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Background

Home monitoring and other smart phone technology may be especially beneficial in providing adequate care in monitoring rapid changes in pregnancy health status, particularly in environments where in person monitoring may be difficult to achieve. Limited research exists in reviewing home monitoring of blood pressure (BP) during pregnancy.

The aim of this study was to investigate the patients’ perspectives of using the LEANBH app and the Micro life Watch BP home device in a tertiary maternity hospital setting during the COVID 19 pandemic.

Methods

Participants were asked to complete a LEANBH usability questionnaire on their experience of the LEANBH app and the Microlife Watch BP Home device. An anonymous survey was given to LEANBH participants consisting of 5 background demographics questions on age, education, phone device, use of mobile technology. 9 items from the system usability scale (SUS) questionnaire, 14 items on the usability and visuals of the LEANBH app and 6 items on the acceptability of the Micro Life blood pressure device. Other than demographic questions all items were scored on a 5 point likert scale.

Results

A total of 134 women responded to the device satisfaction survey. The mean age was 34 years (standard deviation (SD) 4.8), 60% n=81 were married, and 88% n=118 identified as of Irish ethnicity. 105 women (78%) were public patients, 51% were nulliparous and only 14 (10%) had a highest education attainment as secondary school level with the majority progressing to third level education. The demographics of the group are displayed in [table 1](#). The results of the usability questionnaire were very reassuring. With regards to the LEANBH app 69% (93) of respondents reported a very good initial impression of the app. 29% agreed and 70% strongly agreed that the LEANBH app was easy to use. All but one respondent agreed that most people would quickly learn to use the app. The Micro life BP device was tolerated very well with 42% agreeing and 56% strongly agreeing they would use it again. Only 8 (6%) reported it to be an inconvenience to take their own BP at home. 97% of users felt that the knowledge that their BP was being monitored at home gave them a sense of safety.

Table 1: Demographic characteristics of LEANBH participants who responded to the device satisfaction survey

Maternal age	n (%) or mean (SD)
Mean age (years)	34.01 (4.79)
22-29 years	23 (17.16)
30-39 years	96 (71.64)
40+ years	15 (11.19)
Education	
Second level/other	14 (10.45)
Third level certificate or diploma	32 (23.88)
Third level undergraduate degree	47 (35.07)
Third level postgraduate degree	41 (30.60)
Ethnicity	
Irish	118 (88.06)
Other	16 (11.94)
Marital status	
Single	22 (16.42)
Married	81 (60.45)
De facto	31 (23.13)
Maternity care type	
Public patients	105 (78.36)
Private patients	29 (21.64)
Parity	
Nulliparous	69 (51.49)
Multiparous	65 (48.51)
Pre-pregnancy chronic condition	
Hypertension	43 (32.09)
Diabetes	10 (7.46)
Asthma	16 (11.94)
SD=standard deviation	

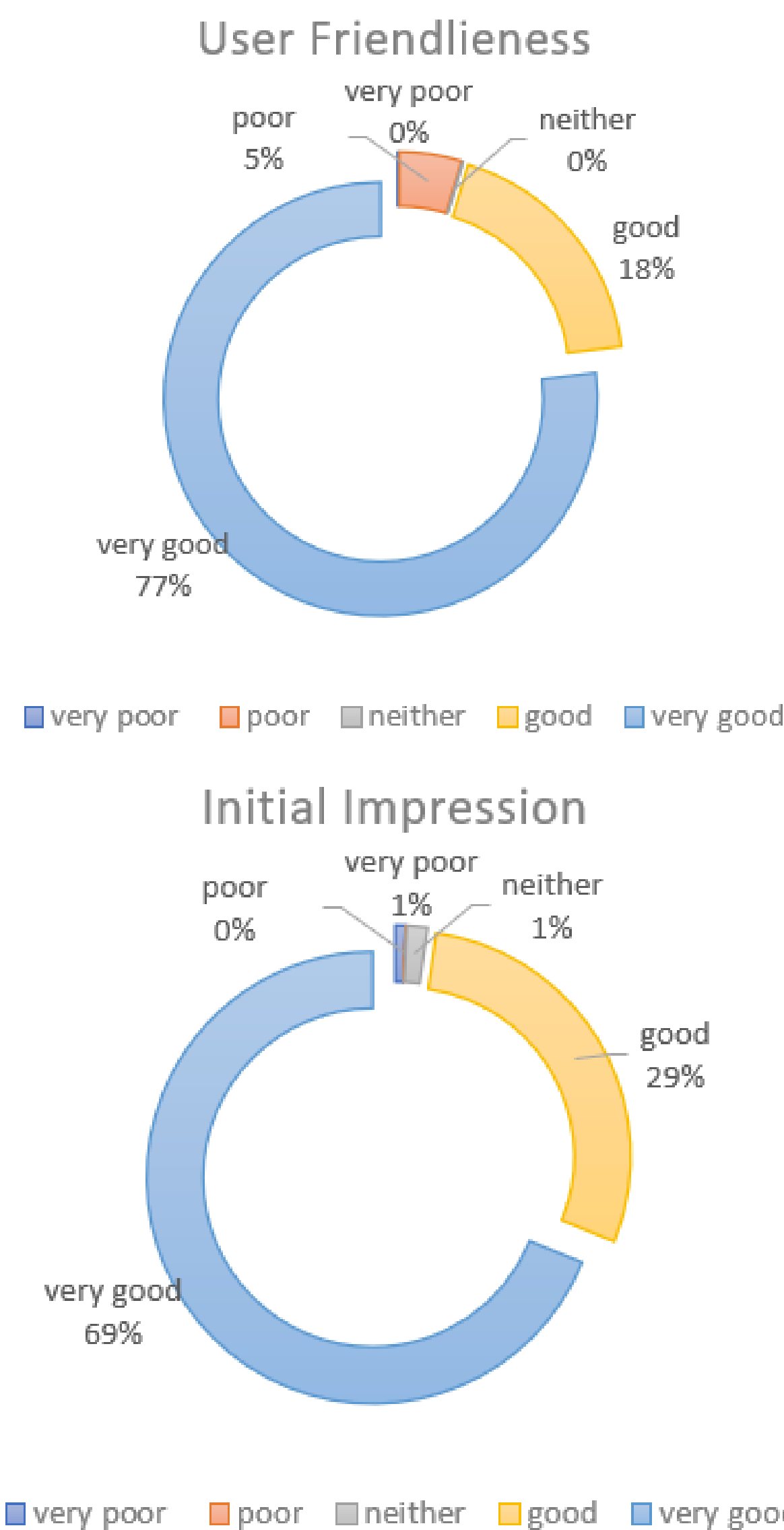


Table 2: Usability survey results

Characteristic, n (%)	Strongly disagree	Disagree	Neither	Agree	Strongly agree
App (unnecessarily) complex	93 (69%)	58 (43%)	4 (3%)	2 (1%)	3 (2%)
App was easy to use	0	0	2 (1%)	39 (29%)	93 (69%)
Need support of technical person to use app	98 (73%)	29 (22%)	5 (4%)	1 (1%)	1 (1%)
Functions on app well integrated	1 (1%)	0	10 (8%)	68 (51%)	54 (41%)
Too much inconsistance in app	59 (45%)	57 (44%)	12 (9%)	2 (2%)	1 (1%)
Most people would learn to use app quickly	0	0	1 (1%)	49 (37%)	81 (62%)
App very cumbersome/awkward to use	76 (58%)	47 (36%)	5 (4%)	3 (2%)	0
Felt very confident using app	0	0	2 (2%)	40 (31%)	89 (68%)
Needed to learn lots before could get going with this app	85 (65%)	44 (34%)	0	2 (2%)	0
Appropriate design for recording BP readings	1 (1%)	2 (2%)	1 (2%)	51 (39%)	76 (58%)
Use of colours in app visually attractive	3 (2%)	2 (2%)	27 (21%)	72 (55%)	27 (21%)
Style of fonts in the app visually attractive	1 (1%)	2 (2%)	29 (22%)	70 (54%)	28 (21%)
App is very professional in appearance	1 (1%)	2 (2%)	9 (7%)	65 (50%)	53 (41%)
Design was suited for the purpose of the app	1 (1%)	0	5 (4%)	71 (55%)	53 (41%)
The look of the app is very attractive	1 (1%)	4 (3%)	13 (10%)	73 (56%)	39 (30%)
Content of the app was detailed enough for me	1 (1%)	3 (2%)	1 (1%)	71 (55%)	54 (42%)
Icons used in app easy to understand	1 (1%)	2 (2%)	1 (1%)	68 (52%)	58 (45%)
Layout of app was sufficient to record/capture data	1 (1%)	1 (1%)	0	62 (48%)	66 (51%)
Layout of the app was sufficient to view data	1 (1%)	2 (2%)	3 (2%)	63 (48%)	61 (47%)
Data recorded was stored securely	1 (1%)	1 (1%)	9 (7%)	66 (51%)	53 (41%)
I would recommend this app to a friend/colleague	1 (1%)	1 (1%)	3 (2%)	58 (45%)	67 (52%)

Conclusion

Patients' experience of the LEANBH app and home Microlife BP monitor are very reassuring and suggest it is an acceptable way of monitoring home BP in pregnant women who are at risk of rapid changes in health status. Women reported feeling a greater sense of health safety with the use of this device.