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Study: Individuals show less trust in preventive care interventions suggested by AI

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*Reviewed by Emily Henderson, B.Sc.*Sep 5 2022

Researchers led by Nanyang Technological University, Singapore (NTU Singapore) have found that individuals show less trust in preventive care interventions suggested by artificial intelligence (AI) than when the same interventions are prompted by human health experts.

Preventive care interventions are activities aimed at reducing risks to health, such as undertaking a health screening, increasing physical activity, and receiving a vaccination.

Studying 15,000 users of a health mobile application in South Korea, the researchers found that emphasizing the involvement of a human health expert in an AI-suggested intervention could improve its acceptance and effectiveness.

These findings suggest that the human element remains important even as the healthcare sector increasingly adopts AI to screen, diagnose and treat patients more efficiently. The findings could also contribute to the design of more effective AI-prompted preventive care interventions, said the researchers.

Assistant Professor Hyeokkoo Eric Kwon from NTU Nanyang Business School (NBS), who led the study, said: "*Despite the potential of artificial intelligence to provide higher quality interventions, we found that people have lower trust in health interventions suggested by or derived from AI alone, as compared to those they perceive to be based on human expert opinion. Our study shows that the affective human element, which is linked to emotions and attitudes, remains important even as health interventions are increasingly guided by AI, and that such technology works best when complementing humans, rather than replacing them.*"

This study reflects NTU's efforts under NTU2025, the University's five-year strategic plan that addresses humanity's grand challenges such as the impact of technology on humanity. Conducted by NTU NBS at the intersection of business and healthcare technology, the study also highlights NTU's strength and focus on interdisciplinary research.

The findings were published in an article in the scientific journal *Production and Operations Management*, co-authored with Assistant Professor Nakyung Kyung of the National University of Singapore.

https://www.news-medical.net/news/20220905/Study-Individuals-show-less-trust-in-preventive-care-interventions-suggested-by-AI.aspx

Higher acceptance for human-based health intervention

To study user perceptions of preventive health interventions proposed by artificial intelligence (AI) compared to those proposed by humans, the research team recruited 9,000 users of a mobile health app in South Korea.

Through the app, these users received a pop-up notification that encouraged them to walk a specific number of steps, generated for each user via an AI algorithm. The app then measured the number of steps taken for users who chose to take on this health intervention.

For 3,000 users in the AI-suggested intervention group, their pop-up notification read: "AI recommends that you walk (personalized step goal) in the next seven days. Would you like to participate?" Another 3,000 in the human-suggested intervention received a notification that read: 'Health expert recommends that you walk (personalized step goal) in the next seven days. Would you like to participate?"

A control group of 3,000 users received the neutral intervention that mentioned neither AI nor a health expert.

Of the users who received the AI-suggested intervention, 19% accepted the intervention. About 10% of this group subsequently achieved their personalized step goal at the end of the week. More users in the group that received the human-suggested intervention accepted the intervention (22%) and achieved their goal (13%).

Improving the effectiveness of AI-suggested interventions

The research team then extended their study to include two more groups of 3,000 users of the same mobile app.

One group received an intervention that disclosed the use of AI in conjunction with health experts. The other group received an intervention that explained how AI generated the interventions (See Table 1 below).

Users were more accepting of the health intervention that showed how AI was used to complement a health expert's opinion (27%) compared to purely AI-suggested or human-suggested interventions. Of this group, 19% achieved their personalized step goal.

Being transparent about how AI was used to generate the personalized step goal also led to a higher acceptance rate (21%). Of this group, 13% achieved their goal.

While the study was conducted in the context of preventive healthcare, the researchers believe that their findings could be applied in other contexts where affective trust plays a significant role, such as travel, education, legal, and insurance services.