

Category III-4**Survivor Perspectives on Artificial Intelligence Integration in Breast Cancer Treatment: A Qualitative Study of Trust, Equity, and Application**

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Objective: Artificial intelligence (AI) may enhance the efficiency and personalization of breast cancer (BC) treatment care. It is imperative to include patient viewpoint into AI design for clinical care but there is limited research exploring how survivors perceive AI to inform BC care. To explore BC survivors' understanding of, trust in, and acceptance of AI applications to inform BC treatment, and to examine variations in perspective by age, race/ethnicity, income, and neighborhood deprivation index.

Materials and Methods: This IRB-approved qualitative descriptive study used purposive sampling of adult BC survivors recruited from a large academic cancer center and affiliated community outreach programs. Inclusion included the ability to speak and understand English and BC diagnosis within the past 10 years, participants completed a brief

demographic survey followed by a 15–30-minute semi-structured interview focusing on awareness of AI, perceived benefits, risks, equity implications, and any suggested strategies for AI to be reincorporated into BC care. Interviews were audio-recorded, transcribed verbatim, and analyzed using thematic and content analysis. A second reviewer verified coding. Demographic data were analyzed descriptively and dichotomized.

Results: Participant ($n = 20$) ages range from 38 to 74 years old (mean 57); 80% identified as White, 20% as Black. Most participants had some college education, and neighborhood area deprivation index scores, mean 68.2, (standard deviation 19.2) spanned 8–95 (indicating broad socioeconomic representation). Time since diagnosis ranged from 1 to 10 years. Three themes are identified:

- 1) Awareness of AI ranging from no knowledge to very familiar.
- 2) Concerns included loss of human interaction, clinician over-reliance on algorithms, and security assurance (data privacy breaches and model safety). Acceptance of AI was highest when framed as augmenting rather than replacing clinician judgment.
- 3) Equity-some survivors viewed AI as a force that might reduce disparities, while others feared exclusion of under-represented groups due to non-diverse datasets or institutional access barriers. Notably, all Black participants emphasized the necessity of dataset representation to avoid perpetuating inequities. Variations in perspective by dichotomized age, income, years since diagnosis, and neighborhood deprivation index were otherwise not identified.

Conclusion: AI is welcomed when it enhances, but does not substitute for human-led care, and when transparency, safety, equitable inclusion, and governance are assured. These findings underscore the imperative and proactive attention needed to ensure patients with BC participate in AI system design, development, evaluation, and deployment, particularly when related to critical BC treatment decision-making.

Keywords: Survivor; treatment study