

## Improving management and effectiveness of home blood pressure monitoring:

a qualitative UK primary care study

### Abstract

#### Background

Self-monitoring blood pressure (SMBP) is becoming an increasingly prevalent practice in UK primary care, yet there remains little conceptual understanding of why patients with hypertension engage in self-monitoring.

#### Aim

To identify psychological factors or processes prompting the decision to self-monitor blood pressure.

#### Design and setting

A qualitative study of patients previously participating in a survey study about SMBP from four general practices in the West Midlands.

#### Method

Taped and transcribed in-depth interviews with 16 patients (6 currently monitoring, 2 used to self-monitor, and 8 had never self-monitored). Thematic analysis was undertaken.

#### Results

Three main themes emerged: 'self' and 'living with hypertension' described the emotional element of living with an asymptomatic condition; 'self-monitoring behaviour and medication' described overall views about self-monitoring, current practice, reasons for monitoring, and the impact on medication adherence; and 'the GP-patient transaction' described the power relations affecting decisions to self-monitor. Self-monitoring was performed by some as a protective tool against the fears of a silent but serious condition, whereas others self-monitor simply out of curiosity. People who self-monitored tended not to discuss this with their nurse or GP, partly due to perceiving minimal or no interest from their clinician about home monitoring, and partly due to fear of being prescribed additional medication.

#### Conclusion

The decision to self-monitor appeared often to be an individual choice with no schedule or systems to integrate it with other medical care. Better recognition by clinicians that patients are self-monitoring, perhaps utilising the results in shared decision-making, might help integrate it into daily practice.

#### Keywords

hypertension; motivation; primary care; qualitative; self-monitoring.

### INTRODUCTION

Raised blood pressure (BP) is a key risk factor for cardiovascular disease, the leading cause of death worldwide.<sup>1</sup> Findings from international and national surveys consistently report substantial under-diagnosis, under-treatment, and poor rates of BP control around the globe with poorest control rates seen in Europe.<sup>2</sup> In the UK, despite some improvements in BP levels over recent years, nearly half those with hypertension do not have optimum control.<sup>3,4</sup> These results concur with international community-based studies showing BP goals are achieved in only 25–40% of patients on hypertensive drug treatment.<sup>3,5</sup>

Self-monitoring of blood pressure (SMBP) by patients at home is one strategy whereby hypertensive patients can participate in managing their condition. Availability of easy-to-use electronic devices has made this simpler, resulting in steadily increasing adoption rates in the UK.<sup>6,7</sup> These results are validated by estimates from GPs completing a web-based survey that found that around a third of their patients self-monitored.<sup>8</sup>

There is now clear evidence from clinical trials that self-monitoring leads to clinically significant reductions in BP.<sup>9,10</sup> This is further supported by an increasing body of qualitative evidence showing patients want to understand more about their hypertension<sup>11–14</sup> and establishes

links between self-monitoring and tele-monitoring with medication adherence.<sup>15–19</sup> Two UK-based randomised controlled trials with embedded qualitative studies support the utility of self-monitoring, though authors do note that participant selection may also have inclusion bias.<sup>15,16</sup> These studies suggest patients felt confident about self-monitoring, trusting multiple home readings more than a single office-based reading, and that self-monitoring as part of the tele-monitoring intervention helped patients feel more engaged in the clinical management of their condition.<sup>16</sup> However, the self-titration of medication aspect of one of the interventions was met with less enthusiasm despite the effect it had on BP.<sup>20</sup> Notwithstanding this evidence, uptake rates in the UK are lower than those seen internationally.<sup>21–23</sup> The present study therefore aimed to identify the motivational factors or psychological processes prompting the uptake of SMBP in a UK primary care hypertensive community-dwelling population and differed from previous work embedded within trials or of populations in countries where health beliefs and healthcare systems are not applicable to UK populations.<sup>18,19,24</sup>

### METHOD

#### Study design, participants, and recruitment

Primary care patients with hypertension registered in one of four general practices

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### How this fits in

Self-monitoring blood pressure (SMBP) empowers patients in the clinical management of hypertension but uptake rates are slower than that seen internationally and it is unclear why. Patients are currently SMBP with little or no supervision and poor outcome expectations about self-monitoring could undermine their motivation to self-monitor in the long term. Utilising patients' results within the clinical consultation and subsequent decision-making is perhaps necessary to sustain patient motivation to self-monitor.

in the West Midlands, who had responded to a previous survey of SMBP,<sup>7</sup> were purposefully sampled with the aim of recruiting 'maximum variation' within the sample to provide a range of different demographic backgrounds (age, sex, ethnicity, employment status, and diabetes status) and both those who did or did not currently self-monitor.<sup>25</sup>

Forty-four of the original survey respondents who had agreed to take part in a further study and had left complete contact details were identified. From those, 16 participants were enrolled through purposive and convenience sampling until thematic saturation was reached, that is, no new information was obtained after the 16th participant.<sup>26,27</sup>

### Interviews

Following written consent, one-to-one depth interviews were conducted with each participant and lasted 30–60 minutes.<sup>28</sup> Interviews took place within participants' homes and were audio-taped with field notes; each recording was subsequently transcribed verbatim. Using a brief questionnaire format, demographic data were collected on sex, ethnicity, educational level, and marital status.

A brief topic guide, informed by the objectives of the study, was used to direct questioning, allowing more focus than the conversational approach, while also allowing a degree of freedom and adaptability in obtaining the information from the interviewee. The set of issues that needed to be covered (contextual life-world/illness experience, home monitoring experiences) were broadly consistent for all participants. Questioning remained flexible to allow for full probing of any relevant issues raised spontaneously by the interviewee but ensuring the interview captured all aspects

of the patient's experience of the condition and home monitoring BP.<sup>29</sup>

Interviews were conducted iteratively, that is, questions were developed, tested, and then refined based on what was learnt from asking people these questions during the preceding interviews.<sup>30</sup>

### Analysis

Each transcript was checked for accuracy against the tapes. Respondent validation was sought by sending participants a summary of their interview and asking them to complete a written postal feedback evaluation form to confirm mutual agreement about the accurate interpretation of the content of their interview. Transcripts and field notes were subsequently read to identify the main themes and subthemes.<sup>31</sup>

Initial themes were identified independently and discussed among the authors, followed by theme development and refinement using a constant comparative method derived from grounded theory.<sup>32</sup> A brief synopsis of each interview highlighting the themes was entered on an Excel chart to enable comparison for understanding and interpreting the data. Responses from those who were non-monitors were compared with those who currently or had previously monitored to assess similarities and differences.

Data collection and conceptualisation continued until categories and relationships were 'saturated', that is, no new data from analysis of subsequent interviews were being added to the developed themes.<sup>26</sup>

## RESULTS

### Participants

Nine females and seven males were interviewed, with ages ranging from 49–80 years, including white British, South Asian, and African Caribbean ethnicity, a range of employment status and deprivation, and including those who did and did not self-monitor (Table 1).

### Main themes

Emerging themes were organised under three main headings: 'self and living with hypertension', 'self-monitoring behaviour and medication', and 'the GP-patient transaction' with a further focus of identifying similarities and differences between self-monitors (SMBP) and non-self-monitors (non-SMBP).

*Self and living with hypertension.* Participants' own role in looking after personal health was commonly expressed irrespective of whether they self-monitored

**Table 1. Participant characteristics**

Interviewee number	Age, years	Sex	Ethnicity	Qualifications	Employment status			Marital status (others in household)	Monitors blood		
					status	H	D		Monitors BP	sugar	IMD/Q <sup>a</sup>
1	68	F	White	No formal	Retired	Y	N	Married	Y	N	1
2	76	F	White	No formal	Retired	Y	N	Married	Y	N	2
3	79	M	Black/Caribbean	No formal	Retired	Y	Y	Lives alone	Y	Y	1
4	62	F	White	No formal	P/T	Y	N	Shared accommodation	Y	N	1
5	74	M	White	Trade apprenticeship	Retired	Y	N	Married	N	N	2
6	65	F	White	Nursing	Retired	Y	N	Married	Y [Used to]	N	3
7	49	F	White	No formal	Unemployed	Y	N	Married	Y [Used to]	N	1
8	66	M	White	No formal	Retired	Y	Y	Married	N	N	2
9	77	F	White	No formal	Retired	Y	N	Married	N	N	1
10	59	F	White	None	P/T	Y	BL	Married	N	N	1
11	80	M	White	Primary school	Retired	Y	No	Married	N	N	4
12	66	M	White	Primary school	Retired recently	Y	No	Married	N	N	2
13	69	M	Black/British	No formal	Retired	Y	Y	Married	N	Y	1
14	52	F	Asian	Teaching	F/T	Y	No	Living with partner	Y	N	2
15	72	F	Asian/Sikh	A-Level equivalent	Retired	Y	No	Widowed	Y	Y	2
16	78	M	Asian	Nursing quals	Retired nurse	Y	No	Lives with family	Y	N	2

<sup>a</sup>IMD = Index of Multiple Deprivation 2010 based on patient postcode, Q (quartile score) based on ranking of 32 482 Super Output Areas. BL = Borderline. BP = Blood pressure. D = Diabetes. H = Hypertension. N = No. Y = Yes.

or not and was framed within a variety of lifestyle-improving health behaviours:

*'... I wanna keep fit so I walk to keep fit because I'm a great believer of if don't use it you lose it, so I do walk a lot I mean it's getting more and more difficult the older I'm getting but I'm still doing it, and while I can I will, but I think that helps the blood pressure as well.'* (P1, SMBP, 68 years)

The long-term nature of hypertension treatment seemed to manifest in minimal concern emotionally about having high BP:

*'I mean over 30 years things have changed you know and perhaps things could be altered now, but I was told at the time [of diagnosis] that you will have to take these tablets for the rest of your life.'* (P2, SMBP, 76 years)

*'I'm not worried about high blood pressure, I can't be, there is enough to worry about in life.'* (P6, SMBP (used to), 65 years)

Low concern was more prevalent in older patients irrespective of whether patients self-monitored or not:

*'I just give it up if I think I can't control it ... see when you reach the age of where I am there is nothing, if you cannot solve the problem leave it.'* (P3, SMBP, 79 years)

*'... well when you have been taking*

*something for 20 years, you think well it's great don't you and you think well that's the answer but I dunno.'* (P5, Non-SMBP, 74 years)

For those not self-monitoring, taking medication appeared to act as a protective mechanism enabling patients to forget they had high BP:

*'... otherwise it's [high BP] never had any real effect on me, I don't think you know not psychologically or anything like that you know I've never really took that much notice I just take my tablets and get on with life.'* (P8, Non-SMBP, 66 years)

*'... no not really, no I don't really think about it [having high BP] other than taking medication.'* (P10, Non-SMBP, 59 years)

Though patients had minimal concerns about living day to day with hypertension, a great deal of concern ensued about the long-term consequences of having hypertension:

*'... yeah but I think stroke is one of them ... well we have had quite a lot of heart trouble in the family and also strokes and I think that's why it's important that I watch my blood pressure because of strokes.'* (P1, SMBP, 68 years)

*'I know that if it's too high it can cause heart attack or a stroke which I was warned when they first found out that I had got high blood*

*pressure ... because you see my father died with a stroke and he used to suffer with bad headaches and I used to think well is it anything to do with it ... you will either die with stroke or heart attack' (P2, SMBP, 76 years)*

Measuring BP at home allowed people to feel more in control and appeared to alleviate worry caused by the uncontrollable aspects of an asymptomatic condition:

*'... yeah and the doctors I think you know knowing that both of them [parents] had strokes and also had high blood pressure ... it was fear because I didn't want a stroke ... yes it ... I'm not so worried now.' (P4, SMBP, 62 years)*

*'... it is very important extremely important because high blood pressure is a silent killer and you could have a stroke or cerebral haemorrhage if suddenly it's gone up so therefore it's important the person should be closely monitored either taught by medical staff or frequently checked.' (P16, SMBP, 78 years)*

#### *Self-monitoring behaviour and medication.*

Opinion diverged about taking medication. Those not self-monitoring were more laid-back about having high BP and accepting of taking medication to control it. Those self-monitoring, however, appeared to do so as a means to delay seeking treatment:

*'... my friend said you must go the doctors and get medication. Because I'm not a tablet person all my life I don't pill pop I don't like all the pills people take. Do you know what I mean? Pain killers, things like that ... so I didn't want to go the doctors at first I did try other things before I went to the doctors because I didn't want to start on the pill march, you know, like you start at a certain age everybody's taking pills you know.' (P4, SMBP, 62 years)*

The most described reason for self-monitoring was for reassurance that treatment was working in helping to control blood pressure:

*'... it's a safeguard in a way ... I get peace of mind to know that my blood pressure is more or less they say on a level.' (P2, SMBP, 76 years)*

*'... say if the person that doing it know he has a high reading then he will worry, but if you got somebody who don't know they would worry them because they don't know,*

*because it's high they don't know, they don't care and then they die.' (P3, SMBP, 79 years)*

There was however concern from some about what they would do if they obtained a high reading. One participant who was a retired nurse stated:

*'... well it entirely depends on the person ... you could recommend it to someone who was a bit of a hypochondriac type and if they got a reading that was just a little bit you know it would depend on how well I knew the person ... if you recommend it to a patient who was highly strung anyway and they see it's say only a couple of digits above what it should be they would go into a blind panic and get high blood pressure anyway.' (P1, SMBP, 68 years)*

Uncertainty about interpretation was irrespective of whether participants self-monitored or not:

*'... otherwise from knowing what your blood pressure is I don't see it as any benefit to the patient because you know it's knowing that it's high or low it don't really give you, well peace of mind.' (P13, Non-SMBP, 69 years)*

*The GP-patient transaction.* A distinct two-way perceived 'transaction' between the GP and patient was often described. The strength of equality in these roles for managing BP appeared to be on a spectrum from a passive recipient of care to independent carers of their own condition, with previous experience in diabetes leading to more independence:

*'... because it's going to go up at times isn't it according to the way you are and I am the age I am the doctor takes more care of us ... I have been quite a lot because I have had a lot of other things wrong and he always says let me take your blood pressure.' (P9, Non-SMBP, 77 years)*

*'I think what it is I don't think he wanted to start me on blood pressure tablets because he knows that I would have been on them on for life if you know what I mean, I think that's why he was trying to let me do it myself if you know what I mean.' (P7, SMBP (used to), 49 years)*

*'... oh yes I virtually self-regulated from day one I went they put me on insulin and then the nurse at [health centre] said that you can adjust it and told me how to adjust it and ever since then I go back to my own*

doctor for the check for the blood tests and everything but I do monitor and do adjust it myself.' (P8, Non-SMBP, 66 years)

Although clear positive benefits for self-monitoring were described by patients, a mismatch existed between these beliefs and actual patient behaviour regarding communication with the GP and/or healthcare professional (HCP).

Those not self-monitoring felt strongly that it was a relatively redundant practice unless there was feedback from readings given to the GP:

'... no, see that's what I mean unless there is feedback to the doctor then it's a peace of mind. But you're still not ... the doctor can't really monitor as such ... if my blood pressure is high, if it's really high then I should make an appointment to go and see my GP but otherwise then, I haven't got any medical experience, somebody to advise me what to do if it is high or low.' (P13, Non-SMBP, 69 years)

'... with blood pressure you'd put it in the chart then and you would go back to the GP but you need the feedback because I could wait and wait or it's going somewhere into a pile and it's a waste of time that you are doing it'. (P3, SMBP, 79 years)

In contrast, many patients currently self-monitoring, did so independently without telling their GP:

'... this [points to written readings] no I don't think he knows that I use it ... no I did tell him that as I say it was the end of August with that funny turn that I had I did tell him that I took my own blood pressure and it was high but he didn't question me about it or say well how did you do it or whatever I suppose he just presumed.' (P1, SMBP, 68 years)

'I haven't ever taken readings to my doctor ... I don't know ... no should I take it to them?' (P4, SMBP, 62 years)

'... well I don't know whether the doctors like you doing it yourself or not but ... I never seem to tell them.' (P2, SMBP, 76 years)

When questioned, such reluctance to share readings appeared to relate to fear, partly from not knowing the benefits of seeking help and partly due to the assumption that all the GP could do was to put them on more or stronger medication:

'... yes if it was going to help [seeking help]

I don't know what good it would do but I would ask about that you know, does my blood pressure readings over the next 12 months ... what's that going to do how is that going to help anybody because I can't do nothing about my readings can I and it would concern me if it went up and down a little bit he would say well I am going to put you on stronger drugs.' (P12, SMBP, 66 years)

'I think what it is I don't think he wanted to start me on blood pressure tablets because he knows that I would have been them on for life if you know what I mean I think that's why he was trying to let me do it myself if you know what I mean because I don't want to be on medication for life.' (P7, SMBP (used to), 49 years)

If high readings were obtained, participants described self-directed methods of interpreting values:

'I monitor about once a week unless I have a high reading and if I've got a high reading then I'll do it as I said I will rest for a bit and then do it again.' (P1, SMBP, 68 years)

'... yes it wasn't that easy to use at first but I worked it out and I must admit messed it up about twice and then I got it to come to what I wanted ... if it's nearer to what I put down first then I could check that it was closer to what it was before ...'. (P2, SMBP, 76 years)

'... well if I am using the machine and I get a high reading it's either my position I'm doing something wrong because I go between what I'm supposed to have and what I get, so if I get so high that thing then I'll do it again because it's either me or the machine.' (P3, SMBP, 79 years)

None of the participants attributed a higher than usual reading as a cause for concern and therefore did not state a need to go and see a doctor. This is in contrast to what non-self-monitors believed would be the most obvious next step:

'... well if you did it at home if you're worried about it you would probably see the doctor wouldn't you ... sometimes I can go months because I just get a repeat prescription.' (P5, Non-SMBP, 74 years)

Probing this aspect further, participants described receiving little enthusiasm from their GP when seeking BP-related information, and displayed uncertainty about how to interpret high readings:

*'I was hoping that because I'm going on a new pill I'm hoping that you come to a stage where you might wean off kind of thing ... but if you talk to him he says no.'* (P5, Non-SMBP, 74 years)

*'... probably that would be good [provision of information] because you know definitely what it is when it's going up and down but you would be back to the same thing which we know what the GP can do but that's not really what I like but can't be helped that's more medication stronger medication.'* (P13, Non-SMBP, 69 years)

Lastly, the regularity of self-monitoring seemed eventually to reduce over time to a one-off basis or only on the 'experience of symptoms'. Participants no longer monitoring revealed their reasons for not monitoring any more:

*'I just got bored with it was just a toy, that's what I do, you know what I do I pop things and get bored ... after 6 months.'* (P7, SMBP (used to), 49 years)

*'... initially it was I think it was every day just kind of seeing what the measurements would be and how is effective I was quite interested on the blood pressure.'* (P14, SMBP, 52 years)

## DISCUSSION

### Summary

The data presented here suggest that the decision to SMBP is primarily driven by the need for reassurance due to living with a largely asymptomatic condition requiring lifelong medication. Perceived lack of faith in, or suspicion of, a clinical diagnosis based on clinic BP appears to be a secondary driver. Self-monitoring was performed by patients to gain some control over their condition; however, few perceived benefits or purpose for engagement thereafter. Such lack of interaction with the HCP could therefore be leading patients to be falsely reassured.

### Comparison with existing literature

Other studies confirm that patients generally view self-monitoring as a positive strategy,<sup>14,33</sup> are highly motivated, empowered, and feel reassured by self-monitoring. Findings from a UK-based qualitative study of patients who have had a stroke mirror those found in the present study about patients' self-directed methods and use of self-monitored data for interpreting results.<sup>14</sup>

The present study also confirms former study findings of a reluctance on the part

of patients to communicate with clinicians when an elevated reading is found.<sup>11,14</sup> A perceived lack of interest from health professionals regarding self-monitoring resonates with findings from former studies of older adults,<sup>12</sup> and in studies exploring other parameters for patients with diabetes.<sup>34,35</sup>

The present study provides further insight into reasons for the reluctance to share or communicate SMBP results and brings new information to the foreground about the existence of fears about being prescribed more medication, and the relationship with self-monitoring. It is suggestive from these findings that self-monitoring as it currently stands is potentially being pursued as a way of delaying seeking treatment for high blood pressure.

Some well-known behaviour change theories provide important perspectives on the factors that promote self-control including Social Learning Theory,<sup>36</sup> the Health Belief Model,<sup>37</sup> the Theory of Planned Behaviour,<sup>38</sup> the Transtheoretical Model,<sup>39</sup> and the Protection Motivation Theory (PMT).<sup>40</sup> Such models recognise the importance of strengthening the factors and processes that predict and prompt behaviour change. Different theoretical perspectives posit different precursors to behaviour adoption, change, and maintenance, with varying evidence base. In the present study, patients appeared to be driven by fear of the consequences of hypertension, seeing self-monitoring as a way of taking more control, and protecting them from experiencing fear.<sup>40</sup> The present study finding that patients perceive potential medication *increases* should they present self-monitored readings to their clinician is in fact contrary to empirical evidence showing home monitoring led to more frequent antihypertensive medication *reductions* when fed back.<sup>41,42</sup>

There is, it appears, a distinct problem with the transfer of self-monitored data from patient to health provider, and a notable misconception that SMBP should be performed to delay seeking treatment. Falsified reassurance has been formerly described in a Canadian study of older adults where patients perceived that the very act of self-monitoring was itself preventive against heart attacks or strokes.<sup>12</sup> In the UK, outside trials, only one small UK practice-based study describes an efficient communication feedback system, though, even then, patients described insufficient feedback or guidance on normal pressure levels.<sup>11</sup> The present study suggests that patients are not clear about what they hope to gain from

self-monitoring, or have any measurable outcomes or schedule for home monitoring. This is at odds with previous results from one of our former studies demonstrating a clear opportunity being missed for self-monitoring within hypertensive populations.<sup>7</sup>

Although the uptake of self-monitoring appears to be increasing in the UK, rates remain well below those seen internationally.<sup>6,7,21-23</sup> The findings of the present study indicate that current practice for patients with hypertension is largely unsupervised. Although patients are confident in their ability to self-monitor, they appear to lack insight as to what it might achieve and hence are reluctant to share the results. This could be partly influenced by differing models of care to that seen internationally (specialist versus generalist primary care) and partly due to concerns that it will simply lead to increased medication if disclosed. Patient motivation to sustain self-monitoring thus appears to wane quite quickly rather than leading to an enhanced doctor-patient interaction and the development of an expert patient role.

#### **Strengths and limitations**

Participating practices may have been more interested in self-monitoring leading to undue bias towards the practice. However, the majority of participants in this sample had not had any communication with their GP and/or HCP about self-monitoring, yet half had self-monitored or were self-monitoring. Nevertheless, patients recruited from other GP practices in surrounding areas may have had different study outcomes. Prior knowledge about self-monitoring policies at the practices would therefore have helped validate the strength of the conclusions of this study.

Second, no conclusive statements regarding patients' motivations to self-monitor and existing behaviour can be made, as qualitative methodologies are typically used to generate rather than test hypotheses regarding unexplored observations. Nevertheless, the current qualitative study opened up consideration of the perceptions held by this sample about self-monitoring and the motivational factors associated with this behaviour.

#### **Implications for practice and research**

Using a simple automated BP monitor at home has well-recognised benefits for patients, yet a lack of supervision of monitoring practices outside the clinic and poor communication of self-monitoring data to GPs highlight problems in integrating this into usual care. Consequently the potential

benefits of implementing such technology with shared decision-making between the patient and the GP are currently being lost.

Changing patient conceptions is a key priority if patients are to continue monitoring in the longer term; however, this will require encouragement and support from health professionals. Poor guidelines, lack of self-monitoring protocols, and suboptimal interpretation by health professionals of home BP readings are just a few reasons suggested by recent literature to explain why patients are currently met with a relative lack of enthusiasm when presenting HCPs and/or GPs with home monitoring data.<sup>8,15</sup>

A more effective approach to successful integration must be adopted through theoretically based patient education guiding clinicians and patients through collaborative and shared discussions of patients' priorities, treatment planning, specific goals, and follow-ups. Such active consultations within a 'shared decision-making approach' are increasingly being observed in hypertension consultations.<sup>43,44</sup> In the same way that these guides have been evaluated in research, the same is necessary in real clinical practice. Novel solutions to take this forward might consider using Normalisation Process Theory (NPT), which can be used to explain processes in health care relating to new technologies and complex interventions.<sup>45,46</sup> Using approaches such as NPT and other theory-based implementation models such as the Behaviour Change Wheel<sup>47</sup> enable critical thinking about how technologies and interventions can be effectively integrated into modern-day health care, and are a major consideration for further study.

Web-based, nurse, or pharmacist support are promising feedback-based interventions being investigated in the US,<sup>18,19,48</sup> to help achieve a congruence in beliefs, practices, and behaviour, and demonstrate the importance of patients feeling that their primary care provider is involved in the care of their hypertension; however, they are yet to be investigated fully in the UK.

This study suggests that SMBP is currently under-supervised and the benefits are poorly understood. If SMBP is to be successfully integrated in hypertension management, patients must feel confident and ready to respond to the outcomes brought about from measuring BP outside the clinic. Effective interpretation of such information remains the challenge for HCPs; shared reciprocity and active healthcare decisions are a promising start to potentially remove any barriers and misconceptions that could be preventing monitoring being maintained in the long term.

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#### **Ethical approval**

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#### **Provenance**

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#### **Competing interests**

The authors have declared no competing interests.

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