Tech-savvy technophiles?: Comparing hospital nurses' attitudes towards electronic medical record systems by their technological savviness

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Background

Widespread end-user acceptance of workplace technologies is critical for their effective adoption[1]. Tech-savvy workers are typically more amenable to adopting new workplace technology[2]. Increasing reliance on technology in healthcare necessitates tech-savviness among healthcare workers[3]. As the largest end-user base of hospital electronic medical record (EMR), nurses' tech-savviness and attitudes could affect its ease of adoption[3,4]. This is the first local study to identify if approaches towards EMR's adoption need to be adapted to nurses' tech-savviness.

Aim & Hypothesis

Aim:
To understand how nurses' tech-savviness affects their attitudes towards EMR.

Hypothesis:
Tech-savvy nurses would have more positive attitudes towards EMR than their less-savvy counterparts.

Methods

Study design & Setting: Cross-sectional survey in a local tertiary hospital

Eligibility: Nurses with at least 6 months of working experience with EMR.

Data collection:

- From February to April 2021, all eligible nurses were surveyed on their self-reported tech-savviness from a scale of 1 to 5, with a higher score indicating greater savviness. We grouped nurses who answered 1 to 3 as "less-savvy", and 4 or 5 as "tech-savvy".
- Their attitudes towards the current EMR were measured using 23 items adapted from UTAUT. Items were scored on a likert scale (1 to 5), with a higher score indicating greater positivity.

Data analysis:
Independent samples Welch's t-test was used to compare the mean difference (MD) in UTAUT scores between tech-savvy and less-savvy nurses.

Unified Theory of Acceptance and Use of Technology (UTAUT)

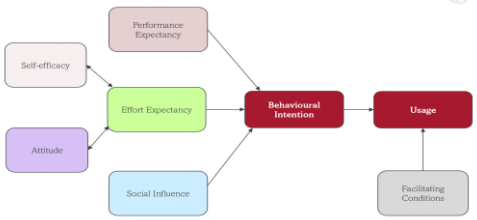

Figure 1. Predictors of behavioural intention and usage of technology[1]

Table 1. Examples of UTAUT items

UTAUT domains	Items
Performance expectancy (PE)	Using the EMR enables me to finish tasks more quickly.
Effort expectancy (EE)	I find the EMR easy to use.
Social influence (SI)	In general, the organisation has supported the use of the EMR.
Attitude (ATT)	I like working with the EMR.
Facilitating conditions (FC)	I have the resources necessary to use the EMR.
Self efficacy (SE)	I could complete a task using the EMR, if there was no one around to guide me.
Behavioural intention (BI)	If I have a choice, I will still use the EMR.

Results

1,152 nurses responded. Demographics were largely similar between tech-savvy (n=692) and less-savvy nurses (n=490).

Table 2. Demographics of participants (N=1152)

	n (%)	
	Tech-savvy (n=692)	Less-savvy (n=460)
Age (years)		
21-40	577 (83.4%)	323 (70.2%)
41-50	82 (11.8%)	92 (20.0%)
>50	33 (4.8%)	45 (9.8%)
Education		
Nitec/Higher Nitec	32 (4.6%)	36 (7.8%)
Diploma	214 (30.9%)	161 (35.0%)
Bachelor/Degree & above	446 (64.5%)	263 (57.2%)

Tech-savvy nurses reported higher mean UTAUT scores across all domains (MD=0.15-0.31, p<.001), but the magnitude was too small to be meaningful.

Table 3. Mean differences in UTAUT domains scores between tech-savvy and less-savvy nurses

	Tech-savvy Mean (SD)	Less-savvy Mean (SD)	MD (95% CI)	p-value
PE (3 items)	3.73 (0.68)	3.42 (0.63)	0.31 (0.23 – 0.39)	< .001
EE (5 items)	3.84 (0.58)	3.56 (0.58)	0.27 (0.20 – 0.34)	< .001
SI (3 items)	3.73 (0.58)	3.53 (0.57)	0.20 (0.13 – 0.26)	< .001
ATT (4 items)	3.57 (0.55)	3.36 (0.51)	0.20 (0.14 – 0.27)	< .001
FC (3 items)	3.73 (0.55)	3.49 (0.55)	0.24 (0.17 – 0.30)	< .001
SE (4 items)	3.70 (0.57)	3.50 (0.53)	0.20 (0.13 – 0.26)	< .001
BI	3.65 (0.77)	3.51 (0.73)	0.15 (0.06 – 0.23)	0.001

PE: Performance Expectancy; EE: Effort Expectancy; ATT: Attitude; SI: Social Influence; FC: Facilitating Conditions; SE: Self-efficacy; BI: Behavioural Intention

Discussion & Conclusion

Despite reporting higher mean UTAUT scores for tech-savvy nurses, the magnitudes were too small to reflect a meaningful difference in attitudes. This suggests that less-savvy nurses are still equally positive towards the adoption of technology. Hence reducing the need for specific change management for them to adopt new technologies.

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