

Does Digital Health Improve Healthcare and Medicine Accessibility in Saudi Arabia?

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Objectives

Saudi Arabia has been investing in digital health services such as online appointment booking to make it easier and faster for patients to receive healthcare.

This study examines whether digital health services increase healthcare and medicine accessibility for patients in Saudi Arabia.

Data

Datasets

- Patient Experience Measurement Program 2020 and 2021

Sample

- 13681 patients

Modelling

Ordinary Least Squares

$$wait = \beta_0 + \beta_1 ehealth + \Sigma \beta_2 X + \varepsilon$$

ehealth: digital health services

wait: waiting time for clinic services, for laboratory services or for medicine

β_1 : the effect of digital health services

X: covariates

$\Sigma \beta_2$: coefficients of covariates

β_0 : the constant term

ε : the error term

Subgroups

- Gender
- Children: age<13
- Young people and adults: 13<=age<65
- Older adults: age>=65

Results

1. Effects on accessibility

Table 1 Impacts of digital health services on healthcare and medicine accessibility

	(1) Clinic services	(2) Waiting time for Laboratory services	(3) Medicines
Digital health	-0.0181*** (0.0205)	-0.0338* (0.0237)	-0.0235 (0.0824)

Notes: Standard errors in parentheses. ***, ** and * indicate p<0.01, p<0.05 and p<0.1 respectively.

- Digital health services reduces waiting time for clinic services by 1.81% and for laboratory tests by 3.38%.
- Digital health services is statistically insignificant with waiting time for medicines.

2. Effects by gender

Table 2 Impacts of digital health services on healthcare and medicine accessibility by gender

	(1) Clinic services	(2) Waiting time for Laboratory services	(3) Medicines
Panel A: males			
Digital health	-0.0153*** (0.0157)	-0.0317* (0.0265)	-0.0200 (0.0914)
Panel B: females			
Digital health	-0.0209** (0.0180)	-0.0354** (0.0200)	-0.0240 (0.0632)

Notes: Standard errors in parentheses. ***, ** and * indicate p<0.01, p<0.05 and p<0.1 respectively.

- The effect of digital healthcare usage on the waiting time reduction for clinic services is stronger for females (2.09%) than males (1.53%).
- Similarly, the effect of digital healthcare usage on the waiting time decline for laboratory services is larger for females (3.54%) than males (3.17%).

Results

3. Effects by age

Table 3 Impacts of digital health services on healthcare and medicine accessibility by age

	(1) Clinic services	(2) Waiting time for Laboratory services	(3) Medicines
Panel A: children			
Digital health	-0.0178*** (0.0076)	-0.0544*** (0.0160)	-0.0511 (0.0724)
Panel B: young and adults			
Digital health	-0.0191** (0.0110)	-0.0306** (0.0246)	-0.0380 (0.0917)
Panel C: older adults			
Digital health	-0.0414** (0.0135)	-0.0387** (0.0236)	-0.0618 (0.0522)

Notes: Standard errors in parentheses. ***, ** and * indicate p<0.01, p<0.05 and p<0.1 respectively.

- With digital health services, the reduction of clinic waiting time is the largest for older adults (4.14%) and similar for young people and adults (1.91%) and children (1.78%).
- With digital health services, the reduction of laboratory waiting time is the largest for children (5.44%), the second for older adults (3.87%) and the least for young people and adults (3.06%).

Conclusions

- This study finds that digital health services save the waiting time of patients for clinic and laboratory services in Saudi Arabia.
- The findings support the effectiveness of digital health services in boosting healthcare accessibility, especially for vulnerable populations, in Saudi Arabia.