

Hong Kong gynaecologists’ acceptability of telemedicine technology during the COVID-19

Jennifer Kwok Ting Li, Carmen Diana Chung
Department of Obstetrics & Gynaecology, Palmela Youde Nethersole Eastern Hospital, Hong Kong



Introduction

Under the influence of COVID-19 pandemic, social distancing was strictly upheld. The cooperation of telemedicine technology into medical services became the trend. In Hong Kong, telemedicine has not been widely introduced.

Aims and Objectives

Primary aim: to study Hong Kong gynaecologists’ acceptance of telemedicine with use of a questionnaire derived from validated model: the Technology Acceptance Model (TAM)

Secondary aim: to identify factors affecting gynaecologists’ acceptability

Method

Prospective, cross-sectional study was conducted from March to April 2022. The questionnaire was distributed to specialists and trainees working in Department of Obstetrics & Gynaecology, Palmela Youde Nethersole Eastern Hospital.

Areas assessed include:

- Perceived usefulness (PU)
- Perceived ease of use (PEOU)
- Attitude (ATT)
- Intention to use of telemedicine (ITU)

Participants indicated their degree of agreement or disagreement concerning each item using a seven-point Likert scale when telemedicine is applied to the subspecialties under Gynaecology (General Gynaecology, Urogynaecology, Gynaecological Oncology and Reproductive Medicine).

One sample t-tests against zero were performed to analyse participants’ attitude towards telemedicine.
MANOVA was performed to analyse the effect of subspecialties, areas of telemedicine, and their interaction effect of telemedicine acceptance.

Results

20 gynaecologists participated in the study (response rate 95%)

- Respondent have positive acceptance ($p < .05$) for telemedicine to all gynaecology subspecialties.
- The main effect of aspect of telemedicine on their attitude is significant ($p = .03$)
- There was no significant difference when comparing among subspecialties on their relative acceptance of telemedicine ($p = .07$) and no significant interaction effect ($p = .51$)
- Concerning association between demographics with their attitude, the higher the respondent's position, the higher the acceptance of telemedicine when applied to gynaecological oncology ($p = .02$)

Part 1 of Questionnaire		Part 2 of Questionnaire																																																																																		
Demographic data Please answer each question as accurately as possible by ticking the appropriate box or filling in the space provided. 1. What is your gender? ☐ Female ☐ Male 2. What is your age? ☐ 21-30 ☐ 31-40 ☐ 41-50 ☐ 51-60 ☐ >60 3. Where did you obtain your medical degree? ☐ Hong Kong ☐ Others, please specify: _____ 4. Are you a trainee or specialist or subspecialist? ☐ Trainee ☐ Specialist ☐ Subspecialist 4a. If you are a subspecialist, what is your subspecialty? ☐ Urogynaecology ☐ Gynaecology ☐ Reproductive medicine ☐ Maternal fetal medicine 4b. If you are a specialist, where did you receive your training? ☐ Hong Kong ☐ Others, please specify: _____ 5. How many years of experience do you have in the department of obstetrics and gynaecology? ☐ 1-2 ☐ 3-4 ☐ 5-6 ☐ 6-10 ☐ 11-15 ☐ 16-20 ☐ 21-30 ☐ >30 6. What is your average contact time with the following groups of patients per week? 6a. General gynaecology ☐ 1-5 hours ☐ > 5 hours but < 10 hours ☐ > 10 hours but < 20 hours ☐ > 20 hours 6b. Urogynaecology ☐ 1-5 hours ☐ > 5 hours but < 10 hours ☐ > 10 hours but < 20 hours ☐ > 20 hours 6c. Gynaecology ☐ 1-5 hours ☐ > 5 hours but < 10 hours ☐ > 10 hours but < 20 hours ☐ > 20 hours 6d. Reproductive medicine ☐ 1-5 hours ☐ > 5 hours but < 10 hours ☐ > 10 hours but < 20 hours ☐ > 20 hours 7. Have you ever worked in hospitals outside Hong Kong? ☐ Yes, please specify: _____ ☐ No 8. Have you ever heard of telemedicine? ☐ Yes, please specify: _____ ☐ No 9. Have you ever used telemedicine in your daily work? ☐ Yes, please specify: _____ ☐ No		TAM as a theoretical model has been widely applied in the study of technology acceptance and study has concluded that the TAM was able to provide a reasonable depiction of physicians' intention to use telemedicine technology. Here are the factors that are used to examine the technology acceptance model regarding the perceived usefulness (PU), perceived ease of use (PEOU), attitude, and intention to use (ITU). Please indicate your level of agreement with each of the following statements using the scale provided below for applying telemedicine consultation in subspecialties in gynaecology. ** Remember to select a single option for each statement. <table><thead><tr><th></th><th>-3</th><th>-2</th><th>-1</th><th>0</th><th>1</th><th>2</th><th>3</th></tr><tr><th></th><th>Totally disagree</th><th>Disagree</th><th>Slightly disagree</th><th>Neither agree nor disagree</th><th>Slightly agree</th><th>Agree</th><th>Totally agree</th></tr></thead></table> <table><thead><tr><th colspan="5">Perceived usefulness (PU)</th></tr><tr><th></th><th>General Gynaecology</th><th>Urogynaecology</th><th>Gynaecological Oncology</th><th>Reproductive medicine</th></tr></thead><tbody><tr><td>PU1: Using telemedicine can enable me to complete patient care more quickly</td><td>-3 -2 -1 0 1 2 3</td><td>-3 -2 -1 0 1 2 3</td><td>-3 -2 -1 0 1 2 3</td><td>-3 -2 -1 0 1 2 3</td></tr><tr><td>PU2: Using telemedicine CANNOT improve my patient care and management</td><td>-3 -2 -1 0 1 2 3</td><td>-3 -2 -1 0 1 2 3</td><td>-3 -2 -1 0 1 2 3</td><td>-3 -2 -1 0 1 2 3</td></tr><tr><td>PU3: Using telemedicine can increase my productivity in patient care</td><td>-3 -2 -1 0 1 2 3</td><td>-3 -2 -1 0 1 2 3</td><td>-3 -2 -1 0 1 2 3</td><td>-3 -2 -1 0 1 2 3</td></tr><tr><td>PU4: Using telemedicine CANNOT enhance my service effectiveness</td><td>-3 -2 -1 0 1 2 3</td><td>-3 -2 -1 0 1 2 3</td><td>-3 -2 -1 0 1 2 3</td><td>-3 -2 -1 0 1 2 3</td></tr><tr><td>PU5: Using telemedicine can make my patient care and management easier</td><td>-3 -2 -1 0 1 2 3</td><td>-3 -2 -1 0 1 2 3</td><td>-3 -2 -1 0 1 2 3</td><td>-3 -2 -1 0 1 2 3</td></tr><tr><td>PU6: I would find telemedicine technology NOT useful for my patient care and management</td><td>-3 -2 -1 0 1 2 3</td><td>-3 -2 -1 0 1 2 3</td><td>-3 -2 -1 0 1 2 3</td><td>-3 -2 -1 0 1 2 3</td></tr></tbody></table> <table><thead><tr><th colspan="5">Perceived ease of use (PEOU)</th></tr><tr><th></th><th>General Gynaecology</th><th>Urogynaecology</th><th>Gynaecological Oncology</th><th>Reproductive medicine</th></tr></thead><tbody><tr><td>PEOU1: Learning to operate telemedicine technology would NOT be easy for me</td><td>-3 -2 -1 0 1 2 3</td><td>-3 -2 -1 0 1 2 3</td><td>-3 -2 -1 0 1 2 3</td><td>-3 -2 -1 0 1 2 3</td></tr><tr><td>PEOU2: I would find it easy to get telemedicine technology to do what I need to do in my patient care and management</td><td>-3 -2 -1 0 1 2 3</td><td>-3 -2 -1 0 1 2 3</td><td>-3 -2 -1 0 1 2 3</td><td>-3 -2 -1 0 1 2 3</td></tr><tr><td>PEOU3: My interactions with telemedicine technology would be clear and understandable</td><td>-3 -2 -1 0 1 2 3</td><td>-3 -2 -1 0 1 2 3</td><td>-3 -2 -1 0 1 2 3</td><td>-3 -2 -1 0 1 2 3</td></tr></tbody></table>			-3	-2	-1	0	1	2	3		Totally disagree	Disagree	Slightly disagree	Neither agree nor disagree	Slightly agree	Agree	Totally agree	Perceived usefulness (PU)						General Gynaecology	Urogynaecology	Gynaecological Oncology	Reproductive medicine	PU1: Using telemedicine can enable me to complete patient care more quickly	-3 -2 -1 0 1 2 3	-3 -2 -1 0 1 2 3	-3 -2 -1 0 1 2 3	-3 -2 -1 0 1 2 3	PU2: Using telemedicine CANNOT improve my patient care and management	-3 -2 -1 0 1 2 3	-3 -2 -1 0 1 2 3	-3 -2 -1 0 1 2 3	-3 -2 -1 0 1 2 3	PU3: Using telemedicine can increase my productivity in patient care	-3 -2 -1 0 1 2 3	-3 -2 -1 0 1 2 3	-3 -2 -1 0 1 2 3	-3 -2 -1 0 1 2 3	PU4: Using telemedicine CANNOT enhance my service effectiveness	-3 -2 -1 0 1 2 3	-3 -2 -1 0 1 2 3	-3 -2 -1 0 1 2 3	-3 -2 -1 0 1 2 3	PU5: Using telemedicine can make my patient care and management easier	-3 -2 -1 0 1 2 3	-3 -2 -1 0 1 2 3	-3 -2 -1 0 1 2 3	-3 -2 -1 0 1 2 3	PU6: I would find telemedicine technology NOT useful for my patient care and management	-3 -2 -1 0 1 2 3	-3 -2 -1 0 1 2 3	-3 -2 -1 0 1 2 3	-3 -2 -1 0 1 2 3	Perceived ease of use (PEOU)						General Gynaecology	Urogynaecology	Gynaecological Oncology	Reproductive medicine	PEOU1: Learning to operate telemedicine technology would NOT be easy for me	-3 -2 -1 0 1 2 3	-3 -2 -1 0 1 2 3	-3 -2 -1 0 1 2 3	-3 -2 -1 0 1 2 3	PEOU2: I would find it easy to get telemedicine technology to do what I need to do in my patient care and management	-3 -2 -1 0 1 2 3	-3 -2 -1 0 1 2 3	-3 -2 -1 0 1 2 3	-3 -2 -1 0 1 2 3	PEOU3: My interactions with telemedicine technology would be clear and understandable	-3 -2 -1 0 1 2 3	-3 -2 -1 0 1 2 3	-3 -2 -1 0 1 2 3	-3 -2 -1 0 1 2 3
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Conclusion

Local gynaecologists in Hong Kong positively accept applying telemedicine in gynaecology. Even with the uplifting of social distancing restrictions for the COVID-19, telemedicine is a new direction for medical consultations.

Further studies could be conducted to look at difference in acceptability of telemedicine before and after application.

		Minimum	Maximum	Mean	Std. Deviation	p-value (2 tailed)
General Gynaecology	PU	- 0.83	2.17	1.100	0.90062	0.000
	PEOU	- 0.76	2.5	1.1583	0.89749	0.000
	ATT	- 0.33	2.67	1.7500	0.69143	0.000
	ITU	- 1.67	2.67	1.1083	0.22887	0.000
	Subtotal	- 0.08	2.38	1.2792	0.64125	0.000
Urogynaecology	PU	- 0.83	2.50	1.1917	0.92287	0.000
	PEOU	- 0.67	2.50	1.1083	0.91010	0.000
	ATT	- 0.33	2.67	1.7500	0.69648	0.000
	ITU	- 1.67	2.50	1.0750	1.02380	0.000
	Subtotal	0.00	2.21	1.2646	0.67420	0.000
Gynaecological Oncology	PU	- 2.00	2.17	0.4583	1.22340	0.110
	PEOU	- 0.67	2.33	1.0667	0.82611	0.000
	ATT	- 1.67	2.33	1.0667	1.09545	0.000
	ITU	- 2.67	2.67	0.5417	1.45686	0.113
	Subtotal	- 1.04	2.21	0.7833	0.90620	0.001
Reproductive Medicine	PU	- 1.33	3.00	0.7667	1.08606	0.005
	PEOU	- 0.67	2.33	1.10000	0.82434	0.000
	ATT	- 1.33	2.33	1.2667	0.98289	0.000
	ITU	- 1.67	2.67	0.8283	1.16374	0.005
	Subtotal	- 0.50	2.21	0.9904	0.71592	0.000