# Embracing innovation framework and transformative paradigm: A practical application in the ultralight project

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## Abstract

Higher education, as a centre for research and innovation in the era of transformative learning, is encouraged to conduct research and innovation that can lead to innovation and impact in the areas of health, economy, and sustainability. Innovation requires a framework that functions as an essential guide for development. However, limited innovation frameworks can be applied in nursing, including maternity nursing. This study discusses the M-Motion framework as an alternative framework for developing maternity nursing innovation research. M-Motion comprises of three steps of: pre-innovation, innovation, and post-innovation and it is applied to the Ultralight Project. The project aims to improve pregnancy and fetal health by using the DetectMe device to integrate mothers' self-monitoring data into online health systems so that the condition of pregnant women and their babies is promptly and accurately monitored. The application of the M-Motion framework to the Ultralight Project is a step in the right direction as it helps in illustrating the sequence between research and innovation, especially as it relates to the acceleration of reducing maternal and fetal mortality rates.

**Keywords:** health innovation; pregnancy; transformative learning; women's health

Health innovation is often associated with the application of knowledge and technology to create or modify something new, with the aim of advancing health services. Health innovations benefit the society in many ways, such as improving efficiency, reducing healthcare cost and making healthcare safer and more accessible (Körükcü & Kukulu, 2010; Lukovics & Zuti, 2015). Higher education plays a key role in health innovations by being the origin of many innovations in healthcare (Mulaudzi & Chyun, 2015). Because of the link between technology and improved healthcare services, higher education, including nursing discipline, has been encooraged to adopt technology in nursing research (Madiuw et al., 2019). However, health innovation can also be seen as something intimidating and is ofetn met with resistance because of the perception that it reduces time spent with patients, which can lead to an increase in patient adverse events (Piyakong & Pholanun, 2023).

Generally, health innovations are defined as ideas, procedures, or products in the health sector that are designed to be adopted and developed, with the aim of having a significant impact on individuals, groups, or society as a whole (Kimble & Massoud, 2017). The most important characteristics of health innovation are novelty, applicability, and the benefits produced (Panchbudhe et al., 2021). Novelty can be in the form of new services, methods, or technology. The benefits produced can be seen from the patient's point of view, such as an increase in health levels and reduced suffering from disease (Panchbudhe et al., 2021). Based on the benefits aimed for the stakeholders, such as patients, innovation can be categorized into nondisruptive and disruptive. Nondisruptive innovations are those additional, evolutionary, maintained or improved from preexisting ones, but

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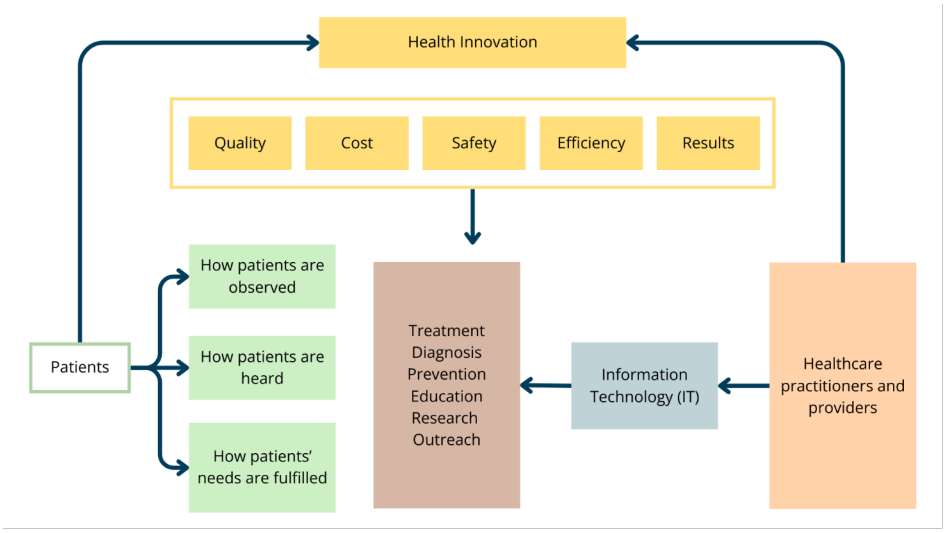


**Figure 1. Conceptual Framework for Health Innovations (Flessa & Huebner, 2021; Omachonu & Einspruch, 2010)**

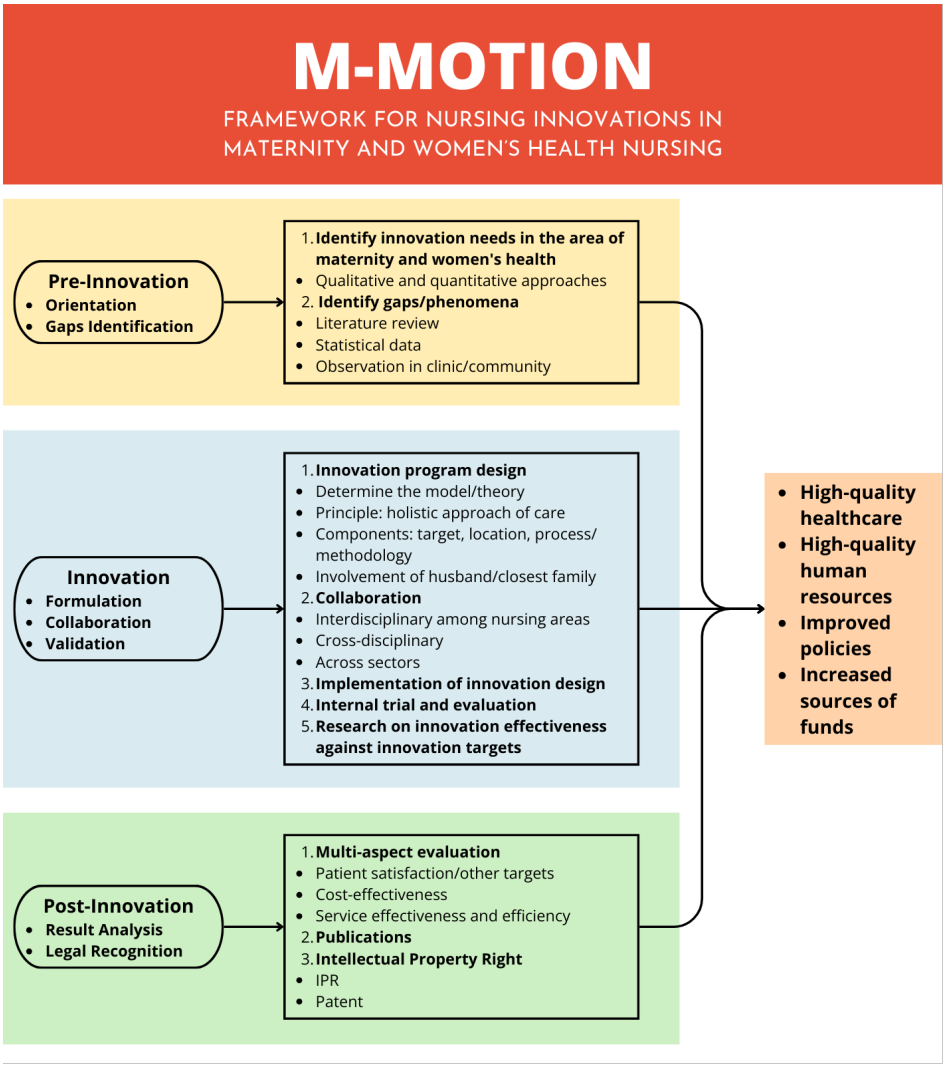


**Figure 2.** M-Motion Framework for Nursing Innovations in Maternity and Women's Health Nursing

still having the opportunity to solve current problems. On the other hand, disruptive innovations are radical, revolutionary, transformational, or nonlinear. Hence, disruptive innovations are meant to change the old system and create new markets (Omachonu & Einspruch, 2010). Society as stakeholders can be greatly impacted by health innovations in the information technology sector. The advantages of information technology in revolutionizing healthcare include more extensive and flexible services through telemedicine or telenursing; integrated health information systems; drug safety monitoring on a global scale; and higher quality information for healthcare workers and patients (Sounderajah et al., 2021).

The health innovation framework (Figure 1) illustrates the six focus of health service activities, including treatment, diagnosis, prevention, education, research, and outreach. To process these activities, health services effectively manage service quality, cost, safety, efficiency, and outcomes. At the core of healthcare innovation are the needs of patients, healthcare practitioners, and healthcare providers. Healthcare organizations create innovations by relying on new or existing information technology. When successful, innovations focus on evaluating three things: a) how patients are observed, b) how patients are heard, and c) how patients' needs are met.

Globally, nurses participate in innovative activities to improve the quality of nursing care and to reduce hospitalization costs, and ensure the health of communities, groups, and individuals. Innovation is the process of developing new technologies and ways of working with new approaches, which can include the development of tools that support nursing services. Additionally, innovation can also take the form of breakthrough nursing interventions based on new ideas or refinement of previous ideas (Asurakkody & Shin, 2018; Brysiewicz et al., 2015; Lowen et al., 2017) . Innovation in health begins with a new idea and continues with changes toward better quality, which can have effects in health promotion, disease prevention, and improve patient care. Some of the challenges of nursing innovation include the challenges of utilizing technology in nursing care, especially with differences in culture, socio-economic disparities, and quality and cost of care throughout Indonesia. Other challenges nurses face is the demand to continuously innovate, observant of problems and opportunities for innovation, understand how to deliver the innovations to stakeholders, and make innovating into a practice for nurses, including in maternity and women's health nursing services.

One of the stages in innovating is to design a base structure that will become the foundation of the innovation. Creating an innovation framework or model will guide and direct the way of thinking for every element involved in innovation. With the use of a framework, ideas can be clearly and openly conveyed. Frameworks can be made in the form of physical descriptions, diagrams, or simple sketches. It guides the innovation process to reduce the risk of failure because it is expected that all elements involved have the same mindset and the same final goals. By designing a specific one that can be used in nursing innovation, especially maternity nursing, the development of maternity services can be optimized. Some innovations in maternity nursing area had been introduced, such as simulation-based learning for improving nursing students performance in managing post-partum hemorrage (Pansuwan & Klankhajhon, 2021) or artificial intelegence as an educational media to improve adolesent reproductive health (Handayani et al., 2022). However, these innovations focused more in education area.

Women's health issues, especially maternal health problems, are priority issues in the world health development, and it is included as one of the Sustainable Development Goals (SDGs) in Indonesia. Indonesia is still ranked as one of the ASEAN country with the highest incidence of maternal and infant mortality (Ministry of Health, 2024). Maternal and infant deaths are often caused by high-risk issues during pregnancy, such as hypertension in pregnancy (pre-eclampsia and eclampsia), gestational diabetes, profusive bleeding, placental abnormalities, and pregnancy infections (Widiasih & Nasution, 2020). The risk factors of such cases are obesity, substance and drug abuse, smoking, nutritional deficiencies, pregnant in high-risk ages, and trauma during pregnancy (Widiasih & Nasution, 2020). There are various government programs implemented by nurses in improving maternal and women's health in Indonesia (Widiasih & Nelson, 2021), but more efforts are still needed to achieve the SDGs target by 2030, one of which begins with determining the framework for a health service innovation.

Frameworks can assist in nursing innovation, especially in the area of maternity and women's health nursing. The frameworks are developed based on theories and concepts of health and nursing innovation which then integrates with the characteristics of maternity nursing. The M-Motion framework of Maternity Nursing Innovation, which was integrated based on theories, is one example (Flessa & Huebner, 2021; Makowiecka et al., 2019). The "M" from M-Motion stands for maternity, and "-Motion" means continuation and sustainability of innovation. The framework consists of three main stages, namely (1) Pre-Innovation; (2) Innovation; and (3) Post-Innovation. The Pre-Innovation stage is done by conducting an initial study with a quantitative or qualitative approach to analyse what is needed for innovation. In this stage, gaps or phenomena for the innovation is also identified by conducting a literature review from scientific articles, legal statistical data, or official government reports. The second stage, Innovation, consists of three main components, which are innovation formulation, collaboration, and validation. The formulation component determines

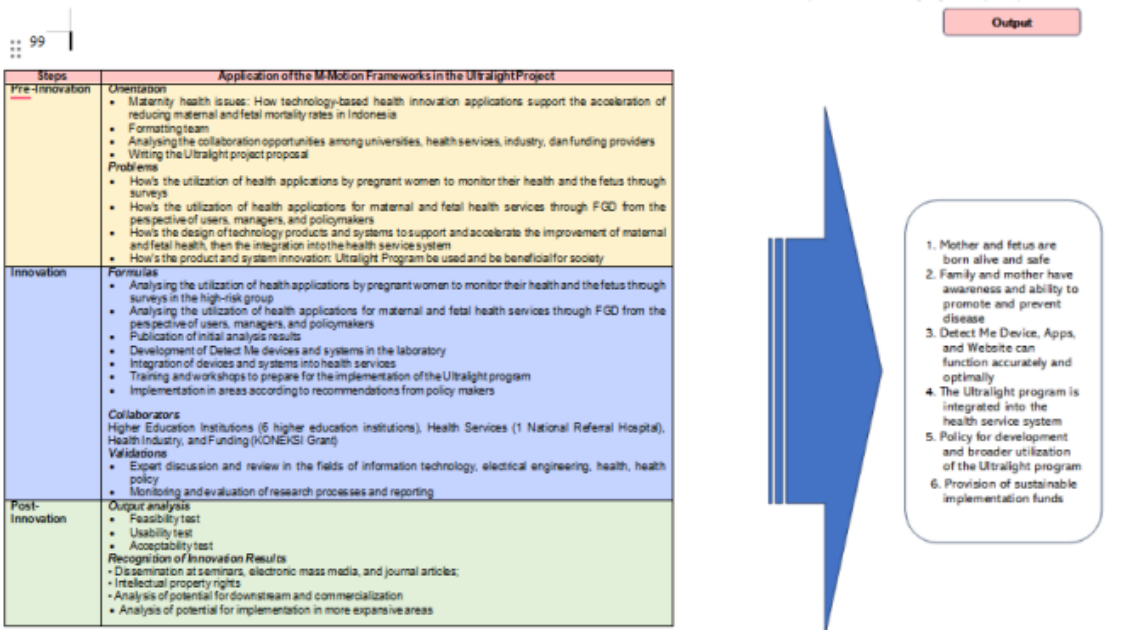


**Figure 3.** Application of the M-Motion Framework in the Ultralight Project

the framework or theory and methodology that will guide the process. The collaboration component is done to increase efficiency, integrate various knowledge sectors, broaden community feedback, and create a service that is more holistic, innovative, and used-based. Lastly, in the Post-Innovation stage, output analysis and legal recognition of the innovation products are completed.

The M-Motion framework has been applied in several innovation projects in the area of maternity and women's health nursing, especially in health promotive efforts. The M-Motion framework is currently applied to the Ultralight Project, an Innovative Solution to Optimize Digital Technology and the Health System Strengthening in Accelerating the Reduction of Foetal-Maternal Mortality: Indonesia-Australia Study. The stages of the framework are applied in the project as follows.

The transformation of innovation and technology in healthcare and nursing, especially in the maternity and women's health sector, continues to evolve rapidly. Nurses as health professionals cannot go through all of the challenges in technology transformation alone, but they have great potential in becoming leaders of multidisciplinary innovators by partnering with industry and key stakeholders. The challenge for nurse innovators is to continue to find innovative ideas, collaborate with different professions and fields to improve the quality of holistic nursing services for patients, families, and communities. In support of achieving the SDGs target, more nursing innovations in technology, especially in improving maternal and women's health promotion, are needed. The M-Motion framework has been applied in the Ultralight Project as the foundation to establish shared goals between partners and streamline the project roadmap. With the M-Motion framework, Ultralight Project is hoped to produce health innovations that can help promote the health of pregnant women and their babies.

## Declaration of Interest

None to declare

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## Data Availability

Data sharing is not applicable to this article as no datasets were generated or analysed during the current study.

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