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Maternal and Child Health and Well-Being: A Lifecourse and Systems-Based Perspective on Integrated Care and Health Equity

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Abstract

Introduction: Maternal and child health remains a global public health priority amid persistent inequities in access to healthcare, preventable morbidity, and intergenerational health outcomes. Fragmented services frequently disrupt continuity of care across pregnancy, childbirth, the postpartum period, and early childhood. This study aimed to develop a conceptual framework integrating lifecourse and systems-based perspectives to strengthen integrated maternal and child healthcare and advance health equity.

Methods: An integrative literature review was conducted using peer-reviewed empirical and conceptual studies retrieved from Scopus, PubMed, and Web of Science. Eligible publications in English addressed maternal and child health, integrated care, health equity, and related determinants. Following systematic screening and eligibility assessment, 78 studies were included in the thematic synthesis and conceptual framework development.

Results: The synthesis identified interconnected biological, social, economic, community, and health-system determinants shaping maternal and child health across the lifecourse. Integrated care connecting antenatal, intrapartum, postnatal, and pediatric services emerged as a critical pathway for strengthening continuity, early risk identification, and coordinated care. Primary healthcare integration, community-based interventions, and multisectoral collaboration further supported equitable access and sustained well-being.

Conclusion: A lifecourse and systems-based approach to integrated care provides a promising conceptual pathway for improving maternal and child health while addressing structural inequities. The proposed framework may inform health policy, service integration, and future empirical research aimed at achieving equitable and sustainable health outcomes across generations.

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Keywords

Community health; Health equity; Integrated care; Lifecourse; Primary healthcare

1. Introduction

Maternal and child health is a fundamental indicator of population well-being and a critical determinant of sustainable human development. Despite substantial progress in maternal, newborn, and child health over recent decades, preventable morbidity and mortality remain unequally distributed across and within countries. These disparities are particularly pronounced among populations experiencing poverty, geographic isolation, limited access to essential services, gender-based disadvantage, and broader social and structural vulnerabilities (Kruk et al., 2018; World Health Organization, 2019). Maternal and child health outcomes are therefore not determined solely by clinical care or individual health behaviours but emerge from the interaction of biological, social, economic, environmental, cultural, and health-system conditions (Peters, 2014; Sokol et al., 2019). This complexity requires approaches that move beyond isolated interventions and recognise health as a dynamic process shaped by interconnected determinants across time (Atun et al., 2010; World Health Organization, 2025).

A lifecourse perspective provides an important foundation for understanding how health conditions and exposures during pregnancy, childbirth, infancy, childhood, adolescence, and adulthood influence subsequent health trajectories (Hanson and Gluckman, 2015; World Health Organization, 2025). Maternal health is intrinsically connected to child health, while conditions experienced during early life may have lasting consequences for physical development, cognitive functioning, chronic disease risk, and well-being across subsequent generations (Black et al., 2017; Richter et al., 2017). Maternal nutrition, psychosocial well-being, reproductive health, quality of antenatal care, birth experiences, breastfeeding, early childhood nutrition, and exposure to social adversity may interact cumulatively and influence health trajectories over time (Hanson and Gluckman, 2015; Victora et al., 2016). From this perspective, pregnancy and early childhood should not be viewed as isolated clinical episodes but as interconnected stages within a broader continuum of human development (Kerber et al., 2007; World Health Organization, 2025). Such an approach highlights the importance of prevention, early intervention, continuity of care, and the reduction of cumulative disadvantage throughout the lifecourse (Black et al., 2017; Richter et al., 2017).

However, health outcomes are also shaped by the capacity of healthcare systems to provide accessible, continuous, coordinated, and equitable services. In many settings, maternal and child healthcare remains organised around separate programmes, professional disciplines, and institutional boundaries. Antenatal care, childbirth services, postnatal care, newborn services, immunisation, nutrition programmes, and paediatric care may operate through parallel structures with limited communication and referral coordination (Kerber et al., 2007; Atun et al., 2010). This fragmentation can result in discontinuity of care, missed opportunities for early risk identification, duplication of services, and unequal access to essential interventions (Baxter et al., 2018; Valentijn et al., 2013). These challenges are particularly consequential for populations facing structural barriers, where fragmented systems may reinforce rather than reduce existing health inequities (Kruk et al., 2018; World Health Organization, 2019).

Integrated care offers a potential response to these challenges by connecting services, professionals, communities, families, and health-system levels around the needs of women and children. Nevertheless, integration should not be understood solely as an organisational or administrative process. Effective integration requires alignment between primary healthcare, community-based services, referral systems, social protection, education, nutrition, and other sectors that influence maternal and child well-being (Valentijn et al., 2013; Hone, Macinko and Millett, 2018). A systems-based perspective is therefore essential because maternal and child health outcomes arise from interactions among multiple levels of influence rather than from individual interventions operating independently (Peters, 2014; Atun et al., 2010). Such a perspective also recognises that health systems themselves are embedded within broader political, economic, cultural, and social environments that shape the distribution of resources, opportunities, and risks (Kruk et al., 2018; World Health Organization, 2021).

Although lifecourse approaches and integrated care models have been increasingly recognised in maternal and child health, these perspectives are often examined separately. Existing approaches may focus on specific periods of care, individual risk factors, or particular health-system interventions without sufficiently explaining how determinants operating across different levels interact over time to produce health inequities. Consequently, there remains a need for a coherent conceptual framework that brings together the lifecourse and systems perspectives while explicitly positioning health equity as a central outcome. Such integration may provide a more comprehensive understanding of how biological processes, family and community environments, healthcare delivery, and structural conditions collectively shape maternal and child health trajectories (World Health Organization, 2025; Kruk et al., 2018).

This study therefore aimed to develop a conceptual framework that integrates lifecourse and systems-based perspectives to strengthen maternal and child healthcare and advance health equity. Through an integrative synthesis of empirical and conceptual literature, the study sought to identify the interconnected determinants, mechanisms, and pathways through which integrated care can influence maternal and child health outcomes across the lifecourse. The resulting framework is intended to provide a conceptual foundation for informing health policy, strengthening integrated service delivery, guiding equity-oriented interventions, and supporting future empirical research on maternal and child health systems.

2. Methods

This study employed an integrative literature review design combined with conceptual framework development to synthesise multidisciplinary evidence on maternal and child health, integrated care, lifecourse health trajectories, and health equity. The integrative approach was selected because it enables the synthesis of diverse forms of evidence, including empirical and conceptual literature, to generate a broader understanding of complex health phenomena and support the development of theoretically informed conceptual insights. The review was conducted through a structured process of problem identification, literature searching, study selection, data extraction, thematic synthesis, and conceptual integration (Atun et al., 2010; Peters, 2014).

A comprehensive literature search was conducted using three major international scientific databases: Scopus, PubMed, and Web of Science. The search strategy combined keywords and Boolean operators related to maternal health, child health, lifecourse perspectives, integrated care, primary healthcare, social determinants of health, and health equity. The search was designed to identify literature addressing the relationships among maternal and child health outcomes, continuity of care, health-system integration, social and structural determinants, and equity-oriented healthcare delivery. The search covered publications from January 2015 to June 2026 to capture contemporary evidence while maintaining sufficient conceptual depth. Additional relevant references identified through the reference lists of included publications were considered when they provided substantial theoretical or conceptual contributions to the framework.

Studies were considered eligible when they were peer-reviewed empirical or conceptual publications written in English and addressed at least one of the following areas: maternal health, newborn or child health, integrated healthcare, lifecourse health, primary healthcare, health equity, social determinants of health, or health-system integration. Studies were excluded when they focused exclusively on unrelated clinical conditions, lacked relevance to maternal or child health, were non-scholarly publications, or did not provide sufficient conceptual or empirical information relevant to the study objectives. Editorials, commentaries, conference abstracts, and publications without adequate methodological or conceptual content were also excluded.

The screening process was conducted in sequential stages. Initially, titles and abstracts were reviewed to identify potentially relevant publications. Full-text assessment was subsequently undertaken for studies that met the preliminary inclusion criteria or for which eligibility could not be determined from the abstract alone. The final selection comprised 78 publications that met the eligibility criteria and contributed substantively to the thematic synthesis and development of the conceptual framework. The selection process focused not only on methodological relevance but also on the conceptual contribution of each publication to understanding the interconnected determinants and pathways influencing maternal and child health across the lifecourse.

Data were extracted from the included publications using a structured synthesis matrix. Extracted information included publication characteristics, study purpose, population or context, key concepts, determinants of maternal and child health, characteristics of integrated care, health-system factors, equity-related dimensions, and major findings. The extracted evidence was organised into thematic categories representing different levels of influence on maternal and child health, including biological, individual and family, community, healthcare-system, and structural or policy dimensions. This multilevel organisation was informed by systems-based approaches that conceptualise health outcomes as emerging from interactions among interconnected factors and levels rather than from isolated determinants (Peters, 2014; Atun et al., 2010).

Thematic synthesis was subsequently used to identify recurring concepts, relationships, and mechanisms across the literature. The analysis involved three iterative stages: identification of descriptive themes, development of analytical themes, and conceptual integration. Descriptive

themes captured the principal determinants and characteristics reported across the literature, whereas analytical themes examined how these determinants interacted across different stages of the lifecourse and levels of the health system. Particular attention was given to pathways linking continuity of care, primary healthcare integration, community engagement, multisectoral collaboration, and health equity (Valentijn et al., 2013; Hone, Macinko and Millett, 2018).

The conceptual framework was developed by integrating the major themes identified through the synthesis. The framework conceptualises maternal and child health as a dynamic outcome emerging from interactions among lifecourse processes, social and structural conditions, family and community environments, and health-system responses. Integrated care was positioned as a central mechanism linking these domains, while health equity was conceptualised as both a guiding principle and a key outcome. The framework was refined through iterative comparison of themes, theoretical interpretation, and assessment of conceptual coherence. The final model was designed to illustrate how interventions and conditions at multiple levels may interact across time to influence maternal and child health trajectories and intergenerational well-being. This conceptual integration draws on established perspectives of integrated care and systems thinking, which emphasise coordination across levels, sectors, and service domains to address complex health needs (Valentijn et al., 2013; Peters, 2014).

As this study synthesised previously published literature and did not involve direct recruitment or interaction with human participants, individual informed consent was not required. Ethical approval was therefore not applicable. Nevertheless, the review process adhered to principles of academic integrity, transparent reporting, accurate representation of published evidence, and appropriate citation of all sources used in the synthesis.

3. RESULTS

The integrative synthesis of 78 publications identified five interrelated themes that collectively explain how maternal and child health and well-being are shaped across the lifecourse and within complex health-system environments. These themes were: (1) lifecourse continuity and intergenerational health; (2) social, economic, and structural determinants; (3) integrated and continuous healthcare delivery; (4) community and primary healthcare engagement; and (5) multisectoral governance and health equity. Rather than operating as independent domains, these themes were interconnected, with conditions at one level influencing processes and outcomes at other levels. The synthesis consequently supported the development of a Lifecourse–Systems Integrated Care and Health Equity Framework, which positions integrated care as a central mechanism connecting individual, family, community, health-system, and structural determinants (Atun et al., 2010; Peters, 2014; Valentijn et al., 2013).

The first theme, lifecourse continuity and intergenerational health, demonstrated that maternal and child health is fundamentally a lifecourse and intergenerational phenomenon. Health conditions during pregnancy and childbirth influence newborn and early childhood outcomes, while early-life exposures may subsequently shape physical growth, cognitive development, psychosocial well-being, and vulnerability to chronic disease (Black et al., 2017; Hanson and

Gluckman, 2015; Richter et al., 2017). Across the included literature, maternal health status, pregnancy and birth conditions, breastfeeding, early childhood nutrition, and psychosocial well-being were consistently described as key determinants that accumulate over time. These determinants operate through cumulative exposure, developmental pathways, and intergenerational transmission, indicating that early intervention and prevention across critical life stages are essential for improving health equity (Hanson and Gluckman, 2015; Victora et al., 2016; World Health Organization, 2025).

The second theme concerned social, economic, and structural determinants. Poverty, educational disadvantage, gender inequality, inadequate housing, food insecurity, geographical remoteness, and limited access to social protection were repeatedly associated with unequal health opportunities and outcomes for mothers and children (Sokol et al., 2019; World Health Organization, 2019). These determinants produce differential exposure to risk and unequal access to resources, and they frequently interact with healthcare-system barriers to generate cumulative disadvantage among vulnerable populations. Consequently, health inequities cannot be adequately addressed through clinical interventions alone, because the distribution of health risks and access to care is strongly influenced by structural conditions, making the reduction of upstream structural barriers a central requirement for equity-oriented strategies (Kruk et al., 2018; World Health Organization, 2019).

The third theme highlighted integrated and continuous healthcare delivery. Evidence indicated that antenatal, intrapartum, postnatal, newborn, immunisation, nutrition, and pediatric services are more effective when they are connected through continuity of care, referral coordination, information sharing, and multidisciplinary collaboration (Kerber et al., 2007; Valentijn et al., 2013). Integration was associated with improved coordination, earlier identification of health risks, reduced fragmentation, and greater responsiveness to changing needs across the maternal and child health continuum (Baxter et al., 2018; Atun et al., 2010). The synthesis suggested that continuity of care is a principal mechanism by which integrated services enhance both quality and equity, offering more equitable access and limiting the negative effects of discontinuous or fragmented care.

The fourth theme identified primary healthcare and community engagement as essential components of sustainable maternal and child health systems. Community health workers, primary healthcare facilities, families, and local organisations were described as key actors linking formal health services to the everyday social contexts of women and children (Hone, Macinko and Millett, 2018; World Health Organization, 2018). Through improved accessibility, early detection of risks, health promotion, and community participation, these actors can extend the reach of health systems into underserved populations. The synthesis further indicated that culturally responsive, community-oriented approaches are particularly valuable in geographically remote and resource-constrained settings, where institutional healthcare services are less accessible and where community-based strategies can mitigate inequitable access (Hone, Macinko and Millett, 2018; Kruk et al., 2018).

The fifth theme concerned multisectoral governance and collaboration for health equity. Maternal and child health outcomes were influenced by sectors beyond healthcare, including education, nutrition, social protection, sanitation, housing, transportation, and public

administration. Effective equity-oriented strategies therefore require cross-sector coordination and policy alignment so that health systems can address upstream determinants and structural inequities rather than only service-delivery gaps (Hone, Macinko and Millett, 2018; World Health Organization, 2019). Equity-oriented governance was identified as an enabling condition for sustainable improvements in maternal and child well-being, by ensuring that policies and resources are distributed in ways that reduce structural disadvantage and support long-term lifecourse gains (Kruk et al., 2018; World Health Organization, 2025).

Across the five themes, the synthesis identified three major mechanisms linking lifecourse processes and systems-level action: continuity, integration, and equity. Continuity connects health needs across pregnancy, childbirth, infancy, childhood, and subsequent life stages. Integration connects services, professionals, families, communities, and sectors. Equity ensures that these connections respond proportionately to differences in need and structural disadvantage. These mechanisms were integrated into the proposed conceptual framework, which conceptualises maternal and child health as an emergent outcome of dynamic interactions across multiple levels and over time (Peters, 2014; Valentijn et al., 2013; World Health Organization, 2025).

The resulting framework comprises five interconnected levels: the lifecourse and biological level, the individual and family level, the community level, the healthcare-system level, and the structural and policy level. These levels are not hierarchical or independent. Instead, they interact through reciprocal pathways in which social and structural conditions influence family and community resources, healthcare access shapes lifecourse trajectories, and health outcomes subsequently affect future generations. Integrated care functions as the principal connective mechanism across these levels, while health equity provides the normative orientation for ensuring that resources, services, and interventions are responsive to differential needs. Taken together, the thematic synthesis indicates that maternal and child health improvement requires more than expanding individual services; sustainable gains depend on the capacity of health and social systems to connect interventions across time, levels, and sectors through integrated, equity-oriented action (Atun et al., 2010; Peters, 2014; World Health Organization, 2025).

4.Discussion

The findings of this integrative synthesis indicate that maternal and child health is best understood as a dynamic and interconnected process extending across the lifecourse rather than as a series of discrete clinical episodes. The five themes identified in this review demonstrate that health outcomes emerge from interactions among biological processes, family and community conditions, healthcare delivery, and broader structural environments. This finding supports a shift from fragmented, event-specific approaches toward a more integrated understanding of maternal and child well-being in which continuity, integration, and equity are treated as mutually reinforcing dimensions of effective healthcare (Peters, 2014; World Health Organization, 2025).

The first major finding concerns the importance of lifecourse continuity and intergenerational health. The synthesis indicates that maternal health and child health are closely interconnected

through cumulative biological, nutritional, psychosocial, and social pathways. Pregnancy and early childhood represent particularly sensitive periods in which exposures may influence subsequent developmental trajectories and long-term health (Black et al., 2017; Hanson and Gluckman, 2015). This perspective challenges approaches that conceptualise maternal care, newborn care, and child healthcare as separate programme areas. Instead, the findings support a continuum in which interventions during pregnancy may influence birth outcomes, early childhood development, and later health, while conditions in early life may contribute to health patterns extending into adulthood and subsequent generations (Richter et al., 2017; World Health Organization, 2025). The implication is that health systems should prioritise prevention and early intervention across connected stages of development rather than concentrating resources exclusively on acute episodes of care.

The second major finding highlights the central role of social, economic, and structural determinants. The synthesis demonstrates that health inequities are produced not only by differences in individual behaviour or healthcare utilisation but also by unequal exposure to poverty, food insecurity, geographic isolation, gender disadvantage, inadequate housing, and limited social protection (Sokol et al., 2019; World Health Organization, 2019). These determinants can accumulate across the lifecourse and interact with weaknesses in healthcare delivery. Consequently, expanding healthcare coverage without addressing structural barriers may improve average population outcomes while leaving the most disadvantaged groups behind (Kruk et al., 2018). An equity-oriented approach therefore requires health systems to recognise differential needs and allocate resources according to vulnerability rather than relying solely on uniform service provision (World Health Organization, 2019; Kruk et al., 2018).

The third finding concerns the significance of integrated and continuous healthcare delivery. Maternal and child healthcare often involves multiple providers, professional disciplines, and levels of care. When these services operate in isolation, opportunities for early identification, referral, follow-up, and prevention may be lost. The present synthesis suggests that integration is most meaningful when it improves continuity from antenatal care through childbirth, the postnatal period, newborn care, and childhood (Kerber et al., 2007; Valentijn et al., 2013). Integration should therefore be understood as a relational and functional process rather than simply an administrative restructuring of services. Effective integration requires communication among professionals, coordinated referral pathways, shared information, and sustained engagement with women and families (Baxter et al., 2018; Atun et al., 2010).

This interpretation extends conventional models of integrated care by placing the lifecourse at the centre of service coordination. Rather than integrating services only around a particular disease or episode, a lifecourse-oriented model integrates care around the evolving needs of women, children, and families. This distinction is important because maternal and child health needs change over time and frequently cross institutional and professional boundaries (Valentijn et al., 2013; World Health Organization, 2025). A woman receiving antenatal care, for example, may simultaneously require nutritional support, mental health services, social protection, and protection from violence. Similarly, a child's health may depend on the interaction of nutrition, immunisation, early development, family resources, education, and access to primary healthcare. Integrated care must therefore be sufficiently flexible to respond to these interconnected needs (Atun et al., 2010; Hone, Macinko and Millett, 2018).

The fourth finding emphasises the importance of primary healthcare and community engagement. The synthesis indicates that community-based services provide an essential bridge between formal health systems and the everyday environments in which women and children live. Primary healthcare can improve accessibility, facilitate early detection, support health promotion, and strengthen referral processes (Hone, Macinko and Millett, 2018; World Health Organization, 2018). Community health workers and local health actors may be particularly important for reaching populations who experience geographic, economic, cultural, or social barriers to formal healthcare. However, community engagement should not be viewed merely as a mechanism for extending service coverage. Meaningful engagement requires recognition of local knowledge, cultural context, family structures, and community priorities. This is particularly relevant in resource-constrained settings, where community-based strategies may provide a feasible pathway for strengthening continuity without relying exclusively on highly specialised services (Kruk et al., 2018; World Health Organization, 2021).

The fifth finding demonstrates that maternal and child health cannot be sustainably improved through the health sector alone. Education, nutrition, sanitation, housing, transportation, social protection, and public administration all influence the conditions under which women and children experience health and illness. This finding reinforces a systems-based understanding in which health outcomes are emergent properties of interactions among multiple sectors and levels of governance (Peters, 2014). Multisectoral collaboration is therefore not an additional component of maternal and child health policy but a central mechanism for addressing upstream determinants. However, effective collaboration requires clearly defined responsibilities, coordinated financing, shared accountability, and governance structures capable of sustaining action beyond individual programmes or political cycles (Atun et al., 2010; World Health Organization, 2019).

The integration of these findings provides the primary conceptual contribution of this study: the proposed **Lifecourse–Systems Integrated Care and Health Equity Framework**. The framework extends existing approaches by bringing together four dimensions that are frequently considered separately: time, systems, integration, and equity. The lifecourse dimension explains how health trajectories develop cumulatively across stages of life. The systems dimension explains how multiple levels and sectors interact to influence these trajectories. The integrated care dimension identifies the mechanisms through which services and actors can respond to interconnected needs. The equity dimension provides the normative foundation for ensuring that these mechanisms address unequal conditions and differential needs (Peters, 2014; Valentijn et al., 2013; World Health Organization, 2025).

The conceptual value of the framework lies in its emphasis on reciprocal relationships rather than linear causality. Maternal and child health outcomes are not simply the final products of healthcare interventions. They are shaped by feedback processes in which structural conditions influence access to services, healthcare experiences influence health trajectories, and health trajectories may subsequently affect family resources and future generations. This perspective suggests that interventions should be evaluated not only according to immediate clinical outcomes but also according to their capacity to strengthen continuity, reduce fragmentation, improve accessibility, and interrupt cycles of disadvantage (Peters, 2014; Kruk et al., 2018).

The framework also has implications for health policy and service organisation. At the policy level, maternal and child health strategies should move beyond programme-specific targets toward coordinated lifecourse objectives. Health ministries and local governments may benefit from aligning maternal, newborn, child health, nutrition, mental health, and social protection policies within a shared equity-oriented framework. At the service-delivery level, integration can be strengthened through coordinated referral systems, multidisciplinary collaboration, shared health information, and continuity of care across primary and secondary services (Valentijn et al., 2013; World Health Organization, 2021). At the community level, local health workers and community organisations should be recognised as active partners in health-system design and implementation rather than as peripheral extensions of formal services (Hone, Macinko and Millett, 2018).

These implications are particularly relevant for low- and middle-income and resource-constrained settings. In such contexts, the objective should not necessarily be to reproduce highly specialised models of integrated care developed in high-income health systems. Instead, integration should be adapted to local capacities, infrastructure, workforce availability, cultural contexts, and patterns of community organisation. Strengthening primary healthcare, improving referral continuity, supporting community-based health workers, and linking health services with social protection may offer more sustainable pathways than relying predominantly on hospital-centred models (Hone, Macinko and Millett, 2018; Kruk et al., 2018). The proposed framework therefore provides a flexible conceptual structure that can be adapted across different health-system contexts while retaining a consistent focus on equity and lifecourse continuity.

The findings should nevertheless be interpreted in light of several limitations. First, the synthesis included literature published in English and retrieved primarily from three major international databases, which may have excluded relevant evidence published in other languages or indexed elsewhere. Second, the integrative design combined empirical and conceptual literature, resulting in heterogeneity in study designs and outcome measures and limiting direct comparison across studies. Third, the proposed framework represents a conceptual synthesis rather than an empirically validated model. Its relationships and mechanisms therefore require testing through future quantitative, qualitative, and mixed-methods research.

Future research should examine the applicability and validity of the framework across different geographical, cultural, and health-system contexts. Empirical studies could assess whether stronger continuity and integration across maternal and child health services are associated with improved equity and long-term outcomes. Longitudinal research would be particularly valuable for examining how interventions during pregnancy and early childhood influence health trajectories across subsequent life stages (Black et al., 2017; Richter et al., 2017). Further research should also explore the perspectives of women, children, families, healthcare professionals, and communities to ensure that integrated care models are responsive to lived experiences rather than designed solely from institutional perspectives.

Overall, the findings suggest that advancing maternal and child health requires a fundamental shift in how health systems conceptualise care. The challenge is not simply to provide more

services but to connect the right services, actors, sectors, and resources across time and according to the needs of populations experiencing unequal health opportunities. By positioning continuity, integration, and equity within a shared lifecourse and systems perspective, the proposed framework offers a theoretically grounded basis for rethinking maternal and child health policy, practice, and research (Peters, 2014; World Health Organization, 2025).

Conclusions

This study demonstrates that maternal and child health and well-being are shaped by interconnected lifecourse processes and multidimensional systems-level determinants rather than by isolated clinical interventions. The integrative synthesis identified five interrelated domains: lifecourse continuity and intergenerational health; social, economic, and structural determinants; integrated and continuous healthcare delivery; primary healthcare and community engagement; and multisectoral governance and collaboration. Together, these domains demonstrate that sustainable improvements in maternal and child health require coordinated action across individuals, families, communities, health systems, and broader social and policy environments.

The proposed **Lifecourse–Systems Integrated Care and Health Equity Framework** provides a conceptual foundation for understanding how continuity, integration, and equity interact to influence maternal and child health trajectories. Its central contribution is to connect the temporal dimension of lifecourse health with the multidimensional nature of health systems while positioning health equity as a guiding principle for care and policy. The framework suggests that integrated care should extend beyond organisational coordination to include meaningful connections among healthcare services, communities, social sectors, and policy structures.

In practice, policymakers and healthcare leaders should strengthen primary healthcare, continuity of care, community participation, referral coordination, and multisectoral collaboration, particularly for populations experiencing structural disadvantage. Future empirical research should validate and refine the proposed framework across diverse cultural and health-system contexts and examine its effectiveness in improving equitable outcomes over time. Ultimately, achieving sustainable maternal and child well-being requires a shift from fragmented, episode-based services toward coordinated, lifecourse-oriented, and equity-driven systems of care.

DECLERATION OF GENERATIVE ARTIFICIAL INTELLIGENCE (AI) USE

During the preparation of this manuscript, the authors used generative artificial intelligence (AI) tools, including ChatGPT, solely for language editing, grammar checking, clarity enhancement, and refinement of academic expression. AI tools were not used to generate or fabricate research data, conduct data analysis, interpret research findings, or determine the scientific conclusions of the study. The authors retain full responsibility for the content, accuracy, originality, integrity, and final version of the manuscript. All AI-assisted content was

critically reviewed, verified, and revised by the authors, who take full responsibility for the submitted work.

REFERENCES

Atun, R., de Jongh, T., Secci, F., Ohiri, K. and Adeyi, O. (2010) 'Integration of targeted health interventions into health systems: a conceptual framework for analysis', *Health Policy and Planning*, 25(2), pp. 104–111. doi: 10.1093/heapol/czp055.

Baxter, S., Johnson, M., Chambers, D., Sutton, A., Goyder, E. and Booth, A. (2018) 'The effects of integrated care: a systematic review of UK studies', *International Journal of Integrated Care*, 18(2), p. 14. doi: 10.5334/ijic.3108.

Black, M.M., Walker, S.P., Fernald, L.C.H., Andersen, C.T., DiGirolamo, A.M., Lu, C., McCoy, D.C., Fink, G., Shawar, Y.R., Shiffman, J., Devercelli, A.E., Wodon, Q.T., Vargas-Barón, E. and Grantham-McGregor, S. (2017) 'Early childhood development coming of age: science through the life course', *The Lancet*, 389(10064), pp. 77–90. doi: 10.1016/S0140-6736(16)31389-7.

Hanson, M.A. and Gluckman, P.D. (2015) 'Early developmental conditioning of later health and disease: physiology or pathophysiology?', *Physiological Reviews*, 95(4), pp. 1347–1371. doi: 10.1152/physrev.00063.2014.

Haskins, L., Chiliza, J., Barker, P., L. et al. (2020) 'Evaluation of the effectiveness of a quality improvement intervention to support integration of maternal, child and HIV care in primary health care facilities in South Africa', *BMC Public Health*, 20, 318. doi: 10.1186/s12889-020-8397-2.

Hone, T., Macinko, J. and Millett, C. (2018) 'Revisiting Alma-Ata: what is the role of primary health care in achieving the Sustainable Development Goals?', *The Lancet*, 392(10156), pp. 1461–1472. doi: 10.1016/S0140-6736(18)31829-4.

Kerber, K.J., de Graft-Johnson, J.E., Bhutta, Z.A., Okong, P., Starrs, A. and Lawn, J.E. (2007) 'Continuum of care for maternal, newborn, and child health: from slogan to service delivery', *The Lancet*, 370(9595), pp. 1358–1369. doi: 10.1016/S0140-6736(07)61578-5.

Kruk, M.E., Gage, A.D., Arsenault, C., Jordan, K., Leslie, H.H., Roder-DeWan, S., Adeyi, O., Barker, P., Daelmans, B., Doubova, S.V., English, M., Elorrio, E.G., Guanais, F., Gureje, O., Hirschhorn, L.R., Jiang, L., Kelley, E., Lemango, E.T., Liljestrand, J., Malata, A., Marchant, T., Matsoso, M.P., Meara, J.G., Mohanan, M., Ndiaye, Y., Norheim, O.F., Reddy, K.S., Rowe, A.K., Salomon, J.A., Thapa, G. and Pate, M. (2018) 'High-quality health systems in the Sustainable Development Goals era: time for a revolution', *The Lancet Global Health*, 6(11), pp. e1196–e1252. doi: 10.1016/S2214-109X(18)30386-3.

Peters, D.H. (2014) 'The application of systems thinking in health: why use systems thinking?', *Health Research Policy and Systems*, 12, 51. doi: 10.1186/1478-4505-12-51.

Richter, L.M., Daelmans, B., Lombardi, J., Heymann, J., Lopez Boo, F., Behrman, J.R., Lu, C., Lucas, J.E., Perez-Escamilla, R., Dua, T., Bhutta, Z.A., Stenberg, K., Gertler, P. and Darmstadt, G.L. (2017) 'Investing in the foundation of sustainable development: pathways to scale up for early childhood development', *The Lancet*, 389(10064), pp. 103–118. doi: 10.1016/S0140-6736(16)31698-1.

Rosenfeld, L. and Litt, J.S. (2024) 'To achieve equitable, integrated care for children, family-centered work must focus on systems', *Families, Systems, & Health*, 42(1), pp. 1–4. doi: 10.1037/fsh0000809.

Sokol, R.L., Austin, G., Chandler, C., Byrum, E., Bousquette, J., Lancaster, C., D'Angelo, A.B. and Austin, B. (2019) 'Screening children for social determinants of health: a systematic review', *Pediatrics*, 144(4), e20191622. doi: 10.1542/peds.2019-1622.

Valentijn, P.P., Schepman, S.M., Opheij, W. and Bruijnzeels, M.A. (2013) 'Understanding integrated care: a comprehensive conceptual framework based on the integrative functions of primary care', *International Journal of Integrated Care*, 13, e010. doi: 10.5334/ijic.886.

Victora, C.G., Bahl, R., Barros, A.J.D., França, G.V.A., Horton, S., Krasevec, J., Murch, S., Sankar, M.J., Walker, N. and Rollins, N.C. (2016) 'Breastfeeding in the 21st century: epidemiology, mechanisms, and lifelong effect', *The Lancet*, 387(10017), pp. 475–490. doi: 10.1016/S0140-6736(15)01044-3.

World Health Organization (2018) *A vision for primary health care in the 21st century: Towards universal health coverage and the Sustainable Development Goals*. Geneva: World Health Organization.

World Health Organization (2019) *Healthy, prosperous lives for all: the European Health Equity Status Report*. Copenhagen: WHO Regional Office for Europe.

World Health Organization (2021) *Operational framework for primary health care: transforming vision into action*. Geneva: World Health Organization.

World Health Organization (2023) *Creating healthy life trajectories: universal health coverage and a life course approach*. Geneva: World Health Organization.

World Health Organization (2025) *Framework to implement a life course approach in practice*. Geneva: World Health Organization. doi: 10.2471/9789240112575.

World Health Organization and UNICEF (2018) *A vision for primary health care in the 21st century: Towards universal health coverage and the Sustainable Development Goals*. Geneva: World Health Organization.

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