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Review

Role of Home Visits on Improving Cancer Screening and Early Detection

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Abstract

Cancer which falls under the umbrella of non-communicable disease is responsible for posing significant burden of morbidity and mortality globally. The prevalence of cancer continues to rise worldwide, with significant variations in mortality and morbidity rates as per age, ethnicity, gender, and type of cancer. In order to reduce the global cancer burden effective and locally specific cancer preventive and control methods are essential. Cancer screening is one way of prevention. Additionally, it aids in early diagnosis and prompt management thus reducing mortality and complications. Since there is a significant lag period in the malignant transition, screening presents an opportunity to detect premalignant lesions, engage in early intervention in the carcinogenic process, and delay the onset of cancer. Most cancer risk factors are preventable. Home visits for cancer screening is one of the effective ways to encourage cancer screening and prevention among the community. Compared to hospital visits, patient visits at home result in more balanced interactions. The purpose of this research is to review the available information about the role of home visits in improving cancer screening and early detection. Home visit is a beneficial approach especially in rural and resource limited areas. Various findings support the role of home visits as they had a positive effect on cancer screening while few studies reported contradictory results. Further research is however needed for the assessment of outcomes and effectiveness of home visits in aspect of cancer screening.

Keywords: *cancer, screen, home, visit*

Introduction

Globally the leading cause of death is cancer. In 2030, it is predicted that 11 million people would have died from cancer. However, cancer can be substantially avoided with practical measures. Also, the prevention and control of cancer would be beneficial to the majority of the world's population since cancer is one of a number of chronic, non-communicable diseases that share similar risk factors (1). In 2020, there were 19.3 million estimated new cases of cancer worldwide and 18.1 million excluding nonmelanoma skin cancer, over 10 million cancer deaths and 9.9 million in case of excluding nonmelanoma skin cancer. With an expected 2.3 million new cases, female breast cancer has surpassed lung cancer as the most often diagnosed malignancy. Lung (11.4%), colorectal (10.0%), prostate (7.3%), and stomach (5.6%) cancers are next in line. With an expected 1.8 million fatalities, lung cancer continued to be the most common type of cancer. It was then followed by colorectal (9.4%), liver (8.3%). In transitioned vs transitional countries, incidence was generally 2- to 3-fold greater for both sexes, but death varied by about 2-fold for males and less for women. However, the mortality rates for female breast and cervical malignancies were much higher in transitioning nations compared to transitioned nations. With a larger increase in transitioning 64% to 95% countries than transitioned 32% to 56% countries due to demographic changes, the global cancer burden is projected to reach 28.4 million cases in 2040, a 47% increase from 2020 (2).

In the medical community, early cancer detection has long held considerable promise and intuitive appeal. Given the underlying idea that diseases grow along progressive linear courses of increasing abnormalities, its history paralleled that of the periodic health inspection, in which any deviations subtle or glaring from a clearly marked normal were to be pulled out (3). Cancer screening is a method of secondary prevention that lowers cancer mortality while maintaining the same incidence of the disease. Screening offers a chance to identify premalignant lesions, engage in early intervention in the carcinogenic process, and postpone the progression of cancer because there is a substantial lag period in the malignant transition. The majority of cancer risk factors can be avoided. A person's lifetime risk of developing cancer or passing away from it can be significantly reduced by giving up tobacco use, avoiding second-hand smoke exposure, getting immunized, maintaining a healthy weight, engaging in physical activity, and eating a healthy diet rich in fruits and vegetables. Cancer screening has been a vital part of the fight to lower the burden of morbidity and mortality from cancer for more than 50 years. When widespread screening using Pap smears was implemented, the consequences in some situations, like cervical cancer, were significant, with mortality falling by over 80% in the United States (4, 5).

Home visits to patients produce more balanced encounters than hospital visits. Most patients want consistent, one-on-one attention from their visitors, ideally, a medical expert who can answer questions about their health and offer helpful advice. Treating patients as people rather than objects will increase their ability to deal with the effects of receiving a cancer diagnosis. Home visits might make this procedure easier (6). The diagnosis of numerous previously undiagnosed diseases, the successful detection and treatment of cervical neoplasias in women, the low screening refusal rate, and the high compliance rate of those who test positive for non-communicable diseases validate the community health workers' provision of non-communicable diseases screening services at home. The fact that the community health workers in the current health services are involved in providing a variety of other services, largely related to reproductive and child health, presents a significant hurdle to scaling up such an approach (7). The purpose of this research is to review the available information about role of home visits on improving cancer screening and early detection

Methodology

This study is based on a comprehensive literature search conducted on September 30, 2022, in the Medline and Cochrane databases, utilizing the medical topic headings (MeSH) and a combination of all available related terms, according to the database. To prevent missing any possible research, a manual search for publications was conducted through Google Scholar, using the reference lists of the previously listed papers as a starting point. We looked for valuable information in papers that discussed the information about role of home visits in improving cancer screening and early detection. There were no restrictions on date, language, participant age, or type of publication.

Discussion

Given the steadily rising cancer incidence, prevention should receive a significant amount of attention. In addition to benefiting the individual, preventive

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measures are a key component of health policy. It has been established how important primary prevention is for healthy individuals, as well as the value of secondary prevention targeted at reducing risk factors for those who are exposed to them. Combining these activities becomes a crucial component of preserving both social and individual well-being (8). Some of the most significant public health advantages for cancer control can be achieved through cancer prevention, screening, and early detection. Cancer risks can be reduced by public policies, social, environmental, and individual level interventions that support and encourage healthy eating and physical activity. Cancer screening programs, particularly those for cervical and breast cancers, can significantly lower cancer mortality, even in places with limited resources. Comprehensive cancer control plans call for interventions for cancer screening, early detection, and prevention, as well as the involvement of non-health sectors to build settings that encourage healthy lifestyles (9).

Effectiveness of home visit; reflection from literature

Findings of an interventional study by Kurt and Akyuz demonstrated that home visits and educational activities were successful in enticing women to take part in cervical cancer screening. It was shown that the participants who had received individualized instruction and an educational brochure had a greater rate of cervical cancer screening than their counterparts who had received just the brochure or a verbal invitation (10). Results of a quasi-randomized trial showed that the baseline screening-coverage rate for Pap smears was the same in the intervention and control zones (36.7 versus 31.5%, p=0.339). One hundred women in the intervention group completed the pre-intervention interviews, and one hundred in the control group and one hundred in the intervention group completed the post-intervention interviews after four months. Although there was a marginally significant rise in the intervention zone compared to baseline (36.7 to 43.6%, p=0.070), the enhanced screening-coverage rate in the intervention zone was comparable to that in the control zone (43.6 versus 34.9%, p=0.119). As a result, during the course of the 4-month trial period, the home visit education and invitation intervention had only a minimal impact on Pap smear coverage (11).

Taha et al. described in their study results that in a less affluent district of Jordan, home visits by local community outreach workers that included breast cancer and breast health education as well as the distribution of free mammography screening vouchers were successful in enhancing women's breast health knowledge and habits. When compared to the pre-test, the mean knowledge score considerably increased to 15.7 ($p< 0.001$). Women's perceived knowledge, reported practice, and mammography screening in the post-test at the six-month follow-up revealed a significant ($p<0.001$) improvement (12). Basu et al. concluded in their study that providing population-based screening for common non-communicable illnesses at home by trained community healthcare workers is practical and widely accepted because population-based screening is advocated but challenging to perform in hard-to-reach areas of low-resource countries (7). Pilegaard et al. reported in their randomized clinical trial findings that with a between-group mean change of -0.04 logits (95% confidence interval: -0.23 to 0.15); $p = 0.69$; there was no effect on the primary outcome. Additionally, no impact on the incidental results was seen. The Cancer Home-Life Intervention was often given to participants with just one home visit and one follow-up phone call, which was ineffective in maintaining or enhancing their daily routines and health-related quality of life (13). Kearins et al. in their study results demonstrated that there was just a slight rise in the number of breast cancer screenings requested by phone and home visits (14).

Cervical and colorectal cancer screening alternatives that can be conducted at home are available. Studies that compared the effectiveness of self-sampling to samples taken from a physician's office in detecting cervical intraepithelial lesions came to the conclusion that self-sampling is a secure and reliable substitute for cervical cancer screening. Similar to cervical cancer screenings, non-invasive stool-based test kits can be used to perform colorectal cancer screenings at home. Following up on unusual test results at home can help focus the few available healthcare resources. Despite the fact that there are no at-home alternatives for mammography, mobile units can be used to reach a wider population and lower the risk of exposure (15). Kellen et al. described in their study that within a year after getting the typical recall letter, 10.5% of the women underwent a PAP smear, compared to 8% of the women who received no intervention at all. In both self-sampling arms, postmenopausal women were more likely to participate than women under 50. Age-related increases in self-sampling kits were contrary to increases in PAP smear screening. 8.9% of people who tested positive for human papilloma virus (9.5%) showed up for follow-up cytology. A bigger proportion of results were equivocal because the mean DNA content in the self-sampler

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dropped with age. The effectiveness of a self-sampling technique to boost participation is supported. Also, postmenopausal non-responders appear to find self-sampling particularly acceptable (16).

Lofters et al. stated in their study that participants expressed a desire for primary care physicians to visit patients in their homes to understand more about them as a whole person, but they also thought that this could be difficult in urban areas and given the perception of a physician shortage. Primary care models that serve an entire local community and deliver some of their services there directly may have a significant effect on cancer screening for socially disadvantaged groups (17). Hamashimo and Sano stated that home visits were successful, but their adoption was restricted to small communities. Personal and household invitation letters were excellent promotion tactics for all age groups, encouraging even elderly people to engage in gastric and colorectal cancer screenings (18). Results of an interventional study showed that a total of 550 house visits were done, and 446 women were questioned. Of these, 26.7% said they had recently had a screening mammography. After the instructional session, participants from each of the three educational groups were invited to join a breast cancer screening program. The findings showed that the style of instruction and the knowledge score both had an impact on the decision to get a screening mammography. Within a group, educated women performed the best (19).

Bonfill et al. described that effective interventions combined together can have a significant impact. Some expensive approaches, including a house visit and a letter inviting candidates to several screening tests plus instructional materials, were ineffective (20). Early cancer detection uptake rates, cancer knowledge, early detection beliefs, and incidences of identified precancerous lesions may all be improved by nurse-led interventions. It may be necessary to perform more research to determine how nurse-led interventions carried out in home settings affect mammography and clinical breast examination uptake rates. Counselling may not be as effective as patient guiding in increasing colonoscopy uptake (21). More research elaborately defining the role of home visits in cancer screening is needed as the available literature is very limited.

Conclusion

Home visits for cancer screening can be an effective way of health education and promotion resulting in early diagnosis and uptake of preventive measures for cancer however, it is an expensive approach but very efficient for rural areas where healthcare facilities are not well-established or resources for travelling are lacking. Although further research can strengthen the literature by defining and comparing the outcomes of home visits in cancer screening.

Disclosure

Conflict of interest

There is no conflict of interest

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Ethical consideration

Non applicable

Data availability

Data that support the findings of this study are embedded within the manuscript.

Author contribution

All authors contributed to conceptualizing, data drafting, collection and final writing of the manuscript.

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