ABSTRACT

THESIS: PAI Monitor Usability for Cardiac Patients

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PAGES: 49

Purpose: The primary purpose of this study was to evaluate the usability of the Personalized Activity Intelligence (PAI) Health application in cardiac patients from a phase III cardiac rehabilitation program. Methods: Ten phase III cardiac rehabilitation patients (2 females and 8 males; age 70 ± 5.63 years) participated in this investigation. Descriptive statistics of sex, age, and weight were included, as well as data from a maximal exercise test. Following the initial exercise test, participants wore the physical activity monitor for 14 days during all hours of the day and night, except for activities that required water submersion (i.e. swimming) and when charging the device. Participants were asked to follow regular daily routines and were encouraged to attend phase III cardiac rehabilitation at least 3 days of the week. After completion of the observation period, participants were asked to complete a usability questionnaire to describe overall satisfaction with the PAI Health application and Mio Slice, which included a 19-item questionnaire. Participants were then be invited to a focus group visit to discuss their experiences with the device, which allowed participants to go into great detail about individual experience with the application and physical activity monitor. The group of participants was led through a series of 10 questions and encouraged to give open-ended
feedback. **Results:** Participants in the study averaged VO2max values of 22.74 ± 5.33 ml/kg/min and exercise volumes of 207.4 ± 59.16 minutes/week. Overarching themes emerged from the usability questionnaire and focus group interview to described the usability of the PAI Health application and Mio Slice for individuals enrolled in phase III cardiac rehabilitation. Based on average scoring from the questionnaire and the focus group interview session, the first theme that arose was that participants quickly became comfortable wearing the Mio Slice, but they had issues using and interpreting the PAI Health application. The second theme was that participants were encouraged to perform more physical activity based on constant feedback from the study, evidenced as well by exercise volume. The third theme was that participants felt that the HR monitor in the Mio Slice was inaccurate, leading to inaccurate PAI scores. The fourth theme was that participants wanted more focus on other aspects of the application, specifically the sleep time and wanted more compatibility with other programs and applications. **Conclusions:** Participants using the PAI Health application to track physical activity and its corresponding PAI score can adapt to the technology quickly and are motivated by the technology, yet find the HR monitoring ability of hardware such as the Mio Slice to be inaccurate, wish more emphasis was placed on other metrics such as sleep time, and that the application was more compatible with other health and fitness applications. Generally, the PAI Health application was received favorably. However, adequate physical activity in the sample did not equate to increase VO2max values.