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POLICY, ACCESS, AND AWARENESS: THE PUBLIC HEALTH TRIAD AGAINST BREAST CANCER

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ABSTRACT

Breast cancer remains the most common malignancy among women and a leading cause of cancer-related deaths globally. Despite significant advances in diagnosis and treatment, stark disparities persist in incidence, stage at presentation, and survival outcomes, particularly in low- and middle-income countries. This narrative review highlights the "public health triad" of policy, access, and awareness as a comprehensive framework for addressing these inequities. Evidence-based policies lay the foundation for standardized cancer control strategies, equitable access ensures that diagnostic and treatment services are available and affordable, and awareness initiatives empower individuals and communities to engage in prevention and early detection. The interplay of these three elements is critical for improving breast cancer outcomes and reducing the global burden. Strengthening this triad through collaborative, culturally sensitive, and sustainable approaches can bridge gaps in care and advance health equity in breast cancer control.

Keywords: *Breast cancer, Public health policy, Health access, Awareness, Equity*

Introduction

Breast cancer stands as the most frequently diagnosed cancer in women worldwide and the leading cause of cancer-related mortality in many regions. According to the Global Cancer Observatory, over 2.3 million new cases and nearly 685,000 deaths were reported in 2020, with projections indicating a steady increase in incidence in the coming decades [1-2]. While high-income countries (HICs) have achieved remarkable progress in reducing breast cancer mortality through early detection programs, advanced therapies, and well-organized health systems, the situation is markedly different in low- and middle-income countries (LMICs). In these settings, late-stage diagnosis, limited healthcare infrastructure, and financial barriers continue to fuel high mortality rates and poor survival outcomes [3-4].The complexity of breast cancer control extends beyond the biomedical model, demanding a broader public health perspective. A growing body of evidence underscores that disparities in outcomes are not solely attributable to biological differences but also to systemic inequities in health policy, access to care, and community-level awareness. This recognition has spurred interest in framing breast cancer control within a "public health triad," wherein policy, access, and awareness operate as interconnected pillars. This framework emphasizes that effective cancer control cannot be achieved through isolated interventions but rather through an integrated strategy that addresses structural, systemic, and social determinants of health [5-7].

Policy provides the foundation for coordinated national cancer control strategies by defining priorities, allocating resources, and establishing screening and treatment standards. Access ensures that individuals benefit from these policies by making diagnostic, therapeutic, and supportive services available, affordable, and equitable. Awareness, in turn, empowers communities and individuals with knowledge about risk factors, early warning signs, and the importance of timely healthcare-seeking behavior, while also reducing stigma and cultural barriers. Together, these elements form a synergistic model capable of transforming breast cancer outcomes when implemented cohesively [8-9].This narrative review explores the role of policy, access, and awareness in shaping breast cancer control strategies worldwide. It highlights successes and challenges across different contexts, with particular attention to LMICs where the burden is most profound. By examining how the triad interacts to influence prevention, early detection, and treatment outcomes, the review underscores the urgency of adopting comprehensive, culturally sensitive, and sustainable approaches to breast cancer as a public health priority.

Policy: Building Stronger Frameworks

Public health policy provides the backbone for coordinated and sustainable breast cancer control. Well-designed policies determine how resources are allocated, which populations are prioritized, and how services are integrated into existing health systems. Countries with strong national cancer control plans have demonstrated significant improvements in early detection, treatment access, and survival outcomes. These policies typically include the establishment of national screening guidelines, subsidized or free diagnostic services, and structured referral systems that ensure continuity of care from primary to tertiary levels [10-13].For instance, organized mammography screening programs in many high-income countries have been instrumental in reducing breast cancer mortality through early detection and intervention. Such programs are supported by legislation, government funding, and continuous evaluation mechanisms that maintain quality and equity. In contrast, many low- and middle-income countries struggle to implement similar initiatives due to competing health priorities, limited financial resources, and weak health infrastructures. The absence of coherent policy frameworks often results in fragmented, hospital-based care that fails to address the population-level burden of disease [14-16].

The role of policy extends beyond screening and treatment to encompass health system strengthening. Policies that prioritize workforce training, investment in pathology and radiology infrastructure, and inclusion of essential cancer medicines in national formularies help to close critical gaps. Additionally, embedding breast cancer initiatives into broader strategies such as universal health coverage (UHC) ensures that interventions are both sustainable and equitable [8].International organizations, including the World Health Organization (WHO) and the Union for International Cancer Control (UICC), have underscored the importance of national policies in addressing breast cancer. Global frameworks such as the WHO Global Breast Cancer Initiative aim to guide countries in setting priorities, mobilizing resources, and adopting best practices tailored to their specific contexts. However, the effectiveness of these frameworks depends heavily on political will, intersectoral collaboration, and long-term commitment from governments [17-18].Ultimately, building stronger policy frameworks requires a balance between evidence-based strategies and local realities. Policies must be adaptable to cultural, economic, and health system contexts while maintaining a clear focus on reducing mortality and improving survival. By positioning breast cancer as a national and global health priority, robust policies create the foundation upon which access and awareness can thrive, completing the public health triad.

Access: Bridging the Gap in Care

While strong policy frameworks establish the foundation for breast cancer control, their effectiveness ultimately depends on whether individuals can access timely, affordable, and high-quality services. Across the globe, access remains one of the most formidable barriers in the fight against breast cancer. Inequities are particularly evident in low- and middle-

income countries (LMICs), where shortages of trained personnel, diagnostic facilities, and treatment centers often result in late-stage diagnoses and poor outcomes. Even in high-income settings, marginalized populations—including rural residents, racial minorities, and low-income groups—face significant challenges in obtaining equitable care [19-20].Financial barriers remain a critical concern. The costs associated with diagnostic imaging, pathology, surgery, chemotherapy, and radiotherapy can be prohibitive, especially where health insurance coverage is inadequate. In many LMICs, breast cancer treatment is largely paid for out-of-pocket, leading to catastrophic health expenditures that push families into poverty. Expanding health insurance schemes, subsidizing essential medicines, and integrating breast cancer services into universal health coverage (UHC) are crucial steps toward financial protection and equitable access [21-22].

Geographic disparities further compound the problem. Specialized oncology centers are often concentrated in urban areas, leaving rural populations with limited options for timely diagnosis and treatment. Patients may need to travel long distances, incurring additional costs and delays that worsen prognoses. Decentralizing diagnostic and treatment services, establishing satellite cancer centers, and leveraging mobile mammography units can help bridge this gap. Telemedicine and digital health solutions also hold promise by connecting patients in remote areas with oncologists and specialists [23].Access is not only about financial and geographic factors but also about overcoming social and cultural barriers. Stigma, fear, and misconceptions about breast cancer can discourage women from seeking care, while gender inequities may limit decision-making power in health-related matters. Addressing these barriers requires culturally sensitive interventions that empower women and engage families and communities [24].

Equity in access also depends on the availability of supportive services such as palliative care, psychosocial counseling, and rehabilitation. Too often, these aspects are neglected, leaving patients and survivors without the comprehensive support needed to maintain quality of life. Ensuring access to these services is integral to a holistic approach to breast cancer care [25].Bridging the gap in access demands coordinated action across multiple levels—governments, healthcare providers, non-governmental organizations, and communities. By expanding infrastructure, reducing financial hardship, and addressing social determinants of health, health systems can move closer to achieving equitable breast cancer outcomes. Access, when fully realized, ensures that policies translate into meaningful improvements in survival and well-being, reinforcing the strength of the public health triad [26].

Awareness: Empowering Communities

Awareness represents the community-driven arm of the public health triad against breast cancer. While policies set the framework and access ensures service delivery, awareness empowers individuals to recognize risks, seek timely care, and challenge cultural and social barriers that perpetuate delayed diagnoses.

Community awareness initiatives have consistently demonstrated their potential to improve breast cancer outcomes, particularly by fostering early detection and encouraging health-seeking behaviors [27].Public health awareness campaigns focus on disseminating knowledge about breast cancer risk factors, the importance of screening, and early warning signs such as lumps, nipple discharge, or skin changes. In high-income countries, widespread awareness has normalized screening practices and encouraged open conversations about breast health. In contrast, in many low- and middle-income countries (LMICs), lack of awareness remains a critical barrier, with women often presenting at advanced stages due to misconceptions, fear of diagnosis, or social stigma [28].

Culturally sensitive strategies are essential for effective awareness-building. Campaigns that align with local languages, traditions, and beliefs are more likely to gain acceptance and foster trust. For example, survivor-led advocacy initiatives and community-based peer educators have proven effective in breaking down stigma and providing relatable sources of information. Religious leaders, teachers, and community health workers can also play pivotal roles in legitimizing messages and reaching diverse audiences [19].Mass media and digital platforms further expand the reach of awareness campaigns. Radio and television remain powerful tools in rural and resource-limited settings, while social media provides opportunities to engage younger populations and promote interactive dialogue about breast health. School-based programs and workplace campaigns also create opportunities for early education and preventive action [30].

Beyond knowledge dissemination, awareness initiatives must emphasize empowerment. Encouraging self-breast examination, fostering dialogue about family history, and creating safe spaces for women to share experiences all contribute to a culture of vigilance and support. Importantly, awareness campaigns should not operate in isolation but must be connected to accessible screening and treatment services. Informing women about breast cancer is most effective when accompanied by tangible opportunities for timely diagnosis and care [31].Ultimately, awareness serves as the bridge between policy and access, transforming abstract commitments into lived realities. By empowering individuals and communities to act, awareness not only reduces stigma and delays but also strengthens advocacy for better policies and improved healthcare services. When communities are informed, engaged, and proactive, the public health triad against breast cancer becomes stronger and more effective in reducing the global burden of the disease.

Integrating the Triad: Policy, Access, and Awareness in Action

The effectiveness of breast cancer control is maximized when policy, access, and awareness are implemented in a coordinated and synergistic manner. These three pillars—the public health triad—do not function in isolation; rather, they reinforce each other to create a comprehensive framework for prevention,

early detection, treatment, and survivorship support. Policies establish the structural and regulatory environment, access ensures that services reach those in need, and awareness empowers communities to engage proactively with available resources [32].Countries that have successfully reduced breast cancer mortality illustrate the power of this integrated approach. In Sweden, for example, a combination of national screening guidelines, universal health coverage, and sustained public education campaigns has resulted in high rates of early detection and improved survival outcomes. Similarly, in the United States, the integration of federal policies such as the Breast and Cervical Cancer Early Detection Program with widespread awareness initiatives and accessible treatment options has contributed to significant declines in breast cancer mortality over recent decades [33].

In low- and middle-income countries, pilot programs demonstrate the potential of this triad when adapted to local contexts. Mobile mammography units paired with community awareness campaigns, survivor-led advocacy, and subsidized treatment services have shown promising results in increasing screening uptake and early-stage diagnosis. Such programs underscore the importance of culturally sensitive messaging and community engagement to overcome social barriers while leveraging limited healthcare resources efficiently [34].Integration also requires continuous monitoring and evaluation. Policies must be regularly reviewed to ensure alignment with population needs, access must be measured not only by availability but by equity and affordability, and awareness programs must assess knowledge uptake, behavioral change, and reduction of stigma. Coordination across governmental agencies, healthcare providers, non-governmental organizations, and community stakeholders is essential to maintain coherence and maximize impact [35].Ultimately, the triad operates as a dynamic and interdependent system. Strong policy provides the framework, access ensures delivery, and awareness drives participation. When effectively combined, these elements create a robust public health ecosystem capable of reducing disparities, improving outcomes, and advancing equity in breast cancer care. This integrated approach serves as a blueprint for countries seeking to strengthen their national cancer control efforts and improve the health and well-being of women globally.

Conclusion

Breast cancer continues to pose a significant global health challenge, particularly in regions where disparities in diagnosis, treatment, and survival remain pronounced. Addressing this burden requires a comprehensive public health approach that integrates policy, access, and awareness—the triad that underpins effective cancer control. Strong policies establish the structural and regulatory foundation, equitable access ensures that diagnostic and therapeutic services reach all populations, and targeted awareness initiatives empower communities to engage in prevention, early detection, and timely care.

The synergy of these three pillars is essential for reducing mortality, promoting health equity, and fostering sustainable improvements in breast cancer outcomes. Successful implementation demands coordinated action among governments, healthcare providers, non-governmental organizations, and communities, supported by culturally sensitive strategies and continuous evaluation. By strengthening the public health triad, nations can transform breast cancer care from fragmented and reactive to comprehensive, proactive, and equitable, ultimately reducing the global burden of the disease and improving the quality of life for women worldwide.

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