Application Fields and Innovative Technologies

Typologies of older adult engagement with AI check-in calls: a latent class analysis of Naver CLOVA CareCall users E. C. Khor, M. Choi. *Gerontechnology* 25(s)

Purpose Artificial intelligence (AI)-powered check-in systems are transforming daily monitoring for older adults, offering a scalable model that addresses the growing shortage of human resources for regular contact. Although check-in programs using various technologies and user interfaces have been studied for decades (e.g., [1, 2]), recent emerging check-in services using AI conversational agents remain understudied, particularly regarding how older adults interact with these systems. Guided by the Selection–Optimization–Compensation (SOC) framework [3], this study explores how older Koreans in rural areas interact with the Naver CLOVA CareCall service, which provides regular check-in calls using AI conversational agents, with a focus on developing user typologies. **Method** Data were collected from 2,727 users in Jeongeup, a rural area facing a shortage of formal and informal caregivers, over a three-month period. Data include call conversation transcripts and voice files, which were processed through a multimodal pipeline integrating speech recognition, silence detection, and emotion recognition. Seventeen indicators were extracted from the data, including completion rate, lexical diversity, emotional valence, and silence ratio. Latent class analysis (LCA) was employed to identify typologies of conversational patterns. **Results and Discussion** LCA revealed six distinct typologies, based on fit indices and high classification precision (entropy > 0.90; posterior probabilities > 0.90): (a) *Expressive Users* (16%) with high engagement and rich verbal expression; (b) *Positive Users* (15%) with steady participation and positive tone; (c) *Task-Oriented Users* (23%) who engaged briefly and efficiently; (d) *Inconsistent Users* (12%) with limited and hesitant speech; (e) *Silent Users* (24%) who answered reliably but spoke little; and (f) *Disengaged Users* (9%) who rarely responded. Class comparative analyses showed significant differences in smartphone use, texting, and information search ($p < 0.001$) across typologies, suggesting that higher digital literacy was associated with greater engagement with the Naver CLOVA CareCall service. Specifically, more engaged users were more likely to be independent (F = 3.00, $p = 0.01$) and digitally active, such as owning smartphones ($\chi^2 = 64.47$, $p < 0.001$), texting ($\chi^2 = 42.60$, $p < 0.01$), and searching for information ($\chi^2 = 56.33$, $p < 0.01$). The findings provide evidence of heterogeneity in the engagement with AI check-in calls among older adults, calling for a better understanding of diverse engagement patterns depending on their digital environments and socioeconomic characteristics. The evidence implies that check-in calls need to be designed considering the diverse needs and user patterns among older adults. A customized or pattern recognition process before service use would be helpful to assess service fit, as there is no universal service that works for and benefits all older adults.

References
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