REVIEW ARTICLE

Policy Analysis of Neonatal Survival Policies in Pakistan: A Focus on Sindh Province of Pakistan

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Abstract

In Pakistan, neonatal mortality remains a significant challenge, particularly in Sindh Province, where healthcare disparities persist between urban and rural areas. Despite numerous governmental initiatives and international commitments, the infant mortality rate remains high. Using Walt and Gibson's policy triangle framework, this article analyzes the context, content, processes, and stakeholders of three key health policies: the Integrated Reproductive, Maternal, Newborn, Child, and Adolescent Health and Nutrition Strategy (2016-2020), the Sindh Health Sector Strategy (2012-2020), and National Health Vision Pakistan (2016-2025). The review assessed these three policies concerning their objectives of reducing neonatal mortality, the roles of key stakeholders, including federal and provincial health departments and development partners, and the monitoring frameworks primarily based on the health management information system and program evaluations. These policies were further assessed for alignment with human rights, implementation strategies, and their impact on neonatal health outcomes. The analysis identified critical gaps in all three policies, including vague, non-time-bound objectives, unclear stakeholder roles, and weak monitoring systems. The Sindh Health Sector Strategy lacked plans for advanced neonatal care units. Similarly, the Integrated Strategy suffered from vague implementation plans and over-reliance on donor funding. Decentralization further complicated policy execution due to unclear governance and inadequate support systems. Fragmented decentralization, lack of accountability, and poor planning hinder Pakistan's health programs from effectively addressing neonatal mortality. A cohesive policy framework with clear goals, defined stakeholder responsibilities, and robust monitoring is essential to improve neonatal survival rates. Pakistan should adopt international standards, ensure stakeholder ownership, and tailor interventions to local contexts, drawing inspiration from regional neighbors like Bangladesh and India.

Keywords: *Neonatal mortality, healthcare policy, decentralization, Sindh Province, Pakistan.*

INTRODUCTION

Despite Pakistan having undertaken considerable efforts to enhance its healthcare system over the past few decades, substantial gaps remain between communities, including disparities among ethnic groups and between rural and urban areas [1, 2]. These gaps highlight broader inconsistencies in healthcare policies and service delivery approaches [1]. The inconsistencies are particularly staggering when Pakistan's healthcare system is contrasted with that of other low-income countries [3]. It is crucial to develop a strong health policy framework that supports successful and sustainable programs, thereby reducing the risk of poor implementation [1, 4]. Research indicates a positive relationship between the effectiveness of policies and programs, as well-designed policies support the execution of sustainable programs. The influence of policies and frameworks on healthcare practices is, in fact, a significant issue for governments. While investments are made in the development of these interventions and programs, their effect on mortality and morbidity rates has been demonstrated to be consistent and gradual [1]. This article examines existing policies, strategies, and plans focused on reducing neonatal mortality in Pakistan. It aims to identify policy gaps and contextual challenges, ultimately offering recommendations for enhancing neonate health outcomes.

Neonatal Mortality-Burden in Pakistan

Since 1990, global child survival rates have improved significantly. However, each year, 5 million children under five years of age still die, with 2.4 million of these deaths occurring within the first 4 weeks of life [5]. Around 80% of neonatal mortality could be avoided with effective, verified interventions [5, 6]. In 11 countries with a high burden of child mortality, including Angola, Bangladesh, China, Democratic Republic of the Congo, Tanzania, Ethiopia, India, Indonesia, Kenya, Nigeria, and Pakistan, deaths of the newborns constitute half of all under-five deaths [5]. Remarkably, around 73% neonatal mortality occurs within the first week, with 36% occurring on day one and 32% within the initial few hours of birth [7].

The primary reasons for neonatal mortality in these countries are pre-term birth, infections, and delivery-related complications [5, 7]. However, the causative factors in these high-burden nations have remained unchanged over the past two decades, with disparities existing both between and within the nations [8]. Newly born in rural areas of Pakistan face a higher risk of death on their initial days of life compared to those in urban regions, and infants born into the most impoverished households are more than twice as likely to die as those from the wealthiest families [5]. Based on the

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recent Demographic and Health Survey of Pakistan, only 62.6% of births in rural regions have trained birth attendants (TBA), in contrast to 83.8% in urban areas [9, 10]. While focused care during pregnancy is available in primary healthcare settings in several regions, and 86.2% females now consult a trained provider during pregnancy [11, 12], many rural populations still face significant challenges in accessing essential, high-quality, attentive care during the gestational period and childbirth [13, 14].

The Policy Context of the Health System and Reform

Nearly two-thirds of Pakistan's population depends on private, out-of-pocket healthcare services [15, 16]. With annual health spending at just $38 per capita below the World Health Organization (WHO) recommended $44, the share of government health expenditure has dropped from 35% to 27.5% over the past two decades [15]. However, despite constrained public funding, the budget for prenatal, maternal, neonatal, and pediatric health programs saw a significant 181% increase between 2000 and 2010, largely funded by international donors such as the United States Agency for International Development (USAID) [17]. Efforts to reduce neonatal deaths have been influenced by a combination of donor funding, the public and private sector, alongside comprehensive health system reforms in the last two decades [7, 18].

Before the reform of health systems of 2010-2011, which was initiated under the 18th Constitutional Amendment, the federal government managed health functions, including financing policy, and regulation [7]. The reform decentralized these responsibilities, granting provinces fiscal autonomy and control over health planning, legislation, regulation, service delivery, and human resource management. The aim was to improve resource distribution and promote context-driven policy and innovation [19].

Following the constitutional amendment, Pakistan made progress in health financing and planning as control shifted from the federal to the provincial level, including the development of health-related strategies. Nevertheless, challenges in healthcare management, service executions, and regulatory measures persisted [19, 20]. The expected improvements from decentralization have been slow, and it remains only partly executed. The Primary Care Systems Profiles and Performance case study [19]. revealed that national vertical programs on hepatitis, immunization, tuberculosis, avian flu, HIV/AIDS, malaria, Maternal, Neonatal and Child Health (MNCH), nutrition, and blindness have not been incorporated into standard health-care services despite the transfer of their financing and administrative functions to the provinces.

In 2019, the federal government's decision to regain control over three major hospitals in Sindh, which was contested by the provincial governments, highlighted the policy uncertainties following both decentralization and recentralization efforts [21]. This disagreement, along with confusion over responsibilities, hindered national policy coordination and posed challenges for international partners supporting MNCH efforts [22]. The combination of contested governance and policy uncertainty has complicated the development of effective strategies to reduce neonatal mortality in Pakistan, underscoring the need for an analysis of past health policies to address these issues [7].

METHODS

The policy analysis approach outlined by Walt and Gibson in 1994 was employed to examine the context, content, processes, and stakeholders (actors) involved in various policy and planning documents [23]. The context refers to cultural, economic, political, and social factors on the national, provincial, or even international level that could impact a health policy. Content pertains to the subjects addressed by the policy, including areas of healthcare covered and those that are omitted. The process involves the methods through which the policies are developed and are intended to be executed or assessed. Actors are the individuals, community groups, organizations, or governments that influence the formulation and execution of health policy. The policy triangle framework was applied to evaluate three major health policies related to newborn, infant, and child health. The aim was to assess how well current health policies and plans aligned with child health-related human rights and to identify policies that required revision. The selected policies and plans were the most recent and publicly available and were directly relevant to child health. The documents analysed were:

1. Federal Level Health Policy-National Health Vision Pakistan 2016-2025 [24].
2. Sindh Health-Sector Strategy 2012-2020 [25].
3. Integrated Reproductive-Maternal-Neonatal, Infant, Child Health and Nutrition Strategy 2016-2020 [26].

The analysis of the policies was performed according to the policy triangle framework [27] (**Fig. 1**).

Each document was assessed in terms of context, content, processes, and stakeholders (actors) and summarized in Table **1**.

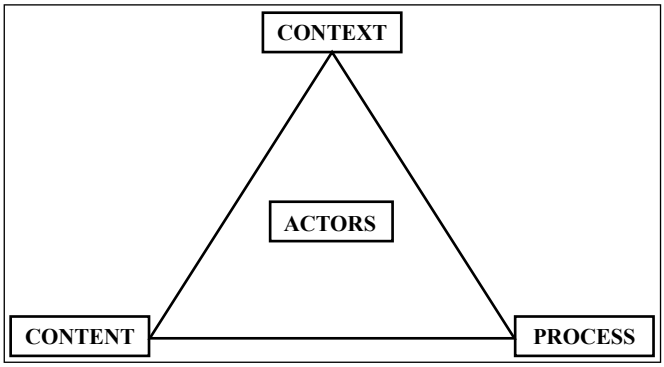

Fig. (1): The policy triangle framework developed by Walt and Gilson.

Table 1: Analysis Summary of policies & plans to with an impact of neonatal mortality in Pakistan.

Healthcare Policies	Policy Triangle Components	Summary of Policy & Plant Analysis Impacting of Neonatal Mortality in Pakistan
National Health Vision Pakistan 2016-2025	Context	A policy developed by federal government identifies insufficient progress in the provinces following decentralization.
	Content	Healthcare services to reduce neonatal mortality is a vital outcome however, no clear service level target.
	Process	The implementation policy was lacking identification for monitoring & evaluation seemed to have gathered some momentum.
	Stakeholders/Actors	Unclear listing of extensive participation of private sector.
Sindh Health Sector Strategy 2012-2020	Context	Latest provincial strategy.
	Content	It highlights the necessity to improve service delivery by introducing health service packages, but it lacks information regarding the establishment of EmoNC centers.
	Process	Most of the implementation actions are missing.
	Stakeholders/Actors	Roles and responsibilities are not defined clearly, & the ambiguity in monitoring and evaluation mechanism.
Integrated Reproductive, Maternal, Neonatal, Child & Adolescent Health & Nutrition Strategy 2016-2020	Context	The initial policy addressing the vital issues of accessibility and quality of MNCH services.
	Content	Although there are well-defined goals for upgrading health care facilities, there is no dedication to initiate advanced care units for ill neonates.
	Process	The necessary frameworks are unavailable Refresher trainings are among the key initiatives. Specific and measurable goals have not yet been established.
	Stakeholders/Actors	Identify and approach donors to bridge the funding shortfalls.

RESULTS

National Health Vision Pakistan: Federal Level Health Policy

Context: This federal-level health policy was established 15 years after the previous National Health Policy of 2001. It recognizes the risks, challenges, and insufficient progress that followed the decentralization efforts.

Content: The "National Health Vision of Pakistan", aligned with the "Every Newborn Impact Framework", emphasizes the importance of birth care and the care of preterm and ill newborns as key factors influencing their health outcomes. This concept is largely based on the universal "Every Newborn Action Plan", but it lacks clear instructions on how to implement the vision, as well as details on the federal government's role in supporting provincial efforts. The document also fails to outline specific service-level targets, procedures, or interim goals to track performance.

Process: The creation of the national health vision was largely motivated by the recognition of insufficient oversight of healthcare systems in the provinces following decentralization, as well as the awareness that the country's health metrics had not shown improvement.

Stakeholders: The national vision document fails to detail the involvement of the private sector, which plays a significant role in Pakistan's healthcare services, along with other stakeholders outside the medical sector, in achieving the proposed 10 broad priority actions. Although it states that delivery of health services will continue to be a provincial responsibility, it also refers to the reinstatement of the Ministry of Health, now named the Ministry of National Health Services, Regulation, and Coordination.

Although the policy outlines priority actions, comprehensive quantitative data on its actual implementation and utilization are limited. Available indicators, such as HMIS reporting and federal-provincial coordination efforts, suggest gaps in monitoring and execution.

Sindh Health-Sector Strategy 2012-2020

Context: The Sindh Health-Sector Strategy 2012-2020 is the latest health policy report developed by the Sindh province.

Content: The strategic plan aims to deliver a basic and essential package of health services for newborns. This includes neonatal resuscitation, safe delivery, regular check-ups, integrated management of childhood illnesses, early illness diagnosis and stabilization, as well as referral for Basic and Comprehensive Emergency Obstetric and Newborn Care (BEmONC-CEmONC). However, the document does not specify the specific healthcare services where advanced neonatal healthcare services will be available, even though it suggests using vouchers to cover referral costs for sick neonates.

Process: The policy neglected to include actionable steps that would have facilitated the establishment of advanced neonatal care units in the province, as it had assured.

Stakeholders: One possible cause for the weak connection between policy and implementation may be the failure to clearly identify the institutions responsible for leading the process and assign them the authority and responsibility to guide the implementation. As a result of these shortcomings, the strategic plan has not yet translated into efficient delivery of neonatal healthcare services or improvements in neonatal survival rates.

While the strategy aimed to expand essential neonatal services, detailed statistics on facility-level

implementation and service coverage are scarce. Available evidence indicates challenges in establishing advanced neonatal care units and unclear institutional responsibilities affecting utilization.

Integrated Reproductive-Maternal-Newborn-Child and Adolescent Health and Nutrition Strategy 2016-2020

Context: Another pertinent policy in Sindh is the Integrated Reproductive-Maternal-Newborn-Child and Adolescent Health and Nutrition Strategy for 2016-2020. This strategy aligns with the main priorities of the National Health Vision 2016-2025, with the overarching goal of offering cost-effective and high-quality healthcare services to pregnant women and newborns transparently and equitably, guided by data-driven strategic planning.

Content: The policy focuses on improving newborn survival by enhancing district and taluka headquarters hospitals to BEmONC or CEmONC standards and equipping health facilities with necessary tools.

Process: Although the policy emphasizes the need for infrastructure development, it lacks provisions for the creation and initiation of neonatal care units in identified districts or for the upgrading of non-functional units. Additionally, there is no clear mechanism or timeline outlined for implementing these changes. Historically, the main focus of the policy has been on staff retraining to enhance the quality of care by 2020.

Stakeholders: The policy identified an 85.24% funding gap, which it aims to address by utilizing resources from the Sindh government and seeking support from possible contributors for the execution plan, requiring 702 million US dollars (117 billion Pakistani rupees). Given that the main healthcare providers in Sindh are either the provincial health department, which manages most tertiary and secondary hospitals, or the People's Primary Healthcare Initiative, which operates primary health-care facilities, and considering that the current Sindh MNCH program mainly focuses on the training of midwives, the province may face challenges in establishing and expanding neonatal care services.

The policy identifies funding needs and program targets; however, quantitative data on the actual rollout and utilization of services remain limited, highlighting gaps in monitoring, infrastructure development, and service delivery at district and taluka levels.

DISCUSSION

An analysis of three of Pakistan's main policy documents related to maternal and child healthcare over the past two decades has shown unclear specific goals, targets, and strategic plans for addressing neonatal mortality. Many of these objectives may not have been achieved, due to their overambitious nature or a lack of clarity regarding which institutions or individuals are responsible and the timelines for implementation, as evidenced by post-decentralization MNCH program evaluations, HMIS reporting gaps, and analyses of policy documents showing incomplete implementation of BEmONC services [7, 19, 26]. Often, the provincial health department, the private sector, international donors, or provincial health departments are vaguely mentioned without clear definitions of their roles and responsibilities. The absence of a proper surveillance system and measurable goals was also identified as a significant shortcoming. Across these policies, comprehensive quantitative data on implementation and utilization are limited. Available indicators, such as HMIS reporting, funding allocations, and program reach, suggest persistent gaps in monitoring, service delivery, and infrastructure development, reflecting challenges in translating policy objectives into effective neonatal health outcomes. Additionally, the incomplete decentralizing of maternal and child healthcare services is likely a key reason why policies introduced after 2010 have not made a significant impact on reducing newborn mortality at the provincial level, as evidenced by persistent rural-urban disparities in trained birth attendance (62.6% *vs* 83.8%), limited access to trained providers during pregnancy (86.2%), and the incomplete integration of national MNCH and nutrition programs into provincial services [9-12, 19].

This analysis reveals that the health policies of Pakistan are lacking in specific, time-constrained goals for reducing neonatal mortality, despite global commitments. The decentralization of healthcare services has created confusion regarding roles and responsibilities, weakening accountability and policy implementation. Issues like the reversal of decentralization and insufficient support for decentralized programs, such as the MNCH programme, have further exacerbated the problem. Fragmented decentralization, limited resource sharing, and poor governance have hindered effective policy-making and service delivery, as evidenced by incomplete integration of MNCH programs into provincial health services, persistent rural-urban disparities in trained birth attendance (62.6% *vs* 83.8%), and reliance on donor-funded programs with uneven implementation across districts .[7, 19, 28, 29]. To improve newborn survival, a clear and comprehensive decentralization process with adequate authority, resources, and responsibility is needed, tailored to local contexts and healthcare needs.

Although the Pakistani government has produced policy documents periodically aimed at improving maternal and child health around birth, these documents have notably lacked a clear strategy to address the high neonatal mortality rate. Moreover, key national health policies and health vision documents provide insufficient details on the specific action plans to be executed, the required resources, and the institutions responsible for execution [12]. Before decentralization, the MNCH program appeared to function effectively at the federal level. However, the shift to decentralization highlighted gaps in policy details, implementation of strategic plans,

and integration with district-level health services [7]. This is apparent in the post-decentralization period, during which the MNCH program has reduced its role in service delivery within the provinces.

The reason Pakistan's health policies have not been systematically developed, with significant gaps in target determination, application mechanisms, and assessment, is that policy making has often been influenced more by political culture than by evidence-based approaches [18]. In contrast, newborn survival policies in India and Bangladesh reveal that these countries made improvements due to international commitments that drove successful implementation. Policies on neonatal and infant interventions in Bangladesh and India were influenced by international strategies such as The Lancet Every Newborn Series and the Neonatal Action Plan [30]. Pakistan's endorsement of international neonatal survival commitments requires the country to incorporate these guidelines in shaping future policies. Additionally, both India and Bangladesh saw progress due to comprehensive and practical policymaking, strong ownership by key stakeholders, and an appreciation for local contexts. While organizations such as the United Nations International Children's Emergency Fund (UNICEF) have provided technical resources and equipment for newborn care in both countries, one major difference was the more effective resource allocation by their states. This comparison highlights that the same progress can also be achieved in Pakistan.

CONCLUSION

Pakistan's health policies, including those in Sindh province, lack the clarity and track to effectively implement evidence-based interventions aimed at reducing the burden of neonatal illness and deaths. In contrast, policies in comparable nations have been more effective because they set clear, attainable, and time-restricted objectives for neonatal death rates and outlined specific interventions to be incorporated into the existing public healthcare system. Pakistan's health policies would benefit from clearer decentralization strategies, defined institutional responsibilities, and a commitment to international neonatal mortality prevention goals. This approach could help save the lives of neonates and infants in the future. The investigation findings can inform the development of maternal, neonatal, and child health policy in Pakistan and other regions with significantly high neonatal mortality.

RECOMMENDATIONS

To ensure the effectiveness of future policies on neonatal survival in Pakistan, it is recommended that policies incorporate key interventions, establish a comprehensive implementation framework for lower levels of the healthcare system, assign clear stakeholder responsibilities, ensure adequate resource allocation, and implement robust monitoring and evaluation mechanisms. The intended outcomes must be translated into actionable strategies, comprising targeted initiatives, specific interventions, standardized protocols, and clear directives for healthcare providers.

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CONFLICT OF INTEREST

The authors declare no conflict of interest.

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AUTHORS' CONTRIBUTION

FMQ: Conceptualized the study, conducted the policy analysis, and drafted the manuscript.

SFB: Contributed to the literature review, critically revised the manuscript, and provided guidance on analysis and interpretation.

Both authors have read and approved the final manuscript and agree to be accountable for all aspects of the work.

GENERATIVE AI AND AI-ASSISTED TECHNOLOGIES IN THE WRITING PROCESS

During the preparation of this work the authors limitedly used ChatGPT-4 to get language suggestions and do minor proofreading in some parts of the manuscript. After using this tool, the authors reviewed and edited the content as needed and take full responsibility for the content of the published article.

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