Patterns and predictors of smartphone ownership in a cardiology inpatient population

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Patterns and predictors of smartphone ownership in a cardiology inpatient population

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Introduction: Mobile health (mHealth) interventions have grown in popularity, particularly for chronic disease management. Uptake of these interventions depends on patient smartphone ownership.

Purpose: To examine the smartphone ownership rate among cardiac inpatients and identify the associated demographic factors.

Methods: Between February 2019 and March 2020, 565 patients were screened for potential enrolment in the TeleClinical Care (TCC) pilot study at two hospitals in Australia. All patients had an admission diagnosis of acute coronary syndrome or heart failure. Mobile phone ownership was documented at the time of screening. Retrospectively, each patient's electronic medical record was examined for: age, sex, primary diagnosis, suburb of residence, private health insurance subscription, smoking status and occupation. Continuous variables were analysed using a multinomial logistic regression model. Categorical variables were analysed using a generalised linear model.

Results: Mobile phone ownership was documented for 523 patients (92.6%). 60.6% of all patients owned smartphones, and 14.9% owned basic mobile phones. 24.5% of patients did not own any mobile phone. The average age of participants was 70.8 years. Smartphone ownership rates were high among patients in the 18–49 (96%), 50–59 (89%) and 60–69 (85%) year groups. The differences between these groups were not statistically significant. In the age group 70–79 years, however, smartphone ownership fell to 56.5% ($p<0.001$, figure 1). The relative risk (RR) of not owning a smartphone increased by 12% for each additional year of age. Overall, smartphone ownership was less more common in women than men [79/179 (44.1%) vs. 238/344 (69.2%), RR 0.78, 95% CI 0.67–0.91, P=0.003, age-adjusted) driven by a difference in patients aged 70 or above [36/131 (27.5%) vs. 82/168 (48.9%), RR 0.66, 95% 0.49–0.90, $p<0.001$]. After adjustment for age and sex, patients with a primary diagnosis of ACS were more likely to own a smartphone compared to those with HF [227/316 (71.8%) vs. 90/207 (43.5%), RR 1.22, 95% CI 1.04–1.43, P=0.015]. Patients with private health insurance were more likely to own a smartphone than those who were uninsured [68.9% (162/235) v 54.0% (154/285), RR 1.28, 95% CI 1.13–1.43, $P<0.001$, figure 2). Smartphone ownership was significantly higher in those who were currently working, compared to those who were retired (117/119, 98.3% vs. 56/87, 64.3%, RR 0.76, 95% CI 0.64 – 0.89, P=0.001), even after adjustment for age. Patients living in the region with lowest average household income had the lowest rate of smartphone ownership (52.4%). There was no significant difference in smartphone ownership based on type of occupation.

Conclusion: Smartphone ownership was common in this inpatient population. Patients who are older, female and of lower socioeconomic background are less likely to own smartphones, and future mHealth programs should be cognizant of this.

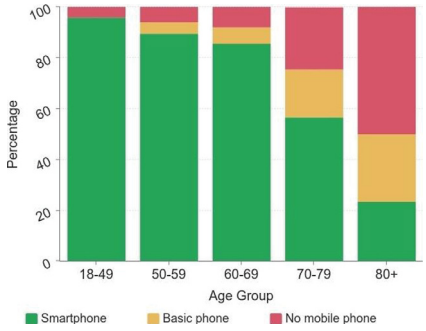

Figure 1. Smartphone ownership by age

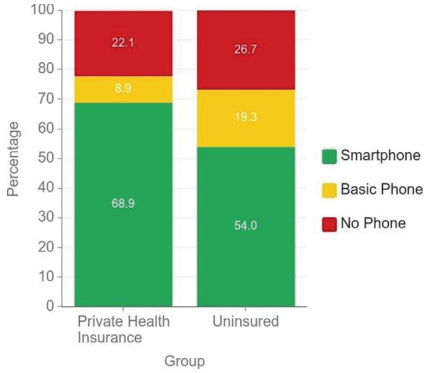

Figure 2. Insurance status