**////Title: The Multi-theory Model (MTM) of Health Behavior Change: Understanding the Determinants of Breast Cancer Screening**

**////Stand-first**: The multi-theory model (MTM) of health behavior change provides a theoretical framework for understanding and promoting health behaviors. Professor Manoj from the University of Nevada, Las Vegas, the originator of this model, has applied this model to breast cancer and undertaking mammography screening in women from groups underserved in current healthcare. His findings have important theoretical and practical implications.

**////Body text:**

Worldwide, breast cancer is the most common form of cancer affecting women. In the USA, it is estimated that 1 in 8 women will be diagnosed with invasive breast cancer during their lifetime. However, stark differences in breast cancer risk and survival rates between racial and ethnic groups underscore the critical importance of detecting breast cancers at an early stage by improving the uptake of screening measures.

Mammography is a screening procedure for breast cancer that provides early diagnosis, leading to treatment and reduced premature mortality. While American health authorities differ in their recommendations regarding the frequency with which mammograms should be undertaken, there is a general consensus that for women aged 45–54 years, it should take place annually.

Professor Manoj Sharma, a global health behavior expert, from the School of Public Health at the University of Nevada, Las Vegas, is working with colleagues to gain an in-depth understanding of the determinants of undertaking mammogram screening in typically under-represented groups with a view to improving health through behavior change.

Professor Sharma developed the multi-theory model (MTM) of health behavior change in 2015. While the MTM can be applied to a wide range of health-related behaviors, two domains are core to the model: *initiation* of a specific health behavior and *sustenance* of this behavior. In the current research, Professor Sharma examined the utility of the MTM in explaining the determinants of mammogram screening in Asian American women aged 45–54 years old.

This specific group was chosen for the study because although national data are lacking, rates of mammogram screening uptake are likely to be low in Asian American women, consistent with the general pattern of unmet healthcare needs in this diverse community.

A total of 374 Asian American women completed an online survey in 2021, responding to a range of questions regards their demographics, mammography history, and specific items designed to test the theoretical constructs of the MTM, namely, initiation and sustenance as they relate to mammography screening.

A complex statistical technique known as structural equation modeling was used to test and evaluate the causal relationships that had been theoretically defined in the MTM using the real-world data provided by the participants. Dr Kavita Batra the biostatistics expert on the team, also performed hierarchical regression to predict change in mammography behavior by the MTM constructs above and beyond the demographic factors.

Professor Sharma and his colleagues found that for the 199 women who had undertaken mammograms in the past 12 months as per recommendations, the predicted constructs of participatory dialogue (based on the assessment of advantages and disadvantages of getting a mammogram), behavioral confidence (the extent the individual felt confident they would get a mammogram) and changes in the physical environment (such as improved logistical access to getting a mammogram) underpinned their decision. As such, these constructs of initiation in the MTM model were confirmed to be useful and valid.

Professor Sharma and his colleagues also looked at the factors influencing repeated mammogram screening – the construct of sustenance in the MTM. Here, the emotional transformation of participants, in which emotions are converted into intentions, was found to be key along with the construct of practice for change. This refers to continuous adaptation as required for behavioral change, such as overcoming arising barriers when needed.

In addition to confirming the utility of the MTM as an approach to understanding and modifying health behaviors, the findings of this study have important practical implications for the promotion of mammography screening in Asian American women.

Professor Sharma notes that, given the clear importance of participatory dialogue in the initiation of health behavior, this should be bolstered in educational interventions by explicitly highlighting the advantages of getting a mammogram. These include the benefits of early detection of breast cancer and having peace of mind for self and family. It is also critical that potential barriers such as discomfort and inconvenience are openly discussed and reduced as part of this process.

Behavioral confidence in getting a mammogram can be increased by working with Asian American women to explore sources of confidence and using specific strategies to overcome their perceived barriers. Finally, changes in the physical environment can be implemented with dedicated resources and support to improve ease and readiness of access.

To support the sustenance of mammograph screening, Professor Sharma notes that emotional transformation can be promoted via educational interventions by appealing to the feelings of Asian American women and working to transform these into concrete goals. He also notes that practice for change can be encouraged through the personal maintenance of records and reminder systems, for example. Finally, he notes that change in the social environment should be inherent, whereby family, friends, and healthcare providers are encouraged to promote and support mammography screening.

In a further study, Professor Sharma used the same approach to better understand the health behaviors of Hispanic American women. This group is also underserved in existing healthcare provisions, and unfortunately, screening rates for breast cancer are lower than for other ethnic groups.

Out of the 370 participants, almost half reported not having had mammography screening in the past two years. This confirmed the need for specific efforts in relation to the promotion of mammography screening in this group. The findings provided further support for the utility of the MTM in both theoretical and practical terms.

Given the importance of early detection and the impact on survival in breast cancer, it is clear that Professor Sharma’s theory-driven research and recommendations have the potential to positively impact the early detection of disease and subsequent survival rates in groups of women currently underserved in healthcare.

This SciPod is a summary of the paper ‘Using the Multi-Theory Model (MTM) of Health Behavior Change to Explain the Correlates of Mammography Screening among Asian American Women’, published in Pharmacy, DOI: https://doi.org/10.3390/pharmacy9030126

and

‘A multi-theory model based analysis of correlates for initiating and sustaining mammography screening behavior among Hispanic American women in the United States’ published in Health Promotion Perspectives, DOI: https://doi.org/10.34172/hpp.2022.14

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