

Using the Consolidated Framework for Implementation Research to describe the implementation of Patient Reported Outcome Measures (PROMs) in routine primary care

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Abstract

Background

The recently announced long-term plan for the NHS is based on a model of person-centred care which relies on the sustained engagement of patients, shared decision making, and capability for self-management. It is of particular importance to a primary care service under increasing pressure from an ageing and chronically ill population. Patient Reported Outcome Measures appear capable of supporting many of the requirements of this model yet we know little of the circumstances of their current implementation or how their use might be optimised.

Methods

We conducted a series of semi-structured interviews with general practitioners across England that explored their experiences and preferences for the use of Patient Reported Outcome Measures (PROMs). We then used a post-hoc deductive analysis of the data to populate the consolidated framework for implementation research and provide a systematic description of their existing implementation and the ways in which it can be optimised and sustained.

Results

A total of 25 interviews were conducted. The Consolidated Framework for Implementation Research highlighted a number of areas that need to be addressed if PROMs are to fulfil their potential to support person-centred care. These include a lack of evidence that they offer any advantage especially if universally deployed in patients possessing a range of backgrounds, preferences and needs. Busy staff were also hesitant to produce more data that might require a response and prioritise their use in already brief consultations. A lack of training and engagement was also apparent both of which were symptomatic of the lack of a guidance in their use from within their practice, Clinical Commissioning Group or across the wider primary care system.

Conclusions

Though PROMs can be readily integrated into IT systems and may help support patient engagement General Practitioners will not embrace their use until a compelling body of evidence of their benefit is created, and staff are engaged in when and how they are used. Appropriate training for staff and patients is then required funded as part of a coherent implementation strategy led by commissioning groups and policymakers.

Contribution To The Literature

- Patient reported outcome measures can engage patients and support personalised care and this is amongst the first studies to apply a prominent implementation framework in support of their routine use in primary care.

- We found resistance to the use of PROMs due to the lack of clear evidence of their benefit, integration into existing systems, or appropriate training and engagement of staff.
- Our findings provide valuable insight into the barriers and facilitators of a more systematic adoption of PROMs into clinical care to help focus the efforts of commissioners and policymakers.

Introduction

In 2019 National Health Service(NHS) England launched their long term plan for the future of health care [1]. Designed to meet the increasing complexity of people’s needs and expectations, it is considered particularly important to primary care where it is hoped it can ease the mounting pressure on clinicians and help secure the future of the service [2]. At its centre is a model of person-centred care which recognises that the priorities, preferences and capabilities of individual patients must be understood and utilised[3]. For this model to succeed then ways must be found to improve and sustain its various components which include patient engagement, health literacy, communication with clinicians, and the overall capability to self-manage [4].

One set of tools that appear capable of supporting these multiple requirements are patient reported outcome measures (PROMs) [5, 6] the brief questionnaires designed to be completed by patients to assess their perceptions about the effects of disease and treatment on symptoms, functioning and quality of life [6-8]. Originally used for research or as a means of audit or benchmarking [6, 9, 10] there has been a recent shift both internationally [11, 12] and in the United Kingdom [9, 10] toward the incorporation of PROMs into care at an individual patient level [13, 14] (see the Template for Intervention Description and Replication (TIDieR) Checklist, Additional File 1). Evidence is emerging predominantly in secondary and ambulatory settings that using PROMs can lead to improved levels of shared-decision making and the delivery of care more responsive to individual needs [6, 8, 14, 15]. The apparent efficacy and versatility of PROMs has seen them introduced in increasing numbers to primary care used primarily by general practitioners (GPs) for a variety of reasons that include facilitating discussions between patients and clinicians, and assessing the severity of symptoms (see Table 1).

Despite the broad scope of their use we know little of how successfully PROMs have been integrated into primary care or of the benefits that result [16]. However, if their potential for systematically supporting person centred care is to be realised then we must first understand the factors impacting their existing implementation including the influences of patients, providers and organisational context [4, 5, 14, 17-21]. Identifying and understanding the contextual influences on implementation within the complicated and shifting environment of modern healthcare [22, 23] has led to recommendations for a framework-based approach [24, 25] and one which has successfully unpicked this complexity across multiple healthcare settings [26] is the Consolidated Framework for Implementation Research (CFIR) [27, 28]. This permits researchers, commissioners and policymakers a structured interpretation of the implementation process

using five domains ranging from the characteristics of an intervention to the overarching processes and policies guiding its use [26].

Here we report our findings from a series of semi-structured interviews with general practitioners conducted as part of a mixed method investigation of PROM use in United Kingdom (UK) primary care [29]. We used a *post hoc* deductive analysis to populate the CFIR and produce a systematic description of the influences on the existing use of PROMs, providing evidence of the key areas which must be addressed if they are to be successfully implemented in the service of person centred care and the long term future of the NHS.

Methodology

Design

We used a series of semi-structured interviews with GPs across England and a deductive content analysis [30] to populate the domains of the CFIR framework [27] to present GPs' perceptions of the value and use of PROMs in primary care.

The Consolidated Framework of Implementation Research

The CFIR was developed by Damschroder in response to the proliferation of framework-based approaches intended to support implementation but whose diverse nomenclature threatened to confuse potential users [27]. It consists of 39 constructs collated from 17 different frameworks presented within five key domains: (1) Intervention Characteristics, relating to the design and development of the intervention; (2) Outer Setting, referring to the influence of the environment external to the organisation; (3) Inner Setting, describing factors integral to the organisation; (4) Characteristics of Individuals, consisting of the knowledge and beliefs of stakeholders; and (5) Process of Implementation which entails the planning and management of the implementation. The CFIR has been successfully used in the post-hoc deductive analysis of qualitative data [30] and its conceptual clarity has enabled it to capture the complexity of implementation at multiple sites and in various settings [26] including self-management support programs [31], oncology [32], and service level interventions [14, 33].

Qualitative interviews

Recruitment and consent

Participants were recruited in two ways. Firstly, GPs were invited to take part in a survey through Doctors.net.uk an online network of GPs from across the UK [34]. One hundred practicing GPs completed the electronic survey at the end of which they were asked to indicate their willingness to participate in a semi-structured interview. Secondly, GPs were recruited through convenience sampling [35] identified by members of the research team one of whom was previously known by the interviewer IL. All interviews were conducted via telephone and verbal audio-recorded consent was taken prior to the commencement

of each interview. Our intention was to conduct a minimum of 25 interviews considered an appropriate sample size for a study of this type [36].

Data collection

All interviews were conducted one to one between June and September 2018 using an interview schedule that included questions on which if any PROMs were used by each participant or members of their practice team, and why (see Box 1). They took place via telephone for the convenience of participants by the first author (IL), a Research Fellow employed by the University of Birmingham trained and experienced in qualitative research, and proceeded until 25 interviews had been conducted by which point data saturation was reached [37]. All interviews were digitally recorded and transcribed verbatim by a professional transcription company and the data managed using nVivo 10 (<https://www.qsrinternational.com/>) (See Consolidated Criteria for Reporting Qualitative Research (COREQ) Checklist Additional File 2).

Analysis

The five domains and sub-constructs of the CFIR were used as a framework for a deductive content analysis [30] conducted by IL and SG, the latter also has extensive experience in qualitative research. The transcripts were analysed independently by IL and SG. In both instances the data was searched for text relating to the framework and the issues that emerged within each of the five domains were discussed and agreed upon by both.

Results

Of the 25 GPs interviewed all 18 that expressed an interest in being interviewed following the survey were recruited with a further 7 recruited from convenience sampling [35]. They had a range of clinical experience and were employed at 25 practices across England representing 21 different Clinical Commissioning Groups (CCGs). Two thirds were male (14) and the number of years qualified ranging across participants from 2 to 33. The interviews lasted from between 18 and 59 minutes with an average length of just under 29 minutes. Table 2 summarises participants' characteristics and practice location by region.

Within the five domains of the CFIR framework we populated each pre-existing construct that was shared by our data with the issues that emerged from our discussions with GPs. The domain, existing construct (with definition) and emerging issues are summarised in Table 3 and below we provide a description of each domain, the relevant construct and exemplar quotes for each theme.

I. Intervention characteristics

The characteristics of the intervention describe its' core components as well as the adjustable elements, structures and systems into which they are implemented [27]. In this context our participants discussed

issues within existing constructs relating to the evidence base (for PROMs), the relative advantage they afford, their adaptability, and the complexity and overall quality of their design.

Evidence strength and quality

There is a perceived lack of evidence of the efficacy of PROMs in primary care whether for improving patient satisfaction or outcomes, or on wider service utilisation. For example, one GP described how they would prefer to see some examples of where they have been used effectively.

“If there were validated tools which were validated and evidence based to show improved quality of care that would be helpful. Not only that but we were informed of what their value was and given some examples of how they worked... I think in modern medical culture evidence- based medicine is very important, so if there’s something with evidence we can use it.” GP8 (study ID), Male (gender), 28 yrs qualified (years since qualifying as a GP), South East (region)

Relative advantage

GPs described the advantages of using PROMs in comparison to standard care in a number of different areas; for example, PROMs helped provide a framework for shared-decision making.

“It does help direct the discussion regarding future management, especially the mental health patients because it allows them to objectively score how they feel and what’s going on, and allows me to help discuss treatment options with them.” GP12 Male, 4 yrs qualified, West Midlands

Another benefit of using PROMs as part of a consultation was their ability to provide quantitative evidence in support of a particular course of action.

“I think they are quite useful nowadays when patients want reasons for things - I don’t blame patients for that at all, it’s perfectly reasonable - but you’ve got to be able to justify your actions...we should be able to justify our actions, and they are quite useful tools in that.” GP5 Female, 20yrs qualified, North East

One GP remarked on the potential use of PROMs as a robust method of gathering patient views in the evaluation of a new service.

“Yeah, I think every time we think about launching a new community service where you’re effectively offering a service that’s on paper offering ‘comparable quality of care with better access, faster turnaround...’ you’ve got to then seek feedback of outcomes for patients, do they agree with your hypothesis? So I think it very much applies to the launch of new services.” GP17 Male, 4yrs qualified, West Midlands

The use of PROMs is not confined solely to GPs and their value as prompts and support for other clinical staff on the practice team was also described.

“Advanced nurse practitioners and practice nurses perhaps might be more inclined to use them, they might be a bit less confident about their underpinning medical knowledge. They work on commonality although we’ve got some excellent clinicians amongst them, they don’t have the rare and the unusual learning background, so they might be more likely to use them...” GP20 Female, 31yrs qualified, North West

Adaptability

Our group described how the majority of PROMs were completed as paper copies while noting the ease with which they might be transferred to digital platforms. One GP described how being able to capture patient responses electronically would enhance their usability.

“I think they clearly need to be captured in a coded way; they need to be capturable, potentially independent of the consultation. So I don’t think a PROM captured as a result of “now I’ve done your diabetic check are you satisfied with it?”, is necessarily a valid or appropriate way of doing it. I know that there are quite a lot of systems used for texting patients to remind them of their appointments or to ask them to book appointments, and I would think building the PROMs into those platforms so it’s automated and not time consuming to collect them is probably the best way to go.” GP1 Female, 29yrs qualified, South East

Complexity

A number of participants felt that the time it takes to complete, analyse, and usefully integrate the additional sources of information provided by PROMs could impact on their use.

“Yeah, in a pressurised rushing surgery and you’ve only got ten minutes the person usually would need at least 20 minutes to solve their issues, and if you were to include a questionnaire on top of that you would be definitely talking about 30 minutes at least, and you can’t afford to be doing that on a regular basis. You can do it as a one off thing and then you have an idea, but you would be pressurised to just do things quickly...” GP2 Male, 10yrs qualified, North West

Design quality

The lack of an engaging narrative from policymakers or commissioners as to why PROMs were appropriate was described. One GP noted how their branding or presentation could be improved to positively influence attitudes to their uptake.

“...it’s putting it in a lively interesting way that isn’t telling me “this is something I have to do as part of my job”, and it’s not yet another mandatory training that’s just shit awful that I have to sit through for three hours every three years... So making it so that it’s something that people might want to look at, “Look at this! This is interesting!” GP20 Female, 31yrs qualified, North West

II. Outer setting

The outer setting domain relates to the economic, political, and social context within which the organisation sits [27]. Our participants described issues that fall into two constructs previously identified within this domain, patient needs and resources, and the influence of external policy and incentives.

Patient needs and resources

Dependent upon location and the demographic of the local population, the ability of patients to understand the concept of a PROM or its constituent items varied. One GP described the difficulties of using PROMs in populations with poor levels of literacy.

“I do work in a slightly deprived population so we do come across some patients who can’t read or write, or who may not have a good understanding of English, so may not fully understand the questions that are being asked of them.” GP12 Male, 4yrs qualified, West Midlands

Concern was expressed about how the reliability of a PROM might be undermined when completed by patients willing to manipulate the output to serve their own ends.

“I think it would be a waste of time to give a hypochondriac frequent attender a questionnaire about all of their conditions, because then you have to document - sorry for being so honest - but if you have to document your hypochondriac scores for the marks on depression ... because people are capable of exaggerating on questionnaires, and if there is the type that is a healthy predisposition to do so then I think that’s another can of worms for us.” GP13 Male, 10yrs qualified, South East

Another reason why it was felt patients might filter their responses was to provide the answers they believe the clinician would prefer.

“...sometimes the patient can fill them in with what they think the clinician might want them to say rather than what they actually feel. So sometimes patients can underplay their symptoms, and equally sometimes patients can overplay their symptoms if there might be some perhaps secondary gain for them in terms of certification from work or whether they want some help with some other part of their care. So I think they can potentially be a bit skewed by that.” GP19 Male, 8yrs qualified, West Midlands

A growing number of patients have multimorbidities [38] and some GPs voiced concerns that using a PROM directed toward a single condition would not produce a reliable result for these patients.

“I think there’s that whole issue of multi-morbidity, and not actually capturing what you want to capture because it’s so hard to tease out what that issue of diagnostic overshadowing what condition is causing what symptom.” GP24 Female, 9yrs qualified, East Anglia

Related to this was the concern expressed for patients whose mental acuity was inhibited by their medical condition affecting their ability to reliably complete a PROM.

“There are certain groups where it can be... it may be a bit more tricky to... I guess patients with cognitive impairment and learning disabilities, and patients with severe mental illness, it can just be a bit more difficult, might just have to be thought through a bit more.” GP3 female, 17yrs qualified, North East

External policy and incentives

The influence of the quality outcomes framework (QOF)[39] on the decision of some GPs to use the PROM Patient Health Questionnaire-9 (PHQ-9) was described.

“So the big one is PHQ-9, it’s pushed very hard and for example with people with chronic diseases as well it flags up in the QOF box on EMIS. But in reality it’s irrelevant to assisting you that much in terms of referral and management, so there’s no point in doing it.” GP18 Male, 2yrs qualified, West Midlands

III. Inner Setting

The inner setting relates to the structural characteristics of an organisation and its culture and capacity for change[27]. Our participants described issues within two CFIR constructs; the impact of the organisational climate around implementation, and the readiness of their organisation for change.

Implementation climate

Our participants described how there was little impetus for changing existing ways of working to incorporate PROMs. A number of those we spoke to felt their training meant they could gather the same information without using PROMs which could actually impede patient-focussed conversations.

“I think there’s a role and a value to having a PROM but I don’t think it replaces a face to face discussion with patients.” GP12 male, 4yrs qualified, West Midlands

“Perhaps it a gap in my practice, I don’t know, but personally I find that seeing a patient with as few distractions I suppose as possible to get... sometimes I ask them to make a diary of their symptoms or something like that but that would be their own interpretation of what I have asked them to do rather than somebody else’s interpretation of what they be expected to feel, or might put ideas into their head a little bit.” GP19 Male, 8yrs qualified, West Midlands

Participants described the relatively low priority of implementing PROMs into everyday practice. One GP noted that current processes already produce an abundance of patient data and there was little incentive to collect more.

“...when you talk about the frailer ones, the ones who have all the diseases, all the medicines, and they’re common as well, they are not... your priority with them is not filling out a PROM it’s about trying to actually get them functionally better, and trying to... and not be bamboozling them with lots of extra questions. It’s examining them and looking at what you actually need to do to improve their

care rather than just trying to capture how bad they are right now... GP24 Female, 9yrs qualified, East Anglia

“You have to think very hard about taking too much routine data. You need to be selective, it needs to be really useful, it needs to be available for an individual...” GP22 Male, 30yrs qualified, North West

The variable degree to which PROMs were successfully integrated into existing systems was discussed. One GP described issues with their incorporation into their clinical Information Technology system.

“So we do have some which are integrated into the system, but they are not quite integrated enough to be user friendly ... you have to input the data and then the score is added up wrong because the template is set up wrong, so you end up having to override it and do it yourself anyway which makes it a bit of a waste of time it being integrated...” GP19 Male, 8yrs qualified, West Midlands

Readiness for implementation

Participants described how they were unaware of which PROMS to access given a certain set of circumstances. For example one GP felt it difficult to remain aware of which were available even within a single condition and bemoaned the absence of relevant training.

“I think that forever more are appearing, COPD have got a whole range of them now as well, about patient’s feeling of breathlessness and stuff. I think the difficulty is remembering which disease now has one ... I have never been trained; perhaps I am doing it wrong. I stick the piece of paper in front of the patient and they look at it and ask them if they need any help. That’s probably a terrible way of doing it, I don’t know. If we need training I don’t know when we’re going to get it, but probably I am terrible at it, I don’t know.” GP5 Female, 20yrs qualified, North East

IV. Characteristics of individuals

The individuals involved in the implementation have their own agency and relationships with each other and the intervention depending upon their unique characteristics [27]. The impact of the variation in knowledge and beliefs between multiple practitioners was apparent.

Knowledge and beliefs

Differences were noted between providers as to the perceived role of PROMs with a number of those we spoke to described their worth only as a research tool.

“I think PROMs tend to... the thing with a lot of PROMs they tend to be very useful in research, and not so useful in actual daily practice, and that’s where... if you’re going to use a PROM it needs to streamline your service not add more time to it. GP18 Male 2yrs qualified, West Midlands

Others felt that PROMs had the potential to make a positive contribution to patient experience and outcome if used correctly.

“Ultimately I think they could be really useful in many situations but sadly I think the way they are used at the moment probably doesn’t maximise their benefit and actually they are probably seen as more of a nuisance than a value really in most ways that they are used currently. So yeah I think there’s work to be done.” GP23 Female, 8yrs qualified, North East

V. Process

The process of implementation involves the development of an appropriate plan and the engagement of organisations and individuals in the process of change [27]. The GPs we spoke to described issues with both the strategic planning of the utilisation of PROMs and the management of staff in their implementation.

Planning

Participants described how the introduction of PROMs into their practice occurred on an *ad hoc* basis, for example due to the attendance of a course to comply with the requirements of continual professional development.

“I tend to find if I’ve been on a course and they will tell me about a PROM I will use it for a few days and then I’ll forget about it, but that’s probably what I’ll tend to do, if I’m on a course and they just share a PDF of it I’ll give it a try and see if I like it.” GP15 Male, 17yrs qualified, North West

Another described how their use of a PROM would be dependent upon multiple recommendations from a variety of uncoordinated sources.

“... I am unlikely to go and start using some new coeliac disease PROM when I have just been to a talk from a private gastroenterologist or something like that. I am more likely to use something that is appearing to me in lots of different areas of my CPD or medical education. So I might see a paper about it, and then I might hear a colleague talking about it, and then I might see something on GP Notebook or something like that. So you’re getting over exposed to it, and then try it out and see how well it resonates, and how useful it is and how quick and easy to remember it is.” GP24 Female, 9yrs qualified, East Anglia

Engagement

The degree to which relevant individuals are engaged in the process of implementation can affect its success[27]. For example, GPs were resistant to the use of PROMs when introduced as a mandatory aspect of the referral pathway.

“I think a lot of GP colleagues my feeling is that they don’t like anything compulsory, so when the CCG said you need to fill in this score otherwise we will reject the referral I’ll tell you that didn’t go down very well with everyone.” GP13 Male, 10yrs qualified, South East

Another GP noted that robust objective evidence of their efficacy was more persuasive than any subjective recommendation from a CCG that may have contrasting priorities to practicing clinicians.

“If the CCG say we had to use it... then we would use it, but just because the CCG says doesn't put [my] trust in it really because they do it for political reasons and bureaucratic reasons, not necessarily medical reasons. For me I am quite evidence based personally, and if someone was to show me... I'm the outlier and most GPs love PROMs and I would actually be thinking 'hang on I'm the outlier here, actually maybe I'll just get more on board'. If there was a study saying this particular PROM if they said PHQ-9 shortened a ten minute consultation down to five minutes, improves on patient outcomes, reduces re-attendance rates, improve compliance to medications, then I would say right we've got to get on board and do that.” GP18 Male, 2yrs qualified, West Midlands

Discussion

General findings

PROMs have the potential to make a substantial contribution to the model of person centred care central to the long term future of the NHS by informing individual clinical care, engaging patients, and supporting shared decision making [3, 6, 14]. In exploring the perspectives of GPs on the existing implementation of PROMs, the CFIR provided an effective framework to help understand the influences on their current use and the areas that need to be addressed if they are to be successfully implemented in the support of person centred care.

GPs described uncertainty about the efficacy of PROMs and whether they offer any advantage over more traditional patient consultations, concerns were also voiced about the reliability of a single tool when used on patients with varied needs, abilities, and co-morbidities. Some felt that though PROMs had the potential to be digitally integrated into existing systems and independently completed by patients that currently they were poorly packaged and presented, often relying on clinicians to facilitate the completion of paper copies. There appeared to be little offered to GPs in the way of guidance whether from their surgery, commissioning group, or policymakers. This was reflected in a lack of staff engagement in their use, and the lack of a coherent training programme and coordinated implementation strategy.

Strengths and limitations

PROMs are being widely used in English primary care yet this is the first time GP perspectives have been sought and used to describe their implementation in primary care. Interviews were conducted across England with a balance of genders and a range of experience, with GPs recruited from both sampling methodologies sharing similar views. There is the potential of bias from the self-selection of our participants [40] however a range of views were captured and our findings reflected previous work that described diverse levels of adoption, and utilisation of PROMs in primary care [16]. As with other studies that have used the CFIR, not all 39 constructs of the framework emerged from our data [28] nor were they expected to. The constructs within the CFIR were identified from multiple frameworks developed through

numerous international studies across various models of healthcare and so not all are necessarily applicable to UK primary care.

Specific findings

I. Intervention characteristics

The minimal design of PROMs enables their integration with existing IT platforms and has contributed to the political enthusiasm for the expansion of their use *in clinical practice* [41]. *Of particular interest is that multiple digital platforms can enable the independent completion of PROMs by patients whilst producing readily interpretable outputs for both patients and clinicians* [42] for example the use of computer adaptive testing in mental health [43-45]. However ease of use is not sufficient to encourage uptake without coherent and clearly communicated evidence of the benefit of using PROMs in routine primary care [18]. One frequently reported advantage is their ability to support clinician-patient communication [46-49] contributing to improved quality and experience of care [48, 50-56]. However, much of this research has been undertaken within discrete settings such as oncology [46, 47] and psychiatry [57, 58] and is not necessarily applicable to the broader extent of primary care [14, 59, 60]. One reason is that the narrow scope and brevity inherent in PROM design is insensitive to the complex and dynamic nature of primary care patients [61]. However, extending PROMs to account for this complexity runs counter to existing evidence indicating that clinicians prefer PROMs with fewer items [62-65] and simplicity of scoring [66].

II. Outer setting

PROMs have the ability to encourage patient engagement [18, 59, 67] and, where their use is sympathetic to their *needs and abilities* [68-70] patients considered them a valuable opportunity to receive clinical guidance or feedback [67]. This is in contrast to busy clinicians for whom PROMs exemplify the excess of data they are expected to review [67]. These concerns over additional workload were compounded for some we spoke to, by doubts in the veracity of data provided by patients with a range of cognitive abilities, health literacy and motivations.

III. Inner setting

We found a lack of awareness amongst GPs as to which PROMs were available and little training in their use. In other settings the uptake of PROMs has been limited by a lack of staff engagement in their deployment [59, 68-70] and there are recommendations that GPs (alongside other members of the primary care team) should be consulted on which PROMs are perceived as valid, relevant and useful for both them and their patients [59, 68-70]. This consultation might usefully extend to the content and delivery of related training [69] with recommendations that it should include specific guidance on what to do if PROMs identify issues staff feel unable to address due to constraints of resource [61].

IV. Characteristics of individuals

The ways in which PROMs are currently incorporated into routine care is shaped by clinician beliefs about their roles and responsibilities [59]. GPs are trained to solve problems independently [71] and some we spoke to were concerned PROMs might diminish independent clinical thought and were opposed to their mandatory application. There is evidence in the United States (US) that being sympathetic to clinician independence can help overcome such misgivings [72] and granting GPs some autonomy in when and how PROMs are used may encourage their uptake into routine care [61, 68-70].

V. Process

For any intervention, planning is essential [42, 68] and a whole systems approach that flows from policymakers to individual providers has been recommended for implementing PROMs in primary care [18]. However, a coherent national strategy for PROM implementation is yet to emerge [6, 73] and the perceptions of GPs we spoke to reflected those expressed by some clinicians in secondary care that felt completing and utilising PROMs fell outside the bounds of their professional responsibility, an attitude encouraged by their continued absence from clinical guidelines [46].

In the US a coherent strategy has been developed for implementing PROMs across a range of conditions and health care settings [45] a number of characteristics shared by successful implementation programmes have emerged [74]. These include robust IT systems, integration into clinical pathways, and training of patients and professionals in their use [8]. The implementation of PROMs has also been supported by reporting systems that produced easy to understand graphs of patients' data [42, 46, 68] and using patient enabling technology such as web-based apps to decrease the burden on clinicians and administrators [69]. In the absence of an overarching strategy in the UK financial incentives have been used to encourage the uptake of PROMs in primary care for example in the use of PHQ-9 as part of QOF [39]. Though some of our GPs acknowledged this specific influence they also noted, as have others before, that isolated monetary drivers of change can lead to attempts to 'game' the system and encourage inappropriate use [61, 75].

Conclusions

Though PROMs have the potential to be instrumental in fulfilling the long term plan for more personalised care, if they are to gain any credence within the primary care community, then a structured approach to their implementation is required. The CFIR highlighted a number of areas that need to be addressed by policymakers and funding bodies. The primary objective must be to create and communicate a compelling body of evidence of their efficacy and benefits. This should include identification of which PROM is appropriate in which circumstance, engaging staff throughout the process. Where possible they should be digitally integrated into existing IT-led systems of modern primary care with specific training provided for both patients and providers. Finally, if PROMs are to make a contribution toward sustaining the long term future of the NHS then policymakers and commissioners need to construct a coherent implementation strategy that is appropriately planned, funded, and adapted following rigorous and ongoing evaluation.

List Of Abbreviations

PROMs	Patient Reported Outcome Measures
NHS	National Health Service
TIDieR	Template for Intervention Description and Replication
GPs	General Practitioners
CFIR	Consolidated Framework for Implementation Research
UK	United Kingdom
COREQ	Consolidated Criteria for Reporting Qualitative Research
QOF	Quality Outcomes Framework
IT	Information Technology
CCG	Clinical Commissioning Group
US	United States of America

Declarations

Ethics approval and consent to participate

The study was approved by the University of Birmingham the Science, Technology, Engineering and Mathematics Ethical Review Committee (Reference ERN_16-0568S). Recorded verbal consent was obtained from the participants

Consent for publication

Not applicable

Availability of data and materials

The datasets generated and/or analysed during the current study are available from the corresponding author on reasonable request.

Competing interests

MC has received personal fees from PCORI, Astellas, Takeda, Glaukos, and Merck outside the submitted work. SF receives income from freelance writing and lecturing and is a fellow for Evidence and Values with the Royal College of General Practitioners. GT, IL, SF and SG have no competing interests.

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Authors' contributions

IL, GMT, MC, and SF contributed to the study conception and design. IL designed the topic guide and conducted the interviews and led the qualitative study. Qualitative data were analysed by IL and SG. IL drafted the manuscript and MC, GMT, SF and SG provided feedback which was duly incorporated. All authors read and approved the final manuscript.

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Tables

Table 1 Examples of the current clinical uses of patient reported outcomes in UK primary care*

<i>Use</i>	<i>Description</i>	<i>Example</i>
Assessing severity of symptoms	Highlight patients' experiences of symptoms related to a health condition or treatment.	Epworth Sleep Scale [76]
Informing treatment decisions	Inform patient-physician discussions and enable shared decision making	Patient Health Questionnaire -9 (PHQ-9) [77]
Tracking outcomes	Allows patients and providers to observe important trends and adjust care accordingly.	Asthma Quality of Life Questionnaire [78]
Facilitating provider patient discussions	Allow patients to provide information about their health, concerns, and priorities and identify topics for discussion during the clinical visit	General Health Questionnaire (GHQ-12) [79]
Monitoring health and well being	Routinely collected measures related to general health and well-being provides important information about an individual's overall health.	International Prostate Symptom Score (IPSS) [80]

*(after Lavalee et al 2016, Turner et al 2019)

Box 1. Topic guide for semi-structured interviews

Use of PROMs in care

- For which reasons do you currently use PROMs?

Prompts – Screening, diagnosis, monitoring, shared decision making (care plans, end of life care), Quality Outcomes Framework, other?

- What influences your choice on the PROMS you use

Prompts – How do you hear about the PROMs that are available?; Is there a standard set of PROMs used across the practice?; Who recommends them (Clinical Commissioning Group, colleague, other)

- How frequently do you use PROMs?

- Which individuals use PROMs in your organisation?

Prompts – Clinical staff e.g. GPs, Nurse practitioners, Health Care Assistants, Community matron, Physician associate;
Non-clinical staff – receptionists, administrators, practice managers; Patient participation group (in partnership with practice)

- How do you use the data which are gained from PROMs?

Prompts – How do they inform care? Evaluation of practice performance? Resource allocation? Who is involved and how?

Future PROM use

- Which areas/groups of patients (if any) do you think PROMs could be used more effectively?

Prompts - Multi-morbidity, Metric of care (patient perception), Carers, Part of discharge note? Other?

- Which factors would facilitate the effective use of PROMS?

Prompts - Integration with existing systems/processes, Integration with EHR
Automatically generated and distributed to patients based on algorithm or diagnosis, Utility and usability (Practical/useful/relevant), Recommended by trusted source

- What are the main barriers to increased use of PROMs?

Prompts - Time, Resource, Training, Patient activation

Table 2 Summary characteristics of participants

<i>Gender n (%)</i>					
Female			Male		
11 (44)			14 (66)		
<i>Years qualified n (%)</i>					
1-5	6-10	11-15	16-20	20+	
3 (12)	4 (16)	7 (35)	3 (15)	5 (25)	
<i>Region n (%)</i>					
North East	East Midlands	South East	South	West Midlands	North West
4 (20)	1 (5)	5 (25)	3 (15)	4 (20)	3 (15)

Table 3 Summary of domains constructs and sub-constructs

<u>Domain</u>	<i>Existing CFIR construct [27]</i>	Definition within CFIR [27]	Emergent issues
<u>I. Intervention characteristics</u>	<i>Evidence Strength and quality</i>	The stakeholder's belief in the quality and validity of the evidence of the intervention having the desired outcome	Evidence for the benefits of PROMs use in primary care.
	<i>Relative advantage</i>	The perceived advantage of using a particular intervention versus an alternative or existing solution	PROMs may be used to frame discussions of shared decision making, justify treatment decisions, evaluate service, be an adjunct to nurses
	<i>Adaptability</i>	The degree to which an intervention can be refined to meet the specific needs of the local environment	Ability to be digitalised
	<i>Complexity</i>	The potential disruptiveness and intricacy involved in its implementation	PROMs can take time to complete and to interpret and utilise results
	<i>Design Quality</i>	How well the intervention is assembled and presented	PROMs are poorly presented to stakeholders
<u>II. Outer setting</u>	<i>Patient needs and resources</i>	The requirements of patients and the factors that influence how they are met by an organisation	Variation in patient reliability, health literacy, co- morbidities
	<i>External policy and incentives</i>	The strategies that policymakers and commissioners employ to spread the implementation of the intervention, include mandates, guidelines and financial incentives	Adverse influence of financial incentives, CCG
<u>III. Inner setting</u>	<i>Implementation climate</i>	The capacity for change of an organisation through its attitude to the intervention, their relative priority, and how their use will be supported and rewarded	No pressure for change, compatibility, relative priority
	<i>Readiness for implementation</i>	The tangible indicators of the decision to implement a particular intervention this includes factors such as access to knowledge, information, and training	GPs lack of awareness of PROMs , no systematic training
<u>IV. Characteristics of individuals</u>	<i>Knowledge and beliefs about the intervention</i>	The attitudes of individual GPs towards any intervention as shaped by their understanding of its use and the value they place on it	Considered a research tool
<u>V. Process</u>	<i>Planning</i>	The engagement of organisations and individuals in the process of change and ensuring an appropriate plan is in place	Lack of coherent approach