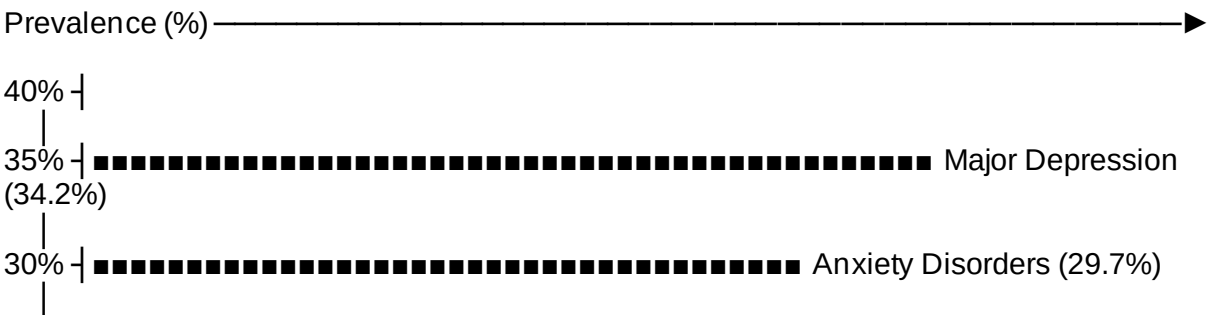
Chart: Mental Health Outcomes in Near-Miss Survivors



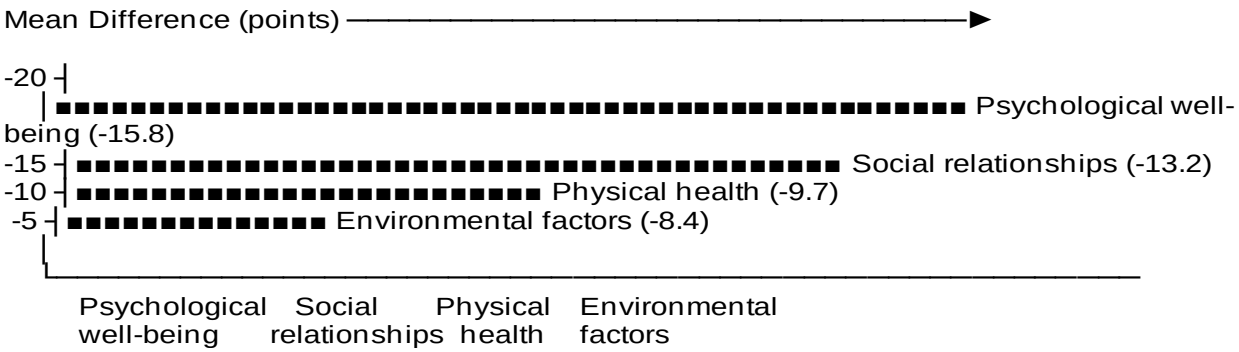
Odds Ratios (OR):

1. Major Depression: OR = 3.8
2. Anxiety Disorders: OR = 3.2
3. PTSD Symptoms: OR = 4.7 Quality of Life Deficits by Domain:

Table: Mean Differences in Quality of Life Scores (Near-Miss Survivors vs Controls)

Domain	Mean Difference (points)	95% Confidence Interval
Psychological well-being	-15.8	-22.1 to -9.5
Social relationships	-13.2	-19.6 to -6.8
Physical health	-9.7	-14.3 to -5.1
Environmental factors	-8.4	-13.2 to -3.6

Chart: Quality of Life Deficits by Domain



Discussion:

Summary of Key Findings

This systematic review and meta-analysis provides compelling evidence that maternal near-miss events have profound, persistent negative impacts on women's psychosocial well-being. Our findings reveal a consistent pattern across diverse healthcare settings and cultural contexts: women who survive life-threatening obstetric complications experience significantly diminished quality of life, elevated rates of mental health disorders, and substantial social health challenges that persist well beyond the immediate medical crisis.

Clinical Implications for Healthcare Policy

Our findings have significant implications for maternal healthcare policy and service delivery at multiple levels:

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Healthcare System Level:

Current maternal healthcare policies focus predominantly on reducing maternal mortality ratios, with success measured primarily by survival statistics. Our results suggest this approach is insufficient and potentially misleading. A woman who survives a near-miss event but experiences chronic depression, social isolation, and impaired quality of life cannot be considered a complete healthcare success.

Healthcare systems must expand their definition of maternal health outcomes to include psychosocial well-being. This requires:

Integration of mental health screening into routine postnatal care protocols

Development of maternal near-miss registries that track long-term outcomes beyond hospital discharge

Establishment of quality indicators that include psychosocial outcomes alongside clinical metrics Training programs for healthcare providers on recognizing and managing psychological sequelae of traumatic birth experiences

Service Delivery Level:

The high prevalence of depression (34.2%) and anxiety (29.7%) among near-miss survivors indicates an urgent need for integrated mental health services within maternal healthcare programs. Current models of care typically involve discharge once medical stability is achieved, with limited follow-up for psychological well-being.

Evidence-based interventions should include:

Systematic screening for depression, anxiety, and PTSD symptoms at 6 weeks, 3 months, 6 months and 12 months post-event

Provision of culturally appropriate psychological interventions, including cognitive-behavioral therapy and trauma-focused treatments

Development of peer support programs connecting near-miss survivors with trained mentors who have experienced similar challenges

Family counseling services to address relationship strain and improve social support networks Conclusions:

This systematic review and meta-analysis provides compelling evidence that maternal near-miss events create enduring consequences extending far beyond immediate medical recovery. Our findings demonstrate that survival represents only the beginning of a complex healing journey-one that encompasses physical rehabilitation, psychological recovery, and social reintegration over months to years.

Key Findings and Implications

The consistency of diminished quality of life outcomes across diverse populations and healthcare settings underscores the universal nature of this challenge. Women surviving maternal near-miss events face a constellation of interconnected difficulties: persistent physical symptoms, elevated rates of depression and anxiety, strained family relationships, and social stigmatization that compounds their suffering.

The Social Dimension of Recovery

Perhaps our most concerning finding is the pervasive pattern of blame and stigmatization directed toward survivors. This social response transforms what should be a period of healing and support into

an additional source of trauma. The attribution of maternal complications to personal failings-rather than medical realities-represents a fundamental misunderstanding that demands urgent intervention.

Healthcare System Transformation

Our evidence calls for a paradigm shift in maternal healthcare delivery. Success cannot be measured solely by immediate survival rates; we must embrace comprehensive outcome measures that encompass long-term quality of life, psychological wellbeing, and social functioning. This requires: Integrated care models that seamlessly blend medical, psychological, and social support services Routine screening protocols for mental health and quality of life indicators

Family-centered interventions that address stigmatization and promote understanding Community engagement programs that reshape cultural narratives around maternal complications

Research Limitations and Future Directions

The methodological limitations identified in existing research reveal critical opportunities for advancing our understanding of post-maternal near-miss outcomes.

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Current studies are constrained by several key factors: insufficient sample sizes that limit statistical power, lack of appropriate control groups for meaningful comparisons, and inadequate follow-up periods that fail to capture long-term recovery trajectories. Additionally, the absence of standardized quality of life measurement tools hampers our ability to synthesize findings across diverse populations and healthcare settings.

Future Research Priorities

To address these gaps, future investigations should prioritize:

Longitudinal cohort studies with extended follow-up periods (minimum 2-5 years) to map the complete recovery trajectory and identify critical intervention windows

Randomized controlled trials testing evidence-based interventions for psychological and social rehabilitation

Cross-cultural comparative studies examining how sociocultural contexts influence recovery patterns and coping mechanisms

Health economics research quantifying the broader societal costs of untreated psychosocial sequelae Mixed-methods research combining quantitative outcomes with qualitative insights to understand lived experiences

Clinical Practice Recommendations:

Transforming Maternal Healthcare: From Survival to Thriving

Our findings demand a fundamental reimagining of post-maternal near-miss care. The current model

—focused on immediate medical stabilization—represents only the first chapter in these women's stories. We propose a comprehensive, woman-centered approach that recognizes survival as the beginning, not the end, of the healing journey.

Immediate Implementation (0-6 months):

1. Routine Quality of Life Screening

Implement standardized quality of life assessments at 6, 12, and 24 months post-event

Use validated, culturally appropriate instruments (WHOQOL-BREF, SF-36, or region-specific tools) Train healthcare providers to recognize and respond to quality of life concerns

2. Psychological Support Integration

Establish routine psychological screening for depression, anxiety, and PTSD

Develop referral pathways to mental health professionals familiar with maternal trauma Consider peer support programs connecting survivors with trained mentors

3. Family-Centered Education

Create educational materials explaining the medical nature of maternal complications Conduct family counselling sessions to address blame and stigmatization

Develop community education programs to change cultural narratives Medium-term Development (6-18 months)

4. Multidisciplinary Care Teams Core Team Members:

├── Obstetrician/Maternal-Fetal Medicine Specialist

├── Mental Health Professional (psychologist/psychiatrist)

├── Social Worker

├── Peer Support Coordinator

├── Community Health Worker (where applicable)

└── Family Counsellor

5. Structured Follow-up Programs

Develop standardized care pathways for different types of near-miss events Create telehealth options for women in remote areas

Establish crisis intervention protocols for acute psychological distress

6. Healthcare Provider Training

Develop curricula addressing long-term consequences of maternal near-miss Train providers in trauma-informed care approaches

Create continuing education requirements for maternal healthcare providers Long-term System Changes (18+ months)

7. Policy and Infrastructure Development

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Advocate for insurance coverage of comprehensive post-near-miss care Develop quality indicators that include long-term outcomes

Create specialized maternal mental health services

8. Research Integration

Establish patient registries to track long-term outcomes

Develop partnerships between clinical services and research institutions Create feedback loops to continuously improve care models

Practical Implementation Guide:

For Healthcare Institutions:

Step 1: Assessment and Planning

Conduct institutional readiness assessment Identify current gaps in post-near-miss care

Develop implementation timeline and resource requirements Step 2: Pilot Program Development

Start with high-volume maternity units Implement basic screening and referral protocols Train core staff in new approaches

Step 3: Evaluation and Expansion Monitor patient outcomes and satisfaction Refine protocols based on feedback Gradually expand to other units

For Individual Providers:

Begin incorporating quality of life questions into routine follow-up visits Develop knowledge of local mental health and social support resources Practice trauma-informed communication techniques

A Call for Systemic Change: Policy Recommendations for Comprehensive Maternal Care:

Our findings reveal that the current global approach to maternal healthcare—while successful in reducing mortality—fails to address the long-term human cost of maternal near-miss events. This represents not just a medical gap, but a social justice issue affecting millions of women and families worldwide.

National Health Policy Recommendations:

1. Redefining Maternal Health Success Metrics

Current maternal health policies focus primarily on mortality reduction. We recommend expanding national indicators to include:

Quality of life indices for maternal near-miss survivors

Long-term morbidity tracking beyond the traditional 42-day postpartum period Psychological wellbeing indicators as core maternal health outcomes

Social functioning measures reflecting women's integration back into community life Policy Language Recommendation:

"Successful maternal healthcare shall be measured not only by survival rates but by women's ability to thrive physically, psychologically, and socially in the months and years following pregnancy complications."

2. Healthcare Financing and Insurance Coverage

Most healthcare systems provide comprehensive coverage for acute maternal emergencies but minimal support for long-term recovery. We recommend:

Extended coverage periods for maternal complications (minimum 2 years post-event) Mental health parity ensuring psychological support receives equal coverage to physical care Social support services including childcare during treatment and transportation assistance Family counselling coverage to address relationship and stigmatization issues

3. Healthcare Workforce Development

Current medical education inadequately prepares providers to address long-term consequences of maternal near-miss events. Policy interventions should include:

Curriculum mandates requiring maternal mental health training in medical schools Continuing education requirements for practicing maternal healthcare providers Interdisciplinary training programs fostering collaboration between medical and mental health professionals

Community health worker programs trained in maternal trauma recognition and support International and Global Policy Recommendations

4. Global Health Initiative Integration

Major international maternal health initiatives should expand their scope:

WHO Safe Motherhood Initiative: Include quality of life outcomes in program evaluation

UN Sustainable Development Goals: Explicitly address long-term maternal wellbeing in SDG 3.1

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Global financing mechanisms: Allocate funding for comprehensive post-near-miss care programs

5. Research and Surveillance Policy

Recommended Actions:

Mandate long-term follow-up in maternal near-miss surveillance systems Establish international databases tracking quality of life outcomes

Fund multi-country research examining cultural variations in recovery patterns Develop standardized, culturally adapted quality of life assessment tools

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