

Evaluation on the adoption of eHealth App for electronic health record sharing system in Hong Kong

Dear Editor,

In Hong Kong, the eHealth App was launched in January 2021, as part of Stage Two development of the Electronic Health Record Sharing System. It provides the healthcare recipients, that is, those who have registered in the system, a series of functions to manage their health, such as accessing electronic health records and self-inputting health information.¹ We conducted a study to evaluate how the general population adopted the eHealth App and identify the contributing factors that may influence its adoption.

All healthcare recipients who authenticated the eHealth App and engaged with it before 31 December 2021 were included. Authentication was defined as successful following the user's login to the App using username and password. Descriptive analysis for the outcome variables was carried out and expressed as proportions. Adjusted odds ratio (AOR) with 95% confidence interval (CI) and *P* value were calculated to determine the strength of the correlation between facilitating factors and eHealth App usage. A *P* value of <0.05 was considered statistically significant.

A dataset consisting of 1,346,505 responses was analysed. Majority of respondents were aged 41–60 years (600,250 of 1,356,505; 44.6%). Number of female and male respondents were almost equally distributed (668,010 of 1,346,505; 49.61% versus 678,495 of 1,346,505; 50.39%). More respondents were healthy (937,798 of 1,346,505; 69.65%). Less than 1% of respondents were the “family member” who were taken care of by their family (5,366 of 1,346,505; 0.4%). A small group of respondents were caregivers (22,622 of 1,346,505; 1.68%) and less than 20% of respondents had joined government-subsidised health programmes (214,765, 15.95% vs 1,131,740 of 1,346,505; 84.05%).

Users were more likely to login if they were (1) aged 41–60 (AOR 6.43, 95% CI 6.15–6.72, *P*<0.001) or aged 60 years and over (AOR 11.90, 95% CI 11.07–12.79, *P*<0.001); (2) male (AOR 8.10, 95% CI 7.79–8.42, *P*<0.001); or (3) a caregiver (AOR 2329.67, 95% CI 1998.94–2715.11, *P*<0.001). Users with 2–3 chronic diseases (AOR 11.89, 95% CI 11.00–12.85, *P*<0.001) had the highest login frequency (Table 1).

Users were more likely to have input vital information for their own profile if they were: (1) older in age

Table 1. Factors associated with adoption of eHealth App.

	AOR (95% CI)	<i>P</i> value
Age (years)		
16–40	1 (ref)	
41–60	6.43 (6.15–6.72)	<0.001
>60	11.9 (11.07–12.79)	<0.001
Gender		
Male	8.10 (7.79–8.42)	<0.001
Female	1 (ref)	
Healthiness level^a		
Healthy (no chronic disease)	1 (ref)	
Mild (1 chronic disease)	3.02 (2.88–3.17)	<0.001
Moderate (2–3 chronic diseases)	11.89 (11.00–12.85)	<0.001
Multiple (>3 chronic diseases)	8.30 (5.41–12.74)	<0.001
Family member		
Being a family member	0.88 (0.64–1.20)	0.427
Not being a family member	1 (ref)	
Caregiver		
Being a caregiver	2329 (1998.94–2715.11)	<0.001
Not being a caregiver	1 (ref)	
Joined government-subsidised health programmes		
No	1 (ref)	
Yes	0 (0–3.79E+06)	0.523

AOR: adjusted odds ratio; CI: confidence interval.

^aTypes of chronic illness included diabetes, hypertension, chronic kidney disease, coronary heart disease, respiratory disease, cancer. *P* value of <0.05 was considered statistically significant.

(41–60 years: AOR 4.82, 95% CI 4.56–5.09, *P*<0.001; over 60 years: AOR 5.07, 95% CI 4.74–5.43, *P*<0.001); (2) male (AOR 1.27, 95% CI 1.23–1.30, *P*<0.001); (3) had at least 1 chronic disease (1 chronic disease: AOR 2.63, 95% CI 2.55–2.72, *P*<0.001; 2–3 chronic diseases: AOR 3.76, 95% CI 3.62–3.91, *P*<0.001; >3 chronic diseases: AOR 3.59, 95% CI 3.01–4.27, *P*<0.001); (4) a caregiver (AOR 2.55, 95% CI 2.36–2.76, *P*<0.001); and (5) a family member (AOR 1.86, 95% CI 1.65–2.10, *P*<0.001).

Users were more likely to update their personal profile if they were: (1) older in age (41–60 years: AOR 1.65, 95% CI 1.62–1.68, *P*<0.001; over 60 years:

AOR 1.48, 95% CI 1.43–1.52, $P<0.001$); (2) male (AOR 1.55, 95% CI 1.53–1.58, $P<0.001$); (3) had at least 1 chronic disease (1 chronic disease: AOR 1.06, 95% CI 1.05–1.08, $P<0.001$; 2–3 chronic diseases: AOR 1.21, 95% CI 1.18–1.25, $P<0.001$; >3 chronic diseases: AOR 1.33, 95% CI 1.17–1.51, $P<0.0001$); (4) a caregiver (AOR 3.21, 95% CI 3.09–3.34, $P<0.001$); or (5) a family member (AOR 2.54, 95% CI 2.37–2.72, $P<0.001$).

Users were more likely to manage consent sharing via the eHealth App if they were: (1) aged 41–60 years (AOR 1.06, 95% CI 1.00–1.11, $P=0.048$); (2) had at least 1 chronic disease (1 chronic disease: AOR 1.26, 95% CI 1.20–1.33, $P<0.001$; 2–3 chronic diseases: AOR 1.45, 95% CI 1.34–1.57, $P<0.001$; >3 chronic diseases: AOR 1.77, 95% CI 1.22–2.56, $P<0.001$); (3) a caregiver (AOR 3.51, 95% CI 3.18–3.87, $P<0.001$); and (4) a family member (AOR 2.86, 95% CI 2.42–3.38, $P<0.001$).

Users were more likely to download the COVID-19 Vaccine Pass QR code if they were: (1) male (AOR 1.19, 95% CI 1.18–1.20, $P<0.001$) and (2) a caregiver (AOR 1.23, 95% CI 1.19–1.27, $P<0.001$). Users were more likely to input vaccine records when they were (1) older (age 41–60 years: AOR 1.12, 95% CI 1.09–1.15, $P<0.001$; age >60 : AOR 1.14, 95% CI 1.10–1.18, $P<0.001$); (2) a caregiver (AOR 1.92, 95% CI 1.82–2.03, $P<0.001$); or (3) a family member (AOR 1.54, 95% CI 1.38–1.71, $P<0.001$).

The elderly and individuals with more chronic diseases tended to use the eHealth App to manage their health records. The association between age and eHealth technology usage was inconsistent in past literature.² Some studies indicated that older adults were less likely to use the patient portal than younger adults,^{2,3} while other studies discovered that the acceptance of eHealth among older users was positively affected by the perceived usefulness, ease of use, and quality of information.^{2,4} Usage depends on the technological support provided, technology literacy and application's usability, such as information presented and system readability.^{5,6} Greater use of the patient portal was associated with increased numbers of medical problems.^{6–8} People could facilitate health management and improve health outcomes by using health applications.⁹ eHealth technologies should be designed according to patients' needs and characteristics.¹⁰

The findings of this study provided insight into users' usage of the eHealth App. More support, such as download guides and tutorial videos, should be provided and tailored health messages could be included to enhance the adoption of eHealth App.

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