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Current prevalence of self-monitoring of blood pressure during pregnancy: The BUMP Survey

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Abstract

OBJECTIVE: To understand the current prevalence of, and attitudes to, self-monitoring of blood pressure (BP) during pregnancy.

METHODS: 5555 pregnant women from antenatal clinics in 16 hospitals in England were invited to complete a survey.

MAIN OUTCOME MEASURES: The primary outcome was the proportion of women currently BP self-monitoring. Secondary outcomes included self-monitoring schedules and women's interactions with clinicians regarding self-monitoring. Population characteristics including risk factors for pre-eclampsia, ethnicity and deprivation level were considered.

RESULTS: Completed surveys were received and analysed from 5181 pregnant women (93% response rate). Comparison to hospital demographic data suggests that respondents were representative of the UK population. 983/5181 (19%) of women were currently self-monitoring their BP, comprising 189/389 (49%) hypertensive women and 794/4792 (17%) normotensive women. However, only 482/983 (49%) reported ever sharing this information with antenatal care teams. Of those who self-monitored, 68% (668/983) were able to provide a previous BP reading, compared to 1% (67/5181) of those who did not self-monitor.

CONCLUSION: Many women are now choosing to self-monitor their BP during pregnancy and clinicians should enquire about this proactively and consider providing better information on BP monitoring. Those who self-monitor appear to have better knowledge about their blood pressure. If these findings were replicated nationwide, around 125,000 pregnant women would be currently self-monitoring BP in the UK, yet only half of these women may communicate their readings to their antenatal care teams, suggesting a missed opportunity for enhanced care. Current trials will make the place of self-monitoring in pregnancy clearer.

KEY WORDS: Pregnancy, Hypertension, Blood pressure, Self-monitoring

Introduction

Early diagnosis of raised blood pressure (BP) in pregnancy could reduce complications for both the woman and the baby, and could influence future cardiovascular risk.(1-3) Antenatal visits take place approximately every four weeks in early pregnancy, increasing in frequency later in pregnancy, but problems may arise between these.(4) Regular BP self-monitoring has the potential to improve the detection and treatment of hypertension in pregnancy and may be the only option in remote management. Pregnant women themselves often express an interest in monitoring their own BP but there has been very little research to guide this.(5)

Self-monitoring as an intervention in the general population has been shown to reduce BP levels,(6, 7) improve adherence to antihypertensive medication,(8) and reduce primary care consultation rates at no additional cost.(9) Compared to clinic readings, it provides a better estimate of underlying BP.(10) BP self-monitoring is already practised by around 30% of hypertensive patients in the UK outside of pregnancy.(11, 12)

The current prevalence of self-monitoring of BP in pregnancy is unclear. The international CHIPS pilot survey (with 126 respondents) found 60% of non-proteinuric hypertensive women were already using self-monitoring but some of these women were enrolled in an antepartum home care program.(5)

Currently only a few monitors have been validated for use in pregnancy and in pre-eclampsia including Microlife WatchBP Home,(13) Microlife BP 3AC1-1,(14) Omron M7(15) and Microlife BP 3BTO-A.(16) This scarcity of validated home monitors for pregnancy is in contrast to the number of monitors validated for use in the general population and means that many available commercially for women to purchase have not been shown to be accurate in pregnancy.

The aim of this research was to ascertain current BP self-monitoring practice in pregnancy; how frequently women self-monitor, what devices they use, and whether this is done in collaboration with healthcare professionals, to provide a more complete understanding of the use of BP self-monitoring in antenatal practice.

Methods

Survey design

The survey was designed by a team including obstetricians, researchers (sociologists, psychologists, biologists and health service researchers), midwives, primary care physicians, and pregnant women. Survey questions included basic demographics, pregnancy stage, risk factors relevant to the development of hypertensive disorders in pregnancy, and detailed questions about BP monitoring devices and schedules.

Study participants

All pregnant women over the age of 18 attending antenatal clinics within 16 hospitals involved in the study were eligible. These centres were chosen to represent a wide cross-section of hospitals across the UK including both teaching and district hospitals, inner city and suburban centres, and diversity in the populations served in terms of both ethnicity and level of socio-economic deprivation. Women interested in taking part in a survey were provided with information about the study and those who wanted to take part were asked to sign a consent form. The survey took place between 02/02/2018 and 31/09/2019.

Ethical approval

Ethical approval was provided by the South West-Cornwall & Plymouth Research Ethics Committee (reference 17/SW/0296, 15 December 2017), and Health Research Authority approval was gained before the start of the study.

Outcomes

The primary outcome was the proportion of women currently BP self-monitoring. Secondary outcomes were monitor type, frequency of self-monitoring and current interactions with clinicians regarding self-monitoring. Additional variables including current hypertension status, risk factors for pre-eclampsia (previous hypertensive pregnancy, first pregnancy, Body Mass Index ≥ 30kg/m^2, family history of pre-eclampsia [mother or sister], age ≥ 40 years, and diabetic status) were asked, alongside other population characteristics considered to affect uptake of BP self-monitoring in the general population including ethnicity, employment and deprivation.(17-19)

Estimation of Index of Multiple Deprivation (IMD) score: An estimate of socioeconomic deprivation was determined using the first three letters of a participant's postcode and the English Indices of Deprivation of 2015 and the National Statistics Postcode lookup (accessed August 2019). (20, 21) Deprivation level for each participant was defined as the median decile of IMD across all postcodes beginning with the same three letters as the participant postcode. These were further grouped by quintile of IMD for analysis.

Analysis

Participant characteristics were reported descriptively, and compared to known characteristics from the total population of pregnant women at participating hospital sites. The proportion of women self-monitoring blood pressure during pregnancy was reported, and among women who self-monitored, the type (upper arm, wrist), make (manufacturer) and age of device, and monitoring schedule (number and frequency and time of day of readings) was reported. Confidence intervals for means and proportions were calculated using survey data methods in Stata version 16, to allow for clustering of data by hospital site.

Relative risks (RRs) for factors potentially associated with self-monitoring were explored in binomial regression models with survey weighting.

Results

Surveys were distributed to 5555 pregnant women, at 16 hospitals across England, of which 5250 (95%) responded. Of these responses, 14 (0.3%) were returned blank, 20 (0.4%) women were taking part in a BP self-monitoring trial and 35 (0.7%) did not answer the primary outcome. The latter three groups were excluded from further analysis leaving 5181 surveys, an overall response rate of 93% (Figure S1 (Appendix 1)).

Respondents were representative of the population across the UK

Women who completed the survey had a median age of 32 years (range 18-54; interquartile range (IQR) 28-36)(Table 1) and a median gestation of 30 weeks (range 5-43 weeks; IQR 21-36). Most were in full or part time employment (52% full time employment, 19% part time employment, 14% homemaker, 11% unemployed, 2% education) (Table 2). Comparison to national data and hospital trust demographics from participating sites showed that the women taking part in the survey were broadly representative of the UK pregnant population (Table 1).(22) IMD estimates, available for 4607 women, ranged from the 1st to 10th decile of English IMD scores. 62% were in the bottom 5 deciles, and 38% in the top 5 deciles.

Prevalence of self-monitoring of blood pressure in pregnancy

Overall, 19% (983/5181 respondents; 95% confidence intervals 16-22%) of women reported monitoring their own BP during pregnancy, which varied from 14% to 28% between study sites (Table 3 and Table S3 (Appendix 4)). Amongst women who had taken or were currently taking antihypertensive medication, 49% (189/389 hypertensive respondents; 95% CI: 40.1-57.2%) were self-monitoring. Of all 5181 respondents, 13% (666 women; 95% CI 10.7-15.4%) had monitored their own BP prior to becoming pregnant.

Types of monitors and monitoring schedules

Of 983 women who had self-monitored, most women had a BP monitor at home (699 women (71%); normotensive (535/794, 70%), hypertensive (164/189, 87%). Other ways of monitoring included at a primary care practice (127 women, 13%) and/or at a pharmacy (18 women, 2%), and/or using a monitor from a friend or family member (51 women, 5%), with 99 women (10%) selecting other. (Table 3) Overall, 34% (338/983) of women that reported self-monitoring measured their BP at least weekly. For those with hypertension, 66% (125/189) monitored at least weekly and 31% (59/189) monitored on four or more days per week. (Table 3)

Most women (725/983, 74%) used an upper arm monitor, though only 50% (494/983) of women who self-monitored were able to remember the make of the device they used. Of these, (264/494, 53%) used an Omron device (including the M2, M7, M3 and the MIT elite), with others using Boots (74, 15%), Lloyds Pharmacy (61, 12%) or Microlife devices (22, 4%) and a further 73 (15%) a range of other devices not including any recognised to be validated in pregnancy. (Table 3)

When asked about the timing of measurements, the highest proportion of women (460/983, 47%) had no fixed monitoring schedule, 13% (128/983) monitored both morning and evening, 12% (120/983) monitored only in the evening and 10% (95) only in the morning. Most women (498/983, 51%) took two or more readings when they monitored their BP (68% of hypertensive women took two or more readings compared to 47% of normotensive women) with only 32% (314/983) taking a single reading and the remainder not responding to that question. When asked about the age of the monitor women used; 17% (163/983) were under 12 months old, 10% (100/983) answered that the monitor was 1 year old and 29% (286/983) answered that the monitor was 2 or more years old. There were 77 women (8%) or reported having a monitor over 5 years old, and 44% (434/983) didn’t answer.

Home and clinic differences

Overall, most women (595/983, 61%) reported “very little difference” between home and clinic readings, 23% perceived that home readings could be higher or lower than clinic and 16% did not know or did not answer the question (Table S1 (Appendix 2)).

We asked women to provide a recent home or clinic BP reading and 14% (735/5181) responded. Of the women who self-monitored their BP, 68% provided a reading (668/983) and of those that did not self-monitor, 1% provided a BP reading (67/5181). Many women (331/735, 45%) did not report the setting of the reading they provided, but of those that did, the mean BP reported from a home reading was 117/73 mmHg (SD 13/10, n=119). Those who provided a recent clinic reading had a mean BP of 120/75 mmHg (SD 15/12, n=285). Of those who self-monitored and provided a home reading; 12% thought it was a high BP reading (78/664), 4% of readings provided were greater than 140/90mmHg (28/664).Of those who didn’t self-monitor their BP and provided a reading; 6% reported they thought this was a hypertensive reading (4/67) and 3% were over 140/90mmHg (2/67).

Women were confident in their ability to self-monitor their blood pressure

Women who were self-monitoring reported that they were confident in their ability to accurately measure their BP at home: using a Likert scale from 1-10, (with 1 not at all confident and 10 totally confident), the median score was 9 (IQR 7-10) among 906 who answered this question. Most women (73%, 665/906) selected between 8 to 10, including 41% (375/906) who responded with 10/10, and only 5% (44/906) selected a confidence score less than 5, suggesting low confidence.

Which women are more likely to monitor?

To understand factors affecting the choice to self-monitor BP, the influence of risk factors for pre-eclampsia and population demographics were examined. Although a number of risk factors were significant with unadjusted analysis, the only risk factors that remained

significant on full adjustment in multivariable analysis were some non-white ethnic groups (women identifying as from Chinese and “Other ” groups; 1.85 (1.31 – 2.65) p = 0.003, and 2.3 (2.06 – 2.61) p < 0.0005 respectively), hypertension in a previous pregnancy (adjusted relative risk (RR) 1.50; 95% CI 1.23-1.83) and taking antihypertensive medication (adjusted relative risk (RR) = 2.27; 95% CI 1.94-2.66, P ≤ 0.0005). Other risk factors did not remain significant after adjustment. (Table S2 (Appendix 3))

Reasons for monitoring

Around a third (35%) of women monitored because a health care professional suggested it (25% of normotensive women and 63% of hypertensive women), with hypertensive women more likely to report that a health care professional suggested self-monitoring (p<0.0005). Others (24%) followed the advice of a friend or family member and the remaining 47% selected ‘other’, with many (37%) providing a text response such as “own initiative” or “I decided for myself”, indicating that they monitored of their own initiative. (Table 4)

Sharing data with Health Care Professionals

Around half of self-monitoring women shared their readings with the health care team: 49% (482/983) reported that they shared or sometimes shared their BP readings, and 41% (405/983) reported that they would not share their BP readings. (Table 4) Women who were hypertensive were more likely to share their readings, with 79% (149/189) reporting sharing or sometimes sharing their readings. This was significantly different to normotensive women for whom half (45%, 359/794) did not share readings (P<0.0005).

Amongst women who sometimes or always did not share their readings, most (70%, 423/608) selected that they monitored for their own information, with other options including; ‘I didn’t think staff were interested’ (16%, 98/608), ‘I think it’s not important’ (6%, 38/608), ‘staff actively discourage me measuring’ (4%, 22/608), ‘it never comes up’ (4%, 23/608), and ‘I forget my readings’ (2%, 13/608) (Table 4). Women were more likely to share their

readings if they began monitoring because a healthcare professional suggested it ($P<0.0005$).

Discussion

Main findings

This is to our knowledge the first large scale UK survey of self-monitoring of BP in pregnancy and has shown that in a sample of over 5000 women, almost one in five were monitoring their own BP during pregnancy, rising to almost half of those with hypertension. If these figures are representative, then over 125,000 pregnant women may be currently self-monitoring each year in the UK.(22) This is particularly relevant to a situation where normal antenatal care is not possible and is therefore being undertaken remotely, necessitating self-monitoring of BP.(23)

Women who self-monitor

The women who self-monitored their BP were more likely to have, or have had, hypertension, or be from minority ethnic backgrounds than those who did not self-monitor. This is in keeping with some risk factors for hypertensive disorders in pregnancy, although neither having a close relative (mother or sister) with experience of pre-eclampsia nor presence of diabetes increased the likelihood of self-monitoring. Interestingly only around half of the women who self-monitored their BP communicated their readings with their antenatal care team some or all of the time, especially if they were not hypertensive. This is similar to findings from the general population but may also reflect additional uncertainty amongst healthcare professionals as to the benefits and use of self-monitoring of BP during pregnancy.(11) Unsurprisingly, women were more likely to share their readings if they began self-monitoring following advice to do so from their health care team. This perhaps shows the importance of engagement by healthcare professionals for self-monitoring and other self-care activity to be successful and to support shared decision-making.

Reasons for monitoring

Many women who self-monitored BP had decided to do this themselves, stating reasons like “own initiative”, “wanting to know”, “to be in control” and “for reassurance”. This was in keeping with the reasons given for not sharing information with healthcare professionals; with many women selecting “I monitor for my own information”. There is a general move towards increasing personal responsibility for health and care and this is supported by an increase in affordable, easy to use technology, such as automated BP monitors and tracking apps.(24, 25)

Blood pressure readings

Women who self-monitored were much more likely to be able to provide a BP than those that did not. This demonstrated an improved knowledge of their own BP, which could support engagement in their own health and potentially adherence to prescribed anti-hypertensive medication. This is in line with qualitative findings from studies of BP self-monitoring in pregnancy. (26)

Sharing home readings with health care professionals

Self-monitoring of BP has been shown to successfully facilitate interaction about hypertension in consultations.(27) However, in this study we found that only around half of women who self-monitored their BP communicated their readings to the clinical team, meaning that a significant amount of potential data were being withheld. Hypertensive women were more likely to share their readings, as were those advised to self-monitor by a health care professional, indicating the importance of the involvement of antenatal care teams. In the setting of the Covid-19 pandemic, this could represent a significant aid to antenatal care and the RCOG has recently issued guidance on the use of self-monitoring in this crisis. (23)

Appropriateness of monitors used

Most women were not able to recall the make and model of the monitor they used, but of those who provided information (n=494) very few monitors were known to be validated for use in pregnancy (just two women reporting using the Omron MIT-elite or the Microlife WatchBP home monitors, which are validated for use in pregnancy and pre-eclampsia). A recent study identified the importance of validation of home monitors, with validated monitors in active use by patients with hypertension outside of pregnancy found to be significantly more likely to be accurate than unvalidated ones.(28) This study also found that 60% of monitors in use were validated in the general population, highlighting the extent to which lack of availability and/or knowledge about validated monitors in pregnancy is a fundamental issue. Conversely, the other key factor affecting monitor performance identified by this study was age of device, with those monitors less than five years old significantly more accurate (with 92% of the monitors used by women in our survey falling into this category). Where no other option is available, a monitor validated outside of pregnancy and not known to be inaccurate in pregnancy is probably a better option than no information about blood pressure.

Strengths and limitations

The strengths of this study include its novelty and size, with data from 5181 women across the UK included in the analysis of this multi-centre study. Comparison with hospital data suggests that the women who took part were representative of the pregnant population with similar age, ethnicity and parity. (22) Weaknesses of this study were that it was a survey relying on women's memory of how and when they monitored, and only available in the English language. The survey was distributed at antenatal clinics and whilst the response rate was high, some women may have been missed, hence reducing the denominators.

Interpretation and comparison with the literature

To our knowledge, there have been very few surveys of self-monitoring of BP in pregnancy, and none of this size. Levels of self-monitoring of BP during hypertensive pregnancies appear to be in line with levels of self-monitoring noted in the recent CHIPS pilot trial, an international study of 132 hypertensive pregnant women, which found that 64% self-monitored BP.(5) In 2008 a survey in the UK general hypertensive population found that 31% of hypertensive patients were self-monitoring their BP outside of pregnancy.(18) Patients from a non-white ethnic group were more likely to monitor as was found in the current study, and then as now, most patients used an automated electronic BP device.

Clinical implications

Healthcare professionals should be aware that many women are choosing to self-monitor BP, particularly if hypertensive. This survey suggests that many home readings are not being shared and so healthcare teams should consider enquiring about this and proactively providing information on BP monitoring in pregnancy, such as the importance of using a validated monitor and pathways of care if they have concerns about their BP. NICE guidelines for pregnancy care do not include advice regarding self-monitoring of BP, so some clinicians may be unsure about how to use these readings. Women without hypertension reported little difference in home BP compared to clinic, whereas a larger proportion of those with hypertension reported a possible white coat or masked effect. This is in line with emerging research in pregnancy and suggests that thresholds and targets may need to be adjusted depending on whether a woman is hypertensive in clinic.(29) There is a need for clear guidelines, ideally based on prognosis based research.(30) While current trials will make the place of self-monitoring in pregnancy clearer, important experience will be gained during the Covid-19 pandemic as many antenatal clinics are provided remotely.(23, 31)

Conclusions

This survey has shown that around one in five pregnant women self-monitor their BP, rising to 49% amongst those with hypertension. In normal situations, this represents an opportunity to gain additional data, perhaps more representative of a woman's BP across a wider timeframe than less frequent clinic visits. In a context of required remote monitoring, such data can provide important information about women's wellbeing. Pregnant women and their healthcare teams need better information on monitors validated for use in pregnancy, and to know if self-monitoring provides additional benefit other than providing information that might not be available otherwise.

Authors' Contributions

RM, KT, JH, LC, and RS conceived the study and gained the funding. The protocols were developed by KT, JH, RM and LC with the advice and support of all authors. KT managed the study with support from HW and CC. KT and NA designed the database. Analysis was carried out by KT with support from MD and advice from SS and RS. The first draft of the paper was written by KT and subsequently edited and approved by all co-authors. All authors have read, provided critical revision and approved the final version of the manuscript. RM will act as guarantor.

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Ethics Statement

Ethical approval was provided by the South West - Cornwall & Plymouth Research Ethics Committee (reference 17/SW/0296, 15 December 2017).

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Competing interests: Richard McManus has received BP monitors for research use from Omron and is working with them to develop a telemonitoring system for use in primary care. He receives no personal payment for such work. The remaining authors have no disclosures.

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Table 1. Demographic data (compared to hospital statistics)

Demographics	*Those that self-monitored n=983*	*Those that did not self-monitor n=4198*	*All survey respondents mean (range) or %*	*Hospital demographics from recruiting sites*
Mean (range) Age (years)*	33 (18-52) SD 5.44	32 (18-54) SD 5.47	32 (18-54) SD 5.47	32 (14-61)
Hypertensive	19%	5%	8%	8%
First pregnancy	47%	41%	42%	37%
Ethnicity				
Asian or Asian British	199 (20%)	706 (17%)	17.5	13.3
Black or Black British	58 (6%)	285 (7%)	6.6	12.6
Chinese	22 (2%)	66 (2%)	1.7	1.3
White British and White Irish	368 (37%)	2350 (56%)	52.4	49.5
Mixed	32 (3%)	177 (4%)	4.0	2.8
Missing/ other/ not given	304 (30%)	614 (15%)	17.7	21.0

*****For comparison the office for national statistics found the average age of women giving birth to be 30.6. Only women over 18 were eligible to take part in the survey. 5,104 women who completed the survey provided their age (median 32, IQR: 28-36). Ethnicity data is provided for all 5181 respondents used in the analysis.

Hospital sites able to provide summary data: St Georges Hospital, Croydon Hospital, Kingston, Birmingham Women's Hospital, St Thomas's Hospital, Buckinghamshire and Kings College Hospital.

Table 2. Prevalence of risk factors and demographics

Risk factors	*Those that self-monitored n (%)*	*Those that did not self-monitor n (%)*	*All survey respondents - n (%)*
Number of respondents	983	4198	5181
Age 40 or over (years)	91 (9%)	291 (7%)	382/5104 (7%)
Body mass index ≥ 30kg/m^2	318/818 (39%)	1147/3325 (35%)	1475/4167 (35%)
First pregnancy	463 (47%)	1731 (41%)	2194 (42%)
High BP in previous pregnancy	142 (14%)	244 (6%)	386 (7%)
Family history	57 (6%)	213 (5%)	270 (5%)
Gap of >10 years since last pregnancy	38 (4%)	124 (3%)	162 (3%)
Expecting twins	30 (3%)	127(3%)	157 (3%)
Diabetes treated with insulin	70 (7%)	319 (8%)	389 (8%)
Chronic Kidney Disease	10 (1%)	13 (0.3%)	23 (0.4%)
Autoimmune disease	37 (4%)	114 (3%)	151 (3%)
Current Employment			
Employed full time	540 (55%)	2141 (51%)	2681 (52%)
Employed part time	170 (17%)	840 (20%)	1010 (20%)
In Education	24 (2%)	89 (2%)	113 (2%)
Home maker	131 (13%)	585 (14%)	716 (14%)
Unemployed	98 (10%)	477 (11%)	575 (11%)
Did not answer	20 (2%)	66 (2%)	86 (2%)

Figures based on all 5181 respondents included in the analysis except where shown (not all women provided BMI data)

Table 3. Methods of Self-monitoring of Blood pressure in women who monitor

	All who self-monitored (n=983)	*Normotensive women (n=794)*	*Hypertensive women (n=189)*
Access to a monitor at home	699 (71%)	535 (70%)	164 (87%)
Type of monitor used			
Upper arm	725 (74%)	573 (72%)	152 (80%)
Wrist	72 (7%)	58 (7%)	14 (7%)
Not answered	186 (19%)	163 (21%)	23 (12%)
Make of monitor if known	264 (27%) Omron, 74 (8%) Boots, 61 (6%) Lloyds pharmacy, 73 (8%) Other, 22 (2%) Microlife (Missing 489, 50%)	206 (26%) Omron, 59 (7%) Boots, 46 (6%) Lloyds pharmacy, 60 (8%) other, 11 (1%) Microlife. (Missing 412, 52%)	58 (31%) Omron, 15 (7%) Boots, 15 (7%) Lloyds pharmacy, 13 (7%) Other, 11 (6%) Microlife. (Missing 77, 40%)
How often women monitor	n (%)		
4 or more days a week	90 (9%)	31 (4%)	59 (31%)
2-3 days a week	125 (13%)	90 (11%)	35 (19%)
One day a week	123 (13%)	92 (12%)	31 (16%)
One or two days a month	203 (21%)	183 (23%)	20 (11%)
Less frequently	265 (27%)	240 (30%)	25 (13%)
Not answered	177 (18%)	158 (20%)	19 (10%)
Number of readings taken per session	n (%)		
One	314 (32%)	272 (34%)	42 (22%)
Two	396 (40%)	302 (38%)	94 (50%)
Three or more	102 (10%)	68 (9%)	34 (18%)
Not answered	171 (17%)	152 (19%)	18 (10%)
Time of day	n (%)		
Usually only morning	95 (10%)	80 (10%)	15 (8%)
Usually only evening	120 (12%)	92 (12%)	28 (15%)
Usually both morning & evening	128 (13%)	76 (10%)	52 (28%)
It varies	460 (47%)	387 (49%)	73 (39%)
Not answered	180 (18%)	159 (20%)	21 (11%)

*Hypertensive women were more likely to access to a monitor at home (P≤0.0005), take two or more readings per session (P≤0.0005),) and take readings on two or more days per week when compared to normotensive women (P≤0.0005). Hypertensive women were no more likely to use an upper arm monitor than normotensive women (p=0.9 missing data excluded from analysis).

Table 4. Reasons for monitoring and sharing data with Health Care Professionals among women who self-monitor their blood pressure.

Reasons for monitoring±	*n (%) of those who self-monitor their BP (n = 983)*		
	All women (983)	Normotensive women (794)	Hypertensive women (189)
Doctor suggested	207 (21%)	105 (13%)	92 (49%)
Nurse suggested	25 (3%)	19 (2%)	4 (2%)
Midwife suggested	106 (11%)	78 (10%)	23 (12%)
Friend or family	231 (24%)	201 (28%)	19 (10%)
*Other**	440 (45%) (364 (37%) chose to monitor themselves)	359 (50%)	71 (38%)
Do you share your readings with any HCP?	n (%) of those who self-monitor (n=983)		
No	405 (41%)	378 (48%)	27 (14%)
Yes	253 (26%)	174 (22%)	79 (42%)
Sometimes	229 (23%)	159 (20%)	70 (37%)
Missing	96 (10%)	83 (10%)	13 (7%)
Reasons why women do not tell HCP ***(tick all that apply)***	n (%) of those who self-monitor and answered the question (n = 608 total: 513 normotensive and 95 hypertensive women)		
I monitor only for my own information	423 (70%)	358 (72%)	54 (57%)
I don't think staff are interested	98 (16%)	86 (17%)	9 (9%)
Staff actively discourage me from monitoring	22 (4%)	21 (4%)	1 (1%)
It never comes up	23 (4%)	16 (3%)	7 (7%)
I think it's not important	38 (6%)	32 (6%)	4 (4%)
I forget to bring my readings	13 (2%)	10 (2%)	3 (3%)
*Other**	128 (21%)	98 (20%)	28 (29%)

±Some women answered more than 1 category.
*Most women who selected 'other' commented that they had decided themselves, with 84% of this group stating reasons like "own initiative", "wanting to know", "be in control" and "for reassurance". Just 2% indicated that they were self-monitoring because they were worried.
P values were calculated as follows: Hypertensive women were more likely to report that clinicians (Dr, Nurse or Midwife) suggested self-monitoring (P≤0.0005). Hypertensive women were more likely to be report sharing or sometimes sharing their readings with health care professionals than normotensive women (P≤0.0005).