

## Others

**The Mediating Roles of Control Beliefs in Older Adults' Wearable Device Usage Behavior** L.-R. Chen, Y.-C. Yu, M.-C. Tsai, C.-W. Chang, & S.-H. Chang. *Gerontechnology* 25(s)

**Purpose** The Senior Technology Acceptance Model (STAM) has been supported as an applicable framework for examining technology usage behavior among older adults[1,2]. Prior studie on the STAM have identified control beliefs as a key determinant of older adults' use of wearable devices[3]. Control beliefs integrate key components of the Technology Acceptance Model (TAM)—perceived ease of use, self-efficacy, and facilitating conditions—and represent older adults' internal capabilities (technology-use skills and confidence) as well as external enabling resources (financial affordability and technological accessibility). However, limited research has examined the roles of control beliefs in linking external factors such as health condition and gerontechnology anxiety to actual usage. This study aimed to examine whether control beliefs mediate the relationships of (a) gerontechnology anxiety with wearable device usage and (b) health condition with wearable device usage among older adults. **Methods** Survey data from 397 older adults in Taipei were re-analyzed. Structural Equation Modeling (SEM) with bootstrapping (5,000 samples, bias-corrected confidence intervals) was employed to test the significance of direct, indirect, and total effects. **Results and Discussion** The findings indicated that the relationship between gerontechnology anxiety and usage behavior was fully mediated through control beliefs ( $\beta=-.32, p<.001, 95\% \text{ CI}[-.48, -.19]$ ). Health condition and usage behavior were fully mediated through control beliefs ( $\beta=.31, p<.001, 95\% \text{ CI} [.20, .49]$ ). Results are detailed in Table 1, which reports the standardized path coefficients and bootstrapped indirect effects for the full model. These patterns suggest that anxiety and health status show limited direct correspondence with usage behavior, whereas their connections with usage emerge more clearly when considering older adults' perceived ability and confidence in handling technology. Control beliefs thus appear to constitute a central relational node within the STAM framework, shaping how external factors align statistically with actual technology use. These findings highlight the importance of enhancing older adults' perceived self-efficacy and control to promote technology adoption, such as offering accessible troubleshooting and reassurance to reduce uncertainty during use, providing structured, hands-on instruction with step-by-step guidance, and designing age-friendly systems and hardware that accommodate diverse physical and cognitive needs.

### References

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**Keywords:** Multiple Mediation, Senior Technology Acceptance Model, Technologies, Elderly

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**Table 1. The results of the mediation hypothesis**

	Estimate	<i>p</i>	95% CI BC	Hypothesis support or not
<b>Indirect effect</b>				
AXT→CON→USG	-.32	<.001***	-.48~-.19	Supports
HEA→CON→USG	.31	<.001***	.20~.49	Supports
<b>Direct effect</b>				
AXT→USG	.07	.178	-.04~.19	
HEA→USG	-.11	.060	-.23~.01	
<b>Total effect</b>				
AXT→USG	-.38	<.001***	-.51~-.25	
HEA→USG	.31	<.001***	.19~.43	