

Strengths, weaknesses, opportunities and threats in coastal women's health management: A systematic review

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Abstract

Coastal women's health problems are one aspect of improving the standard of living of coastal communities. This research aims to conduct a systematic review of strengths, weaknesses, opportunities, and threats (SWOT) in managing coastal women's health. This research method involves a thorough analysis of scientific literature related to coastal women's health from Scopus sources. A systematic review was used in this research on the publication of 34 articles on coastal women's health. The results of the analysis show that the strength of coastal women's health management lies in the active participation of coastal women in disease prevention communities, providing immunizations to pregnant women, providing postnatal care, and providing breast milk to babies who are born. However, weaknesses include limited access to health services and reproductive health education, especially in areas with difficult geographic conditions. Opportunities in managing coastal women's health can be found in community empowerment, increasing accessibility to health services, and collaborative cross-sector approaches. The high threat of 73.52% in this review states that there are still many unresolved problems regarding coastal women's health. Therefore, this systematic review provides a comprehensive understanding of the factors influencing coastal women's health and provides a basis for the development of more effective policies and interventions in the future.

KEYWORDS

women, coast, health, disease prevention, environmental pollution.

1. INTRODUCTION

The health of coastal women is an aspect that cannot be overlooked in efforts to empower and improve the well-being of communities in coastal areas (Barrios et al., 2020; Hernández-Delgado, 2015). The coast, as an area rich in natural resources, often becomes the center of economic, social, and cultural life (Eales et al., 2021). Therefore, maintaining the health of women in coastal areas is

not only an obligation but also a necessity to ensure sustainable survival and development (Akinsemolu & Olukoya, 2020; Luyckx et al., 2021). Coastal women play a central role in families and communities, both as managers of household resources and as drivers of the local economy through activities such as fisheries, seafood processing, and micro-enterprises (Pike et al., 2022). However, they often face complex health challenges

due to limited access to health services, low health literacy, and environmental impacts such as ocean pollution and climate change that directly affect their physical and mental conditions. In addition, the dual burden of breadwinners and housekeepers increases their vulnerability to health problems such as chronic fatigue, malnutrition, and reproductive health disorders. Therefore, a holistic and community-based approach is indispensable in the planning and implementation of health programs for coastal women (Phelan et al., 2020). Interventions that consider social, cultural, economic, and environmental aspects in an integrated manner will strengthen the capacity of coastal women to maintain the health of themselves and their families, as well as contribute more optimally to the sustainable development of coastal areas (Singh et al., 2022).

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The importance of the health of coastal women is not only limited to the physical dimension but also encompasses social, economic, and cultural aspects (Singh et al., 2022). Coastal women often stand at the forefront of ensuring the availability and distribution of natural resources and play a crucial role in environmental conservation (Gkargkavouzi et al., 2020; Lau et al., 2021). Therefore, maintaining the health of coastal women impacts not only individuals but also the ecosystem and the sustainability of local communities (Leslie et al., 2018). Maintained health allows coastal women to continue to carry out their strategic roles in their families and communities, including in decision-making regarding the use of natural resources and food security (Md et al., 2022). When their health is neglected, their ability to contribute to the well-being of the community becomes limited, which

ultimately impacts social resilience and the coastal environment itself. In addition, coastal women are also often the guardians of local knowledge and traditions that are closely related to the preservation of marine and coastal ecosystems. Therefore, investing in coastal women's health not only means improving the quality of life of individuals, but is also an important strategy in sustainable development (Troell et al., 2023). An inclusive, gender-sensitive, and local culture-based approach to health is key to supporting the resilience and sustainability of coastal communities.

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One of the main challenges faced by coastal women is limited access to healthcare services (Ahmed & Eklund, 2021). Geographic, economic, and infrastructural factors can pose serious barriers to obtaining adequate healthcare (Ayeb-Karlsson, 2020). Additionally, harsh and unpredictable environmental conditions often increase the risk of health issues such as infectious diseases, malnutrition, and reproductive disorders (Ashrafuzzaman et al., 2023). This condition is exacerbated by the lack of available health workers in coastal areas and the limited availability of adequate medical facilities. Many coastal women must travel long distances or use risky modes of sea transportation just to get basic health services (Troell et al., 2023). In addition, social and cultural inequalities, including gender norms that limit women's mobility and decision-making, also hinder them from seeking timely medical attention (Pennington et al., 2018). Lack of health information and education also leads to low awareness of the importance of pregnancy screening, immunization, and early treatment of infectious and chronic diseases. Therefore, targeted

and sustainable interventions are needed to improve health access, quality, and literacy for women in coastal areas (Ferreira et al., 2021). Support from governments, non-governmental organizations, and local communities is critical to addressing these structural challenges for the creation of a more inclusive health system that is responsive to the needs of coastal women.

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Reproductive health is a primary focus in the context of coastal women's health. Coastal women often face high risks associated with pregnancy and childbirth, with limited access to antenatal and safe delivery services (Ombere et al., 2021). Additionally, social and cultural factors in coastal areas can influence decisions related to reproductive healthcare (Liddell & Doria, 2022). The novelty of this study is the first systematic review that specifically examines the health management of coastal women with a SWOT (Strengths, Weaknesses, Opportunities, Threats) analysis approach. This approach has not been widely used in the context of public health, particularly in coastal women's populations, which have unique social, cultural, geographical, and environmental characteristics. Furthermore, this study lies in the integration of social, environmental, and health service system perspectives in one comprehensive analytical framework. The study not only identifies internal factors (strengths and weaknesses) but also highlights external factors (opportunities and threats) that affect access, quality, and sustainability of health services for women in coastal areas. This study offers new insights into the potential of community-based interventions and cross-sectoral approaches that can be used to improve the health of coastal women. By compiling evidence-based

SWOT maps from previous studies, this study provides a solid scientific basis for more targeted and sustainable policymaking and intervention strategies. Through this paper, I will delve deeper into various aspects of coastal women's health, the challenges they face, and the efforts that can be made to improve their health and well-being. With a better understanding of this situation, it is hoped that more effective strategies and interventions can be developed to enhance the health of coastal women, enabling them to contribute optimally to sustainable development in coastal areas.

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2. METHODS

This study outlined the strengths, weaknesses, opportunities, and threats in managing the health of coastal women. The PRISMA theory (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) was applied at all stages of the review (Wikurendra et al., 2022). Three keywords were used in the search process, resulting in 269 articles. The keywords were coastal women, health, and coastal women's health. A specific criterion for this review article was that the articles had to be published in Scopus-indexed journals. Subsequently, the articles were selected based on the relevance of their titles and abstracts. Finally, the 34 most relevant articles were chosen and used in this study ([Figure 1](#)).

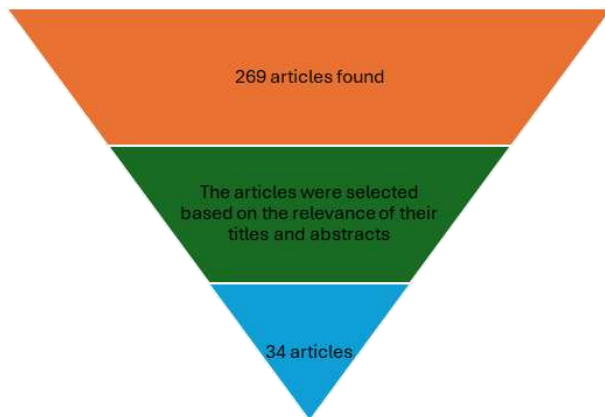


Figure 1. Prisma method

3. RESULTS AND DISCUSSION

3.1 Number of Journals Reviewed

The results of the analysis of the selected articles (34 articles) from 269 articles were outlined in several subsections; the methodology used and the geographical distribution of each journal, and the results can be seen in Figure 2. [Table 1](#) explained the number of journals reviewed based on several research methodologies determined by the authors. The percentage values obtained for each subsection were discussed in detail below.

Table 1. Sources of the 34 reviewed journals

Source	Reference	Number of Journals
<i>International Journal of Environmental Research and Public Health</i>	(Grattan et al., 2021; Hacon et al., 2020; Jahanpour et al., 2023; Katayanagi et al., 2020; Ma et al., 2020; Matlack et al., 2023; Muniroh et al., 2022; Pan et al., 2019; Riondel et al., 2023; Röllin et al., 2020; Schaefer et al., 2019; Seo et al., 2020; Vázquez-Troche et al., 2022; Zheng et al., 2022)	14
<i>BMC Public Health</i>	(Al-Taj & Al-hadari, 2023; Borch et al., 2021; Feng et al., 2021; Nyiro et al., 2020; Oguya et al., 2021; Petrenya et al., 2019; Sayed et al., 2019; Seidu, 2021)	8
<i>Frontiers in Public Health</i>	(Das et al., 2023; Li et al., 2023; Liu et al., 2023; Mazumder et al., 2023; Wang et al., 2023)	5
<i>International Journal of Hygiene and Environmental Health</i>	(Jeon et al., 2021; Tratnik et al., 2019)	2
<i>Reproductive Health</i>	(Ayon et al., 2019; Mochache et al., 2020)	2
<i>BMC Pregnancy and Childbirth</i>	(Appiah et al., 2021; Odhiambo & Sartorius, 2020)	2
<i>Women and Birth</i>	(Styles et al., 2020)	1

3.2 Journal Distribution

[Figure 2](#) depicted the distribution of all 269 journals. The numbers showed that articles from 2019 to 2023 experienced fluctuations in growth. The number of publications increased from 2019 to 2021, then decreased from 2021 to 2022, and then increased again in 2023. The increase in publications over certain periods indicated that developing countries showed growing interest in coastal women's health. Paying attention to coastal women's health helped solve coastal environmental problems and encouraged increased income for coastal communities in the process of managing marine natural resources.

In this context, the health of coastal women is crucial, because only with optimal health can they effectively engage in economic activities and environmental conservation. Providing easily accessible health services, reproductive health education programs, and promoting healthy lifestyles are steps that need to be strengthened to ensure that coastal women remain productive and resilient to the various environmental and economic challenges they face.

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Thus, efforts to improve coastal women's health not only impact individuals, but also have positive implications for the sustainability of the coastal environment and the economic welfare of local communities. Within this framework, this journal will review further the close relationship between coastal women's health, management of marine natural resources, and increasing the income of coastal communities to formulate strategic steps in advancing holistic prosperity in coastal areas.

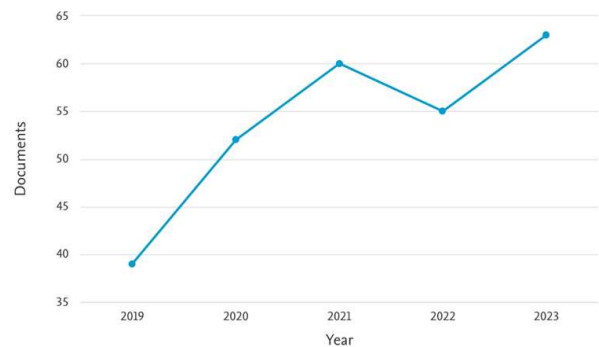


Figure 2. Distribution of journals reviewed based on year of publication

3.3 Geographic distribution

Geographic distribution identifies the countries or regions where research is generally conducted, and different countries or geographic regions are sampled for each year of publication. America, Africa, Asia and Europe are the places where this research was conducted, as illustrated in [Figure 3](#).

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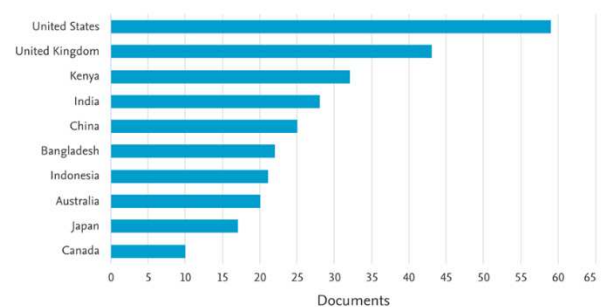


Figure 3. Geographic distribution of research on coastal women's health.

Many authors refer to Europe to make the setting of their research pseudo. However, this review had some exceptions where one country was cited and included in the systematic review. The geographic distribution illustrated in [Figure 2](#) contains the top 10 countries with high concern for coastal women's health. America had a high

publication rate from 2019 to 2023, followed by Europe, and Africa, while Asia had varying percentages of publications. Starting from 2019-2023, America will be the continent that has coastal women's health publications. Furthermore, Kenya is the only country on the African continent that really cares about the health of coastal women and is ranked in the top 3. Meanwhile, Indonesia is ranked 7th as one of the countries in Asia that cares about the health of coastal women.

3.4 Strengths, weaknesses, opportunities and threats in coastal women's health management

Articles published in the last five years show that research on coastal women's health is growing, especially in developing countries. [Table 2](#) discusses the main results obtained in the systematic review analysis regarding the strengths, weaknesses, opportunities and threats to women's health, especially in coastal areas.

Table 2. Assessment of strengths, weaknesses, opportunities and threats in coastal women's health management

<p style="text-align: center;">Strengths</p> <ul style="list-style-type: none"> • Exclusive provision of breast milk (ASI) (Jahanpour et al., 2023) • Postnatal care reduces maternal mortality (Appiah et al., 2021) • Immunization of pregnant women to increase specific antibodies to Respiratory Syncytial Virus (RSV)(Nyiro et al., 2020) • The existence of a community to prevent HIV (Ayon et al., 2019) 	<p style="text-align: center;">Weaknesses</p> <ul style="list-style-type: none"> • Ethnic differences create barriers for coastal women (Borch et al., 2021; Petrenya et al., 2019) • The existence of individual and community factors influencing the absorption and utilization of maternal health services among coastal women's communities (Mochache et al., 2020)
<p style="text-align: center;">Opportunities</p> <ul style="list-style-type: none"> • Socioeconomic changes reduce maternal mortality (Wang et al., 2023) • The existence of continuity of obstetric care (CoC) is arguably the most significant factor in improving the clinical outcomes of postpartum coastal women (Styles et al., 2020) 	<p style="text-align: center;">Threats</p> <ul style="list-style-type: none"> • Presence of infectious disease (Matlack et al., 2023) • Female genital mutilation/cutting (Al-Taj & Al-hadari, 2023) • Solar Radiation (Riondel et al., 2023) • The presence of high environmental temperatures / climate change reduces pregnancy rates (Das et al., 2023; Mazumder et al., 2023) • The presence of coastal environmental pollution causes asthma (Li et al., 2023) • Tuberculosis (TB), diabetes, heart disease, drugs, reproductive tract infections (RTI), persistent organic pollutants (POPs), domoic acid (DA), anemia, and breast cancer are still health challenges for coastal women (Feng et al., 2021; Grattan et al., 2021; Jeon et al., 2021; Liu et al., 2023; Odhiambo & Sartorius, 2020; Oguya et al., 2021; Sayed et al., 2019; Vázquez-Troche et al., 2022; Zheng et al., 2022) • Exposure to methylmercury (MeHg) impacts fetal health (Hacon et al., 2020; Ma et al., 2020; Muniroh et al., 2022; Röllin et al., 2020; Schaefer et al., 2019; Seo et al., 2020; Tratnik et al., 2019) • There is careless dumping of children's feces on the coast (Seidu, 2021) • The presence of earthquakes on the psychology of coastal women (Katayanagi et al., 2020) • Tooth loss in postmenopausal women (Pan et al., 2019)

Coastal women play a central role in promoting the practice of exclusive breastfeeding, which is an important foundation for optimal growth and development of babies. Their strengths lie in direct involvement in community life and intimate knowledge of local needs. In this context, coastal women are able to lead educational initiatives regarding the benefits of exclusive breastfeeding and appropriate techniques. This local inherited knowledge often provides a powerful impetus for overcoming myths or cultural norms that may inhibit exclusive breastfeeding practices. Apart from that, coastal women can also be strong role models, motivating and empowering other mothers to choose exclusive breastfeeding as the main choice. Their adaptability to environmental changes and socio-economic conditions in coastal areas also helps them identify appropriate and practical solutions to support exclusive breastfeeding. By building solidarity among coastal women, they can form an effective support network, creating a social environment that supports new mothers in their exclusive breastfeeding journey. Therefore, understanding and harnessing the strengths of coastal women is key in improving exclusive breastfeeding practices in coastal communities (Jahanpour et al., 2023). Postnatal care has an important role in reducing maternal mortality. Through this service, new mothers can receive ongoing health monitoring after delivery, including blood pressure monitoring, episiotomy wound monitoring, and evaluation of potential postpartum complications. Providing postnatal care also allows for early detection and treatment of health problems that may arise after delivery, such as infections or bleeding disorders. Additionally, postnatal care provides an opportunity for mothers to discuss the physical and emotional changes they are experiencing, helping to reduce the risk of postnatal mental disorders. By ensuring that every mother receives adequate postnatal care, we can make a significant contribution to efforts to reduce maternal mortality and improve postnatal maternal health (Appiah et al., 2021).

Immunization of pregnant women has a positive impact in increasing the production of specific antibodies against Respiratory Syncytial Virus (RSV). This immunization not only protects pregnant women from the risk of infection, but also helps protect the unborn baby because the antibodies produced can be transmitted through the placenta. The presence of these antibodies provides additional protection against RSV, a virus that can cause respiratory tract infections in newborn babies (Nyiro et al., 2020). Apart from that, forming a community that cares about HIV prevention is a crucial step in efforts to prevent transmission of this virus. By strengthening awareness and education at the community level, individuals can be more proactive in protecting themselves from potential HIV transmission. The existence of community support also creates an environment that supports individuals living with HIV, reduces stigma, and increases accessibility to prevention and treatment services. Thus, immunization of pregnant women and the formation of communities that are aware of HIV prevention are two important aspects in ensuring optimal maternal and infant health (Ayon et al., 2019).

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The opportunities for socio-economic changes experienced by coastal women can have a positive impact in reducing maternal mortality. Through increasing accessibility to education and employment opportunities, coastal women can have greater knowledge about reproductive health and gain the economic ability to obtain quality health services. This increase in socioeconomic status can also provide them with better access to health

facilities and increase awareness of safe maternal care practices (Wang et al., 2023). Along with this, the existence of continuity of midwifery services (CoC) in coastal areas is a key factor in improving postnatal clinical outcomes. Continuous coordination between antenatal, delivery and postnatal services can ensure ongoing health monitoring, rapid treatment of health problems that may arise, and ongoing assistance. Thus, the combination of positive socio-economic changes and the implementation of CoC can make a significant contribution to achieving a reduction in maternal mortality in coastal communities (Styles et al., 2020).

Through increasing accessibility to education and employment opportunities, coastal women can have greater knowledge about reproductive health and gain the economic ability to obtain quality health services

Weaknesses caused by ethnic differences often become a significant barrier in obtaining health care for coastal women. Cultural and traditional factors can influence health care decisions, limit accessibility to medical services, and create inequities in the receipt of health information. Coastal women with different ethnic backgrounds may face linguistic and social barriers in communicating with health care providers, which in turn may hinder their understanding of the health information provided (Borch et al., 2021; Petrenya et al., 2019). In addition, individual and community factors also play an important role in the uptake and utilization of maternal health services among coastal women's communities. Educational level, socioeconomic status, and cultural beliefs may influence their perception of maternal care needs, thereby limiting their access to necessary health services. Therefore, community empowerment strategies and culturally sensitive approaches are essential in addressing ethnic differences and

individual factors that may hinder maternal health among coastal women (Mochache et al., 2020).

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The threat of coastal environmental pollution (Li et al., 2023) is a significant factor in causing various diseases in coastal women. This pollution can come from industrial, agricultural and residential waste, which produces dangerous chemicals and water pollutants that can cause health problems. Excessive solar radiation and high environmental temperature increases or climate change may also contribute to reduced pregnancy rates among coastal women (Riondel et al., 2023). Continuous exposure to ultraviolet rays and extreme temperature changes can affect hormonal balance and reproductive function (Das et al., 2023; Mazumder et al., 2023). Several diseases such as Tuberculosis (TB), diabetes, heart disease, drugs, Reproductive Tract Infections (ISR), persistent organic pollutants (POPs), domoic acid (DA), anemia, asthma and breast cancer are still serious challenges in health maintenance efforts. coastal women (Feng et al., 2021; Grattan et al., 2021; Jeon et al., 2021; Liu et al., 2023; Odhiambo & Sartorius, 2020; Oguya et al., 2021; Sayed et al., 2019; Vázquez-Troche et al., 2022; Zheng et al., 2022). In particular, exposure to methylmercury (MeHg), which generally comes from industrial activities and waste disposal, can have a negative impact on the fetal health of coastal women. Integrated environmental protection efforts and healthy lifestyle changes are important to overcome these various health challenges among coastal women (Hacon et al., 2020; Ma et al., 2020; Muniroh et al., 2022; Röllin et al., 2020; Schaefer et al., 2019; Seo et al., 2020; Tratnik et al., 2019).

Integrated environmental protection efforts and healthy lifestyle changes are important to overcome these various health challenges among coastal women

3.5 Geographic distribution

Future research perspectives need to focus on an in-depth understanding of the risk factors and social determinants that influence coastal women's health related to Tuberculosis (TB), diabetes, heart disease, drugs, Reproductive Tract Infections (RTI), persistent organic pollutants (POPs), domoic acid (DA), anemia, asthma, and breast cancer. Epidemiological research involving broad surveys and longitudinal data collection can provide better insight into the prevalence, distribution, and trends of these diseases among coastal women. Additionally, qualitative research to understand the cultural and social context surrounding illness can provide a rich perspective and help formulate more effective interventions. Experimental and clinical research is also needed to identify more targeted methods of prevention, diagnosis and treatment for coastal women, taking into account geographic and ethnic diversity.

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Future research recommendations involve developing evidence-based health interventions specific to coastal women, including prevention programs, affordable reproductive health services, and educational campaigns. Collaborative studies between researchers, health practitioners, and local communities can help design and implement solutions that are relevant to local needs and culture. It is also important to investigate the impact of climate change and environmental pollution on coastal women's health, as well as develop specific adaptation and risk mitigation strategies. Additionally, translational research that links scientific findings to public policy and health practices on the ground can accelerate positive change in coastal women's health. Therefore, cross-sector and interdisciplinary collaboration in coastal

women's health research is essential to achieve sustainable and comprehensive results.

Collaborative studies between researchers, health practitioners, and local communities can help design and implement solutions that are relevant to local needs and culture

4. CONCLUSION

It can be concluded that there are various aspects of coastal women's health, the challenges they face, as well as efforts that can be made to improve their health and welfare in this article. Results of analysis of selected articles (34 articles) from 269 articles collected on Scopus. The International Journal of Environmental Research and Public Health contributed the highest amount of writing to this review, namely 41.17%, the remaining 58.83% was spread across several other journals. The high threat of 73.52% in this review states that there are still many unresolved problems regarding coastal women's health, so many research innovations are needed that can overcome the reduction of these threats. Future study needs to focus on the design and implementation of an integrated, community-based health service model, which considers the geographical, socio-cultural, and specific needs of coastal women. Given the high exposure to pollution and climate change in coastal areas, long-term research examining the impact of the environment on women's reproductive health is essential. Research on the development of health technology (telemedicine, self-detection devices, early warning systems) that are easily accessible and used in coastal areas can be a solution in bridging the limitations of access to health services.

CREDIT AUTHORSHIP CONTRIBUTION STATEMENT

Zhulvie Meylanzharie: Writing – original draft, Conceptualization, review, editing, Methodology, Supervision, Data curation. Iswahyudi Iswahyudi: Conceptualization, Methodology, Supervision.

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CONFLICT OF INTEREST

The authors declare no conflict of interest

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