Feasibility of Smart Rings in Cross-Cultural Music Interventions for Older Adults L. Hung, Y. Hsu, K. Tan, R. Son, Y. Zhao. *Gerontechnology* 25(s*)*

Purpose Smart rings are a new class of non-invasive wearables capable of capturing measures such as heart rate variability (HRV), an important indicator of autonomic nervous system function and psychological stress (1). Although interest in wearables is rising, research with older adults—especially in intervention studies or cross-cultural settings—has rarely included smart rings. This study begins to fill that gap by examining their feasibility and sharing practical insights for future work. The quantitative hypothesis that various music interventions can improve overall health, as indicated by HRV assessed by smart rings, and that smart rings show good acceptance, as measured by the Technology Acceptance Model (TAM), will be reported in future research. **Method** A mixed-methods approach was used, combining a pre–post quantitative design to examine acceptance of smart rings during music sessions with qualitative methods to explore feasibility and practical implementation. Music activities were tailored by region: in Taiwan, older adults listened to and sang familiar songs linked to personal memories; in Singapore, music listening and singing occurred in group activity settings; and in Canada, participants engaged with their preferred music through disco-style headphone events. Qualitative data were collected through ethnographic observations, conversational interviews with older adults, and focus groups with staff to capture additional contextual insights. Quantitative data included a questionnaire based on TAM to assess elderly participants' perceptions of the smart ring, measuring attitude, control beliefs, technology anxiety, and health using Likert-type scales to assess acceptance, anxiety, and perceived usefulness. Additionally, HRV were collected pre- and post- intervention via the smart ring to assess stress resilience and overall health. **Results and Discussion** This is the first study to collect smart ring data within a music intervention and the first to do so across three culturally diverse sites. The study shows that smart rings offer strong potential for real-time, objective health assessment, while revealing important methodological, technical, and cultural challenges. Participants were generally curious and found the rings easy to use, appreciating increased health awareness, such as perceived improvements in sleep and heart insights. Difficulties included discomfort, skepticism, frustration with repeated attempts, battery issues, and inconsistent data. Cultural factors shaped engagement, with social interaction and music playing key roles in supporting adoption. Overall, the findings highlight the importance of user engagement, cultural sensitivity, and continued refinement of wearable technologies.

References

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