Chapter 16
Evaluating Assistive Technology:
Screen Reader Software Adoption and Its Psychological Impact on Older Adults in Central Kerala

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ABSTRACT

Screen reader software serves as a crucial assistive technology for visually impaired individuals, facilitating their interaction with computers and mobile devices through text-to-speech or braille output. This study investigates the impact of technology adoption on technology readiness (optimism, discomfort, and insecurity), anxiety, and self-esteem among older adults within the visually impaired population in central Kerala. A survey of 855 visually impaired individuals, using screen reader software, was conducted both online and offline from January to April 2024, employing purposive sampling for comprehensive coverage. The questionnaire, based on established models like the Technology Adoption Model and Technology Readiness Index, evaluated psychological and technological aspects. Correlation and regression analyses showed significant links between technology adoption and psychological states, highlighting its impact on well-being. Increased technology

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adoption correlated with higher levels of optimism, discomfort, insecurity, anxiety, and self-esteem.

INTRODUCTION

Screen reader software is a vital assistive technology designed to aid visually impaired individuals in interacting with computers and mobile devices. It functions by converting text displayed on the screen into speech or braille output, thereby enabling users to listen to or read the information using a refreshable braille display. These software solutions offer a range of features and benefits, including text-to-speech conversion, braille support, navigation assistance, and compatibility with various applications. Users can customize settings such as speech rate, pitch, and verbosity to suit their preferences. By providing access to digital content, screen readers promote independence by allowing visually impaired individuals to perform tasks such as reading news articles, accessing educational materials, and managing finances autonomously. Moreover, they open up educational and professional opportunities by facilitating access to online courses, job applications, and workplace software. Popular examples of screen reader software include JAWS, NVDA, VoiceOver, and TalkBack. The objective of this study is to investigate the influence of technology adoption on technology readiness (optimism, discomfort, and, insecurity), anxiety, and self-esteem among older adults of the visually impaired population in central Kerala (Palakkad, Thrissur, Ernakulam, Idukki, and Kottayam).

The figures illustrate various aspects of the Galaxy smartwatch's emergency and fall detection features. Figure 1 displays the Galaxy Wearable Dashboard, which serves as the primary interface for managing device settings, monitoring performance, and configuring features such as health tracking and fall detection. Figure 2 details the process of adding an emergency contact to the fall detection software, walking users through how to navigate the settings menu and input the necessary information to ensure that someone is alerted in the event of a fall. Figure 3 demonstrates a practical application where the researchers added a team member as an emergency contact. In this setup, whenever the wearer experiences a fall, the designated contact automatically receives an alert or call, enabling timely assistance. Figure 4 explains the Emergency SOS feature, showing how the smartwatch notifies the chosen contact after detecting a fall or if the SOS function is manually triggered. This hands-free communication ensures that help can be summoned quickly in critical situations, providing an essential safety feature for users.