Capsule Commentary on Gunn et al. “Acceptability of an Interactive Computer-Animated Agent to Promote Patient-Provider Communication about Breast Density: a Mixed-Methods Pilot Study”

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Developing better systems for educating women about breast density is important because dense breasts are more prevalent among black women and are associated with higher rates of cancers identified between routine screenings. In addition, many states mandate that women receive information about their breast density. However, effective ways to deliver this information are unknown.

Primary care physicians have been criticized for not being effective at communicating risk and generally score low on objective measures of shared medical decision-making.¹ Consequently, there is a growing movement to use artificial intelligent computer agents, e.g., conversational agents² or chatbots,³ to provide virtual, standardized knowledge delivery. This approach is appealing, as the message can be standardized, used by patients at their convenience, and inexpensive to deploy. However, evidence for the efficacy of these types of interventions is limited.²

In this pilot study, Gunn et al.⁴ developed an interactive, computer-animated agent named Danya, to provide information about breast density to women. Assessed in nine focus groups with 44 participants as well as surveys of 14 stakeholders, results were mixed. Most participants were satisfied with Danya, found her easy to understand, and were confident in her ability to help. However, knowledge about breast density both improved and worsened after watching Danya. While there was improvement in understanding that dense breasts increase cancer risk, the number of unanswered questions did not improve (suggesting that participants still did not feel comfortable answering questions). Furthermore, for some

questions, like “having dense breasts makes it easier to see cancer on a mammogram,” more participants answered the question incorrectly after viewing Danya.

While interactive, computer agents may be acceptable to women for providing information about breast density, much work is needed. The effectiveness of Danya was hampered because it was tested as if it was a video. As such, the benefits of an interactive agent—asking questions, tailoring responses, checking understanding, and providing alternative forms of information until the patient understands—were lost in this study. As such, to date, this study has shown that Danya is a charming agent, which needs more educational content.

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Compliance with Ethical Standards:

Conflict of Interest: The author declares that she does not have a conflict of interest.

REFERENCES

1. Couet N, Desroches S, Robitaille H, Vaillancourt H, Leblanc A, Turcotte S, et al. Assessments of the extent to which health-care providers involve patients in decision making: a systematic review of studies using the OPTION instrument. *Health Expect*. 2015;18(4):542–61.
2. Laranjo L, Dunn AG, Tong HL, Kocaballi AB, Chen J, Bashir R, et al. Conversational agents in healthcare: a systematic review. *J Am Med Inform Assoc*. 2018;25(9):1248–58.
3. Moore JR, Caudill R. The Bot Will See You Now: A History and Review of Interactive Computerized Mental Health Programs. *Psychiatr Clin North Am*. 2019;42(4):627–34.
4. Gunn C, Maschke A, Bickmore T, Kennedy M, Hopkins M, Fishman MDC, et al. Acceptability of an Interactive Computer-Animated Agent to Promote Patient-Provider Communication about Breast Density: A Mixed-Methods Pilot Study. *J Gen Intern Med*. DOI: <https://doi.org/10.1007/s11606-019-05622-2>

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