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Factors influencing clinical practice guideline uptake by South African physiotherapists: A qualitative investigation of barriers and facilitators.

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Short running title: Factors influencing physiotherapy guideline uptake

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Abstract

Rationale: Clinical practice guidelines (CPGs) should provide busy healthcare professionals with easy-to-use tools that support efficient uptake of current best evidence in daily clinical practice. However, CPG uptake rarely occurs at the speed of evidence production. The aim of this study was to explore the factors influencing CPG uptake among South African (SA) physiotherapists (PTs).

Method: An exploratory, descriptive qualitative study design was used, within an interpretative research paradigm. A phenomenological approach was taken, as the study aimed to explore the phenomenon of CPG uptake by SA PTs, and how the themes and subthemes related to each other within this phenomenon. Semi-structured interviews were undertaken via telephone calls that were audiotaped and independently transcribed. An inductive and deductive thematic content analysis approach was taken where the transcript content was analysed by hand.

Findings: Thirty-one PTs from the private, public and education sectors participated in the interviews. The main themes identified were resources, training and organisational factors. The SA PT workforce, particularly that in the public sector, is limited and patient load and need is high. Time to implement and stay up-to-date with current evidence was a barrier for many interviewees. Participants also perceived CPG uptake as not being financially rewarding. Training in CPG uptake was mostly perceived as a facilitator and the PTs felt that they would be more inclined to implement CPGs if they felt more confident in how to source and use CPGs, particularly if they were incentivised to undertake such training. Roles,

responsibilities and power in the healthcare team were perceived as being both organisational barriers and, conversely, facilitators, depending on work environments.

Conclusions: The findings of this study generally concur with previous studies about PT barriers to CPG uptake, however it provides novel information on barrier contexts in one LMIC with complex PT service delivery.

Keywords

Clinical practice guidelines; Physiotherapy; Knowledge translation; Qualitative study

Introduction

Clinical practice guidelines (CPGs) are defined as "*a convenient way of packaging evidence and presenting recommendations to healthcare decision makers*"(p.2)[1]. CPGs are vehicles for improving quality of care, described by the Institute of Medicine's (IOM) domains of healthcare quality as effective, efficient, timely, equitable, safe and patient-centered[2]. CPGs should provide busy healthcare professionals with easy-to-use tools that support efficient uptake of current best evidence in daily clinical practice. However, CPG uptake rarely occurs at the speed of evidence production[3]. Many reasons are proposed for this, including variable awareness of new CPGs; variable knowledge, skills and capacity to access and evaluate them; and variable willingness to self-reflect, identify areas for improvement and incorporate new CPG evidence into practice[4–6].

Over the past 20 years, efforts were made to support healthcare professionals with evidence uptake[7]. Knowledge translation (KT) strategies, specifically evidence-based practice (EBP) training programmes, have been developed to improve evidence-uptake behaviours to increase healthcare professionals' CPG use in practice[8]. However, there may be different

barriers and facilitators to CPG use for different healthcare providers, in different settings, and there is no one-size-fits-all approach to identifying or addressing them[9]. In the healthcare sector KT strategies, informed by facilitators and barriers to its local implementation, have a better chance of being successful[7,8,10].

Two systematic reviews[5,6] on barriers and facilitators to physiotherapy (PT) evidence uptake, included 38 primary papers, of which only two were from lower-to-middle-income countries (LMIC). Another three articles, two from higher income countries (HIC)[11,12] and one from a LMIC[13] were identified. The articles identified similar barriers and facilitators in both settings. The most commonly cited barriers to evidence uptake from any country, were lack of time and workload pressures. Workload may include direct patient contact, administrative tasks and travel[14]. Whilst PTs generally have positive attitudes towards EBP[5], they require support to develop skills in accessing, appraising and applying CPG recommendations, and obtaining organisational support for evidence implementation[5,6]. Organisational factors to EBP uptake are well documented and include support structures, bureaucratic processes ("red tape"), stakeholder buy-in and collaboration between healthcare professionals[15–20].

Recent research suggests that local South African (SA) contexts affect CPG uptake by PTs[21]. South Africa has an estimated population of 57.7 million people, with an estimate of 7700 registered PTs[22,23]. There are nine provinces of varying economic status: Eastern Cape, Limpopo, Mpumalanga, Free-State, Northern Cape, North-West (largely rural, high unemployment, economically underprivileged) and Kwazulu-Natal, Gauteng, and Western

Cape (more metropolitan, more economically stabile). Most SA do not have private health insurance, relying on accessing public health services, including PT[24]. The political environment in the SA healthcare context must be considered when exploring leadership contributions to CPG uptake in primary healthcare settings[25]. Furthermore, due to limited public sector PT positions and high turnover of staff, the available staff have increased workload pressure to perform their duties under severe resource constraints[26].

The aim of this study was to explore the barriers and facilitators influencing CPG uptake among SA PTs. The context of SA PT practice is unique compared to particularly HICs, in terms of range of practice locations, substantial patient volumes, varied sources of funding for PT, availability of PT workforce, and high patient need[20,21]. Understanding the evidence-uptake perspectives of PTs, who are challenged daily with managing the imposts of their practice, will assist in developing training programs oriented to their specific needs.

METHODS

Reporting framework: The Standards for Reporting Qualitative Research (SRQR) were followed[27]. Appendix 1 provides the completed SRQR checklist.

Ethics: Institutional Health Research Ethics (S17/05/100) approved the study.

Research team: The team was familiar with PT care delivered in SA contexts, and were all experienced in conducting and reporting qualitative research.

Research question: What are the factors influencing SA PTs' CPG uptake in daily clinical practice?

Hypothesis: SA PT factors influencing CPG uptake differ from those reported in other countries.

Study design and research framework: An exploratory, descriptive qualitative design was used, within an interpretative research paradigm. A phenomenological approach was taken, aimed to explore the phenomenon of CPG uptake by a specific group (SA PTs), and how the themes and subthemes related to each other within this phenomenon[28].

Participant eligibility: Participating PTs had to be registered with the Health Professions Council of South Africa (HPCSA) and currently employed as PTs in any setting in SA, for at least 25 hours per week. Any participating PT educators did not have to actively treat patients; but had to be involved in undergraduate or post-graduate PT teaching.

Sample selection: A multistage purposeful sampling approach was followed[29]. A list of email addresses of all registered PTs (n=6637) in SA was obtained from the HPCSA. The email list was randomised, and potential participants were contacted in groups of 30, until the desired number of participants indicated their willingness to participate. From October 2017 until April 2018, a total of 473 public and private sector PTs was randomly invited via their email addresses to participate in the study. Eleven email addresses were inactive and further attempts to contact the individuals were ceased. In a parallel process, eighty-three educators were randomly invited to participate, as the randomisation process of the HPCSA list of PTs failed to recruit the desired amount of educator sector PTs. The educators' emails were obtained from higher education institutions. Institutional permission was obtained from each University and public institutions where educators and public sector PTs agreed to

participate. This sampling approach increased the transferability of the findings to other PTs , especially as participants were sought from across SA and different sectors of practice[30].

Recruitment: Two invitations were sent to each selected email address (two weeks apart). Interested participants were asked to complete an online informed consent form (including sociodemographic information and sectors of main practice) after reading the information sheet. The participants were colour-coded for private, public and educator sector involvement to ensure a broad representation of each sector. Each participant was contacted to arrange a suitable interview time.

Data collection: Semi-structured individual interviews were conducted by JS. Interviews were audiotaped and saved using coded file names. The interview schedule was adapted from interview schedules used in two similar PT studies[12,31]. The interview schedule (Appendix 2) comprised 25 questions about PTs' perspectives of using CPGs in clinical practice. The time per interview ranged from 35 to 65 minutes. This was largely dependent on the richness of participants' responses. JS also took notes throughout the interviews on the identified themes and sub-themes as an additional data source for analysis.

Data saturation: Data saturated in each PT cluster before the total number of PTs was interviewed, suggesting that all relevant information had been identified.

Data management: An independent transcriber transcribed the audio recordings of the interviews verbatim.

Establishing credibility: Participants were invited to review their interview transcript for member-checking purposes[34].

Data analysis framework: Analysis took both interpretative and descriptive exploratory phenomenological approaches, to describe CPG uptake by SA PTs and interpret it in relation to the context of SA PTs[28]. An inductive and deductive thematic content analysis approach was taken[35]. The deductive analysis was specifically applied to questions under the "Facilitators" and "Barriers" categories (Appendix 2), while the inductive analysis was applied to the rest of the interview data. Data analysis followed an iterative process of: immersion and familiarization with the data; identifying themes; creating a codebook; coding and categorizing the data; mapping and interpreting the data, and then checking the findings against the original transcripts[35]. A hand-coding approach was used in conjunction with the search function within Microsoft Word. Moreover, the data was interpreted against the background of previously published work[36]. Due to the research team's familiarity with PT care delivered in SA contexts, the interpretation of findings was compared to studies performed within the PT discipline.

Data analysis: The interview transcripts were iteratively interrogated by two independent researchers (JS, YB) to identify themes related to CPG uptake in clinical practice. Data analysis were completed during the interview period, to ensure that if new themes emerged, they could be addressed in future interviews.

The first stage of analysis consisted of a general scan for different types of answers (key themes) relevant to each question. The second stage sought deeper meaning for each key theme, by identifying different perspectives inherent in each answer as sub-themes. The final stage involved individual cross-mapping of sub-themes in one theme to sub-themes in other themes, to better understand the complexities of individual participants' responses (Figure 1).

Exemplar quotes were extracted for themes and sub-themes. Another source of data was the notes of the researchers' discussions, during the different stages of transcript interrogation. These enabled the researchers to iteratively reflect on key themes and sub-themes which were identified through the three-stage analysis. A mind map (Figure 2) was developed to assist in the consideration of the themes on CPG uptake and use.

Positioning the researcher within the research: JS followed a process of reflexivity to position her ontological and epistemological stance in the study[32,33]. Appendix 3 reports this process. JS was a practicing SA PT clinician and educator. She could relate to the participants' responses because of her understanding of SA PT practice. She brought a recognized bias to the process of analysis of the interviews in that she is passionate about providing best-evidence PT care, and teaching clinicians and students about CPGs. Through the process of phenomenological reduction, the researchers interpreted the data with a critical stance, while attempting to restrict their own interpreting beliefs and subjectivity[28].

Rigour: Each theme and sub-theme was explored against the backdrop of the current literature to determine how it resonated with other studies reporting on factors influencing CPG uptake, and how it differed across PT work sectors. The study data was triangulated by comparing integrity between themes and sub-themes between participants assigned to different sectors, the notes taken during the analysis, mismatches identified between initial interview transcriptions and member checking responses, and exemplar quotes.

FINDINGS

Participants: Thirty-three participants completed the online form; however, two participants did not respond to further communication. Thus, 31 PTs participated in the study: 10 participants in private and public sectors respectively, and 11 participants from the education sector. The PTs resided in seven of the nine SA provinces (Eastern Cape (n=2), Limpopo (n=2), Mpumalanga (n=1), the Free-State (n=1), Gauteng (n=6), Kwazulu-Natal (n=3), and Western Cape (n=16). Women predominated (77%), reflecting the female gender bias in the SA PT profession[22]. Nine participants had less than 10 years' experience, 16 participants had been practising for 11-20 years and six participants had more than 21 years' experience. Twenty-eight of 31 participants completed member checking (three did not respond to requests).

Findings: Figure 2 presents the mind map of the emergent themes on factors influencing CPG uptake (resources, training and organizational factors).

1. Resources

Few staff, high workload (barrier)

Staff shortages and high workloads were perceived as barriers by 28 participants.

> P7: *"…if you are only one clinician at a clinic where you have to do all the admin and appointments…you don't have time to work through that kind of thing [referring to CPGs] …"*
>
> P20: *"…in the public sector... there aren't enough people to do the job and if we still have to learn how to use the guidelines not much work will be done…"*

Ease of accessing CPGs (facilitator and barrier)

Four participants identified ease of accessing CPGs as part of CPG uptake, seeing this as facilitator due to CPGs being readily available via online sources. One participant identified it as a barrier, as her low confidence in sourcing CPGs increased the load, on her busy workload. Some educators also raised this concern, having observed it among clinician colleagues.

> P20: *"…Not even knowing about [CPGs]; this is a subject that is not very widely spread. I mean, I don't even know what a clinical guideline is… I think that would be a bit difficult if we are not familiar with the guidelines. One will have to first get used to them. It sounds like something that one has to look for on a computer and I struggle to switch the computer on."*
>
> P8: *"The accessibility is the big thing. A lot of the journals and databases are not available to clinicians working either in state or in private so that is one of the big factors that I think if it's not accessible and they might only be reading the abstract, how is the core detail of the guideline going to reach the patient?"*

EBP as priority in clinical practice (largely facilitator)

All participants agreed to CPGs' usefulness and most had positive attitudes towards CPGs. Some participants felt strongly that CPG utilisation should be part of, rather than additional to daily clinical practice. Some participants alluded to a necessary shift in perspective among PTs to see CPG use as decreasing workload by providing tools to better manage patients.

P2: *"I don't have much sympathy for the arguments that there isn't time. Change the narrative to not be something in addition to what you are already doing but it's part of your practice..."*

There were misconceptions regarding CPG use affecting PTs' autonomy.

P9: *"…physios are first contact practitioners and [CPG use] could be seen as removing their critical decision making around a patient that they are treating and so then they are not using the professional skills that they have developed around a treatment plan because there is a set guideline…"*

Some participants felt that CPGs helped standardise the approaches followed by PTs. However, there were concerns regarding the usefulness of international CPGs in local contexts.

P10: *"…[CPGs] assists us in standardising what we do as a physiotherapist. If we can have guidelines, then that will also bring in standardisation, I think it will improve the quality of the work that we deliver, hopefully improved satisfaction for the Physiotherapist as well as for the patients…"*

P23: *"…guidelines are just that. They don't always work in every context. So, yes, they sometimes require you to, to look at them and see whether it's going to fit in that specific context…"*

"Time is money" attitude (largely barrier)

Only three participants perceived CPG use as negatively affecting their monetary status.

> P15: *"…Time. If you did everything and dotted all your i's and crossed all your t's, you would spend half the day doing admin and there is no financial remuneration for admin in the private healthcare funding model."*

Knowledge about CPG use (facilitator)

A perception emerged of how CPGs could assist in managing patients with complex problems. This quotation came from a PT educator who had previously worked in a rurally-based, isolated public clinic.

> P23: *"I think on the one hand [CPG uptake] might be easy in some sort of difficult patients where you are struggling to work out where you should go to from here, and you have something to follow, especially for people fresh out of varsity that would be easier to go by…"*

Lack of remuneration (barrier)

Lack of remuneration for using CPGs was perceived by 22 participants to be a barrier.

> P27: *"…in public... we don't even get a budget for our department... we had to fundraise, so we could buy paper for our printer, and fundraise so that we could buy contact glue for activities. So I mean, that already in itself sort of hinders you from anything extra …like to do anything where we had to download things we use our own personal Wi-Fi… if you've got extra costs now to look up a guideline and to download a guideline and to pay for one, sort of, you're going to draw the line somewhere*

otherwise you're going to have no money at the end of the month because you're spending it all at work…"

Time of patient interaction (barrier)

Approximately one in every two PTs perceived time of patient interactions as a barrier to CPG uptake.

P2: *"…if you look at all of your interactions with patients as compounding on each other so each one builds on the session that you did the last time…There is enough time for you to incorporate some of the ideas from guidelines, maybe you need to change your management approach so that you have more time with some patients and less time with others."*

2. Training

The need for training in CPC use was a common finding (29 participants), which we interpreted with the EPOC taxonomy as "educational meetings"[37]. Training encompassed workshops, lectures, mentoring, etc.

P18: *"…it's often the unknown of not knowing. So if they know how to use a guideline it will definitely facilitate the implementation thereof."*

Mentoring/Coaching (facilitator)

All participants felt that Mentoring/Coaching would facilitate CPG uptake.

P10: *"…that is something that should follow the workshop for the training. once you've planted the seed you have to keep it nice and wet to ensure that it grows, otherwise you'll have the clinicians that might be very passionate, they start off well and then somewhere along the line it fizzles out a little bit. So if you have that mentoring and you have that support, I think it will ensure a more consistency and continuity of what we do with the guidelines…"*

Technology and Pocket cards/light versions of CPGs (facilitator)

Ninety-three percent of participants perceived pocket cards/light versions of CPGs as facilitators to CPG uptake.

P2: *"there is enormous potential for technology to facilitate the use of guidelines however the caveat, I think that the guidelines would have to be broken down into really, really short bite-sized pieces of information whether it's text or audio based…"*

Teamwork/networks (facilitator)

Most participants (n=24) identified Teamwork/networks as a facilitator to CPG uptake.

P5: *"…network of physios on a specific, say now for instance a Facebook group or a WhatsApp group or something like that, that shares the guidelines…"*

Incentives: CPD (facilitator)

Twenty-two participants perceived CPD points as a facilitator to CPG uptake.

P14: *"…even if you originally go and get CPD points, at least some of the content will be internalised. You know, even if you just plant the seed and even just while the person is sitting there to think, 'okay, am I doing this yes, yes, yes, no, no'... I do believe that, you know, it will sow the seed…"*

Incentives: other (facilitator)

Other incentives (monetary; gift certificates; time off from work) scored 60%, 46.7% and 40% respectively as being facilitators of CPG uptake.

P12: *"…money is always welcome to everybody…"*

Guideline champions (facilitator)

Guideline champions were perceived to be a facilitator by 77.4% of participants.

P26: *"I'm not so sure of that one actually. Whenever there's somebody you respect and you look up to, if they're doing something then you are, you know, it carries a little bit more weight. Then you may be more willing to buy into it, but I wouldn't say it's a be all and end all."*

3. Organisational factors

The majority (19) participants perceived their workplace/team as a facilitator to CPG uptake. However, three participants from the same public institution identified their workplace as a barrier, and nine participants indicated that their workplace could both facilitate and hinder CPG uptake.

Support (facilitator)

A supportive leadership was identified by 90% of participants as a facilitator to CPG uptake.

> P3: *"If the practice owners are not implementing it, they can't expect anyone working with them or for them to do it themselves as well. So, I think that's where it actually should start."*
>
> P6: *"…if it's an agenda of the leadership and the leadership supports the vision then it's easier to implement."*

The study participants perceived a lack of peer support (95%) and leadership support (92%) as barriers to CPG uptake.

> P22: *"…it's definitely a barrier but it shouldn't stop you if you know that this is what's going to ultimately improve the outcome of your patient, and for me that's the most important thing. So if somebody is not happy with [implementing CPGs] and not giving the support that I need it's going to be more difficult for me to be able to implement it routinely and regularly, but it shouldn't necessarily deter me from not trying…"*

Professional culture (barrier and facilitator)

Professional culture may influence how individuals learn by how they process and utilise information and how effectively a CPG may be implemented in a specific context[38–41].

> P2: *"…culture eats strategy for breakfast - so the culture of the team is going to determine to a large extent how the team practices and behaves and communicates and*

collaborates… no one can have all the answers and so using a guideline as a starting point is great…"

Stakeholder buy-in (facilitator and barrier)

It emerged that stake-holder buy-in could facilitate or hinder CPG uptake.

P31: *"…at the moment our team is not quite on the same page with using guidelines and that is making it a bit difficult to actually put guidelines in place…"*

Hierarchy in healthcare (largely barrier)

Some participants alluded to a seeming "power struggle" between different professions and that they felt this hindered CPG use by the doctor-led management, impeding freedom to practice.

P15: *"…if you're looking at state healthcare where you have got much more a lax attitude to get involved in that, in private healthcare where you are dictated to by the funders, the third-party funders, so if we could cut the third-party funders out of making any clinical decisions, that would help a lot then we could start pushing what the evidence says. We don't want the bean counters to say what we can and can't do…"*

Distribution of responsibilities (facilitator)

Most participants (92.6%) perceived a multi-disciplinary CPG, to be a facilitator of CPG uptake.

P4: *"…in the bigger picture…we need to obviously within our department look at the physiotherapy guideline but also match it in with what is changing in terms of medical or surgical management and what is changing in terms of other therapies and other modalities…"*

Patient-centred care (facilitator and barrier)

Patient-centred care is central to clinical practice and emerged as both a facilitator and barrier to CPG uptake.

P3: *"…it's extremely important that literally everyone is talking out of the same mouth and the patients don't get different views from different people… the doctors they also see us as professionals using evidence-based research… it has given us a little bit of more respect with the other members of the team…"*

Collaborative nature (facilitator)

The emergent theme of "collaborative nature" seemed to be perceived as a strong facilitator.

P14: *"…no one works in isolation and when you do develop guidelines, it actually needs to consider the entire process, and not just one discipline or one person's process within the large process… where it has been extremely helpful is when it is used to orientate new employees and I think it definitely assists team members to understand what is required of them…"*

Communication skills (facilitator and barrier)

P21: *"…there was already a lack of communication between the nurses and the doctors on the ward rounds and how they communicated about patients. So already there was a bit of a break in the teamwork. And then you had to come and you're implementing a guideline and you're trying to create change, but you also need to almost fix the politics, and can you really do that, or should that come from the top down?...*

Red tape phenomenon (barrier)

It emerged that bureaucratic processes may be a strong barrier to CPG uptake.

P6: *"…I'm not sure how much influence a physiotherapist working in the ward actually has to make changes, you know there's often all of these red tape and if the red tape says that the patient needs to get up day three or day whatever and you have got some other information, how much clout or influence you actually have to make changes…"*

DISCUSSION

This is the first study reporting on the factors influencing CPG uptake in a randomly selected group of SA PTs. This study obtained two types of data (direct answers to questions, and themes derived from the answers). There was no one barrier or facilitator that stood alone as they were all interconnected (see figure 1). This suggests that, if an intervention was undertaken to address one barrier, it may impact on others[8,9]. Even though the participants came from different environments (geographic location, public, private, education), the

responses were remarkably similar, suggesting that the reported themes, are uniform across different settings. This supports the SA external generalisability of our findings.

Moreover, the study's findings did not differ from those reported in other HICs or LMICs (comparator) studies[5,6,11–13] and our hypothesis was thus rejected. Given the complexity of SA PT service delivery and the belief that SA PT's evidence uptake was different from other countries, we needed to explore these findings further.

>>Table 1: Comparison of countries>> about here

The main theme of "resources" as both barrier and facilitator, is important in the local SA context, especially in terms of workforce constraints[26]. This was strongly emphasized in the subtheme "Few staff, high workload". Workload and lack of time were both reported as barriers in our study, and the comparator studies[5,6,11–13]. SA PT workload was investigated by determining the ratio of PTs to the general population for each country represented in the comparator studies[5,6,11–13]. We accessed these numbers from the WCPT website[22] and the Worldometer website (Table 1)[42]. This highlights that the SA workload (in terms of direct patient contact, administrative tasks and travel) may indeed be higher than in most other countries, but it does not explain why PT from HIC also identify workload as a barrier. We postulate that PTs from diverse settings have different perceptions about high workload which manifest in lack of time which constrains CPG uptake. Furthermore, the lack of time as a professionally acceptable explanation, could be due to a variety of other underlying issues such as lack of knowledge and skills in accessing CPGs[5,6]. What our study highlighted was the need to know more about what was meant by the barriers of workload and lack of time.

Whilst SA PTs may have many reasons for stating workload as barrier, it was obvious from interview responses, that their workload could be impacted, and their patient care improved, if the value of CPGs is demonstrated. If the use of CPGs can assist under-resourced PTs to provide more streamlined care, the implementation of evidence will tap into an argument of efficient, equitable, timely and patient-centred care rather than the focus of improved effectiveness. HIC PTs practice may be in line with EBP[43], but it is not documented whether the PTs actually use CPG. Thus, the use of CPGs might not relieve workload concerns, therefore HIC PTs may continue to identify workload as a barrier to CPG uptake. Managing patients in the SA context using CPGs developed in HICs, may also be challenging, as the international evidence recommendations may not sit comfortably with efficient delivery of effective services. It may be that resistance to adopting CPGs by SA PTs may be based on their perception of the HIC-bias of the evidence underpinning the recommendations and consequently its relevance to their practice. This supports a frequently cited barrier to CPG uptake which is PTs perception that CPGs are prescriptive "recipes" for managing patients[5,6,44,45] and therefore they may be resistant to using CPGs that in fact, could potentially address workload concerns[20,25].

Behaviour change for improved CPG uptake relies on individuals' ability to deal with their specific barriers[9]. However, for organisational factors as barrier, there may be little that individuals can do to change this. However, PTs could be helped to see that CPG uptake could improve the quality of their care, in terms of their efficiency in managing high

workloads. KT literature reports that in order to change behaviours, leverage needs to be made in areas where the most change can be obtained with the least effort[8,9]. Thus, instead of tackling the perceptions of workload and lack of time directly, attitude change may be more efficient to encourage CPG uptake. Many exemplar quotations highlighted that PTs were open to CPG uptake in practice ("*I think on the one hand [CPG uptake] might be easy in some sort of difficult patients where you are struggling to work out where you should go to from here", P23*), and thus interventions (training in CPG use) to improve CPG uptake, might be more effective rather than addressing the barrier (lack of training)

Strengths and Limitations

This study reflects the views of 31 SA PTs only, recruited by maximum variation sampling to provide views reflective of the different types of SA PT practice sectors. The findings may not reflect the views of other SA PTs. The author biases are potential limitations; however, these were declared at interview, during analysis and by following a rigorous research process. More questions were identified, that should be addressed in future studies to better understand the underlying issues which influence barriers and facilitators.

Conclusion

This study provides novel information on SA PT perspectives on, and experiences with, implementing CPG into practice. Whilst the findings concur with those from other countries, they also provide specific contextual insights into SA PT service delivery challenges. Many themes were perceived as both facilitators and barriers. There was tension between negative

perspectives of the time required to find, understand and implement CPGs (barriers) and positive perspectives of potential time-savings and patient management efficiencies that CPGs could produce for busy PTs. Given the high workload of SA PTs, and the huge burden of need for PT care, training SA PTs in how to find and use CPGs offers one way to improve patient care, reduce professional burnout, and improve access to PT care.

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Conflict of interest

The authors have no conflicts of interest to declare.

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Figure legend: B – Barrier; F – Facilitator

Figure 1: Process of cross-mapping themes and subthemes

Figure 2: Mind map of emergent themes

Figure 1: Process of cross-mapping themes and subthemes

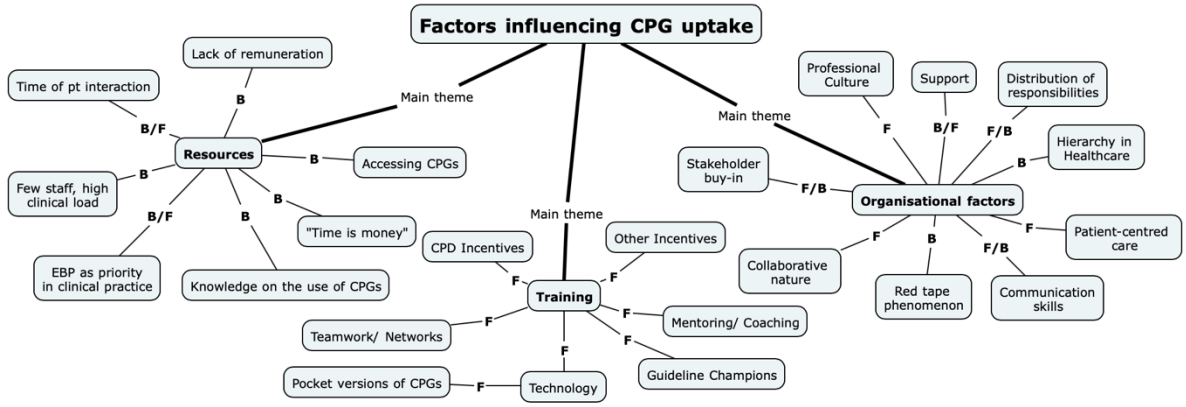


Figure 2: Mind map of emergent themes

Table 1: Country comparison

Country	Number of studies	Registered PTs	Population	Ratio PT to population
South Africa	Current study	7708	57897824	1:7511
United Kingdom	8 studies	53301	66865145	1:1254
Belgium	1 study	30000	11547137	1:385
Germany	1 study	136000	82403341	1:605
Sweden	4 studies	17906	10035978	1:560
France	1 study	86459	65420504	1:757
Netherlands	1 study	27500	17121124	1:622
Philippines	1 study	13000	107716841	1:8286
United States of America	7 studies	209670	328526430	1:1567
Canada	8 studies	22000	37200339	1:1691
Brazil	1 study	220000	212021292	1:964
Australia	5 studies	30351	25011403	1:824
India	1 study	30000	1365156865	1:45505

Appendix 1: Standards for Reporting Qualitative Research (SRQR) checklist

Standards for Reporting Qualitative Research (SRQR) – From O'Brien et al (2014)
http://www.equator-network.org/reporting-guidelines/srqr/

	Page/line
Title and abstract	
Title - Concise description of the nature and topic of the study Identifying the study as qualitative or indicating the approach (e.g., ethnography, grounded theory) or data collection methods (e.g., interview, focus group) is recommended	Y/1
Abstract - Summary of key elements of the study using the abstract format of the intended publication; typically includes background, purpose, methods, results, and conclusions	Y/2
Introduction	
Problem formulation - Description and significance of the problem/phenomenon studied; review of relevant theory and empirical work; problem statement	Y/3-4
Purpose or research question - Purpose of the study and specific objectives or questions	Y/4
Methods	
Qualitative approach and research paradigm - Qualitative approach (e.g., ethnography, grounded theory, case study, phenomenology, narrative research) & guiding theory if appropriate; identifying research paradigm (e.g., postpositivist, constructivist/ interpretivist) is also recommended; rationale	Y/4
Researcher characteristics and reflexivity - Researchers' characteristics that may influence the research, including personal attributes, qualifications/experience, relationship with participants, assumptions, and/or presuppositions; potential or actual interaction between researchers' characteristics and the research questions, approach, methods, results, and/or transferability	Y/6-7
Context - Setting/site and salient contextual factors; rationale**	Y/6-8
Sampling strategy - How and why research participants, documents, or events were selected; criteria for deciding when no further sampling was necessary (e.g., sampling saturation); rationale	Y/5-6
Ethical issues pertaining to human subjects - Documentation of approval by an appropriate ethics review board and participant consent, or explanation for lack thereof; other confidentiality and data security issues	Y/4
Data collection methods - Types of data collected; details of data collection procedures including (as appropriate) start and stop dates of data collection and analysis, iterative process, triangulation of sources/methods, and modification of procedures in response to evolving study findings; rationale**	Y/6-7
Data collection instruments and technologies - Description of instruments (e.g., interview guides, questionnaires) & devices used for data collection; if/how instrument(s) changed over course of study	Y/6
Units of study - Number and relevant characteristics of participants, documents, or events included in the study; level of participation (could be reported in results)	Y/8
Data processing - Methods for processing data prior to and during analysis, including transcription, data entry, data management and security, verification of data integrity, data coding, and anonymization/de-identification of excerpts	Y/6-7
Data analysis - Process by which inferences, themes, etc., were identified and developed, including the researchers involved in data analysis; usually references a specific paradigm/ approach; rationale	Y/6-8
Techniques to enhance trustworthiness - Techniques to enhance trustworthiness and credibility of data analysis (e.g., member checking, audit trail, triangulation); rationale**	Y/6-8
Results/findings	
Synthesis and interpretation - Main findings (e.g., interpretations, inferences, and themes); might include development of a theory or model, or integration with prior research or theory	Y/8-20
Links to empirical data - Evidence (e.g., quotes, field notes, text excerpts, photographs) to substantiate analytic findings	Y/8-20
Discussion	
Integration with prior work, implications, transferability, and contribution(s) to the field - Short summary of main findings; explanation of how findings and conclusions connect to, support, elaborate on, or challenge conclusions of earlier scholarship; discussion of scope of application/generalizability;	Y/8-20

identification of unique contribution(s) to scholarship in a discipline or field	
Limitations - Trustworthiness and limitations of findings	Y/20

Other

Conflicts of interest - Potential sources of influence or perceived influence on study conduct and conclusions; how these were managed	Y/23
Funding - Sources of funding/ support; funders role in data collection, interpretation, and reporting	Y/24

Appendix 2: Interview schedule

Thank you for agreeing to participate in this interview. You have already completed the online informed consent form but remember that your participation is completely voluntary, and you can stop participating at any stage during the interview.	
Factors related to CPGs in general	1. What does the term "Clinical Practice Guidelines" mean to you? 2. What do you think of CPGs in general? 3. Do you think it's an interesting or compelling tool for physiotherapists (PTs)? 4. What role do you see for CPG use as a method for improving quality of care? 5. Do you believe CPG are effective for improving quality of care? Please explain. 6. *If no, follow up with*, "Despite your beliefs, what is your experience?" 7. How do CPGs help improve the quality of care you provide your patients? 8. Does your clinic collect clinical outcome data (VAS, PSFS, STaRT, RM, and ODI) related to CPG?
CPG Success Story	Could you tell us the story of a time you and your team successfully implemented a CPG (e.g., management of WAD/ OA/ LBP, etc.)? *Probe for the Who, What, When, Where, & How of the story.* a. What were the steps? b. To what extent are clinicians involved in determining how to implement guidelines? c. How was this guideline effort brought to the attention of clinicians and managers in your facility? (e.g., formal meetings, guideline champions, e-mail distributions, websites, etc.)? d. To what extent were committees (steering /CPG specific committees) used to implement CPGs? e. What made it a success?
Factors related to the organizational environment	We will now look at how you experience CPG use in your workplace. We are aware that you have been the only person in your clinic to use it and that it can be difficult to assess how one could use CPG in a team set-up, both with your colleagues and with other stakeholders that may be involved in the management of your patients. 9. Do you think that the philosophy of your workplace/team could facilitate/hinder the use of CPG? 10. Which different healthcare professionals (HCPs) form part of your clinical team? 11. Which other HCPs are usually involved with the care of your patients? 12. How do you see the use of the CPG as part of a team approach? (to answer only if in a team set-up) 13. Has CPG use impacted on relationships with HCPs involved with your patients? How? 14. Do you feel that the current organization of health systems could have an impact on the application of certain CPGR? (Health system=availability/responsibilities of other professionals, care coordination, laws, etc.) 15. When considering your workload, is it easy or difficult to integrate CPG into your clinical load? *Prompt for why this is the case.* 16. If we implemented CPG for the treatment of LBP in your clinic, how do you think it would be received and why? 17. Are there other factors in your workplace that have or could limit the use of the CPG?
Facilitators	What are the most important factors that facilitate CPG use? *Prompt for why this is the case.* a. Technology (clinical reminders); b. Tailored training programs, patient specific reminders, workshops, retreats; c. Incentives (monetary, time off from work, gift certificates, etc.); d. Mentoring or coaching; e. Other resources (equipment, staff, etc.); f. Social Factors such as teamwork or networks; g. Representation from a diversity of service lines; h. Presence of a CPG champion; i. Supportive leadership; j. Pocket cards/"lite" versions of the CPG? Any others?
Barriers	What are the most important factors that hinder CPG implementation (*Prompt for why this is the case.)*: a. Lack of resources or staff; b. Time (patient interactions are targeted for X minutes); c. Lack of training; d. Not enough support; e. Financial? Any others?

Opinion leader	Who would you consider to be a local or international opinion leader in the field of LBP?
I want to thank you for your participation in this study. Is there anything else you wish to add before finishing?	

Appendix 3: Positioning the researcher within the research

Berger (2015) summarises the term 'reflexivity' as "the process of a continual internal dialogue and critical self-evaluation of researcher's positionality as well as active acknowledgement and explicit recognition that this position may affect the research process and outcome". She continues to state that reflexivity is the "self-appraisal in research… turning of the researcher lens back onto oneself to recognize and take responsibility for one's own situatedness within the research and the effect that it may have on the setting and people being studied, questions being asked, data being collected and its interpretation. As such, the idea of reflexivity challenges the view of knowledge production as independent of the researcher producing it and of knowledge as objective" [32]. When reflecting on studying the familiar, she notes "Being part of the group under study means 'simultaneously being an onlooker in the stalls and a member of the cast' (Shaw, 1996: 10)". The first author used the tables of Pitard (2017) [33], to assist her in determining her ontological (Appendix Table 1) and epistemological (Appendix Table 2) stances in the study. This then assisted her to position herself through her reflexivity practice.

(Appendix) Table 1: Ontological stance

Ontology researchers	**The nature of the world and what we can know about it**	**My positionality**
GUBA and LINCOLN (1994)	Constructivism's approach to ontology includes "multiple, intangible mental constructions, socially and experientially based" (p.110).	I understand that my reality is constructed through my social and experiential history.
HIGGS and TREDE (2009)	Reality is socially constructed. Asks researchers to use words to describe experiences and perceptions of lived world.	I describe my interview findings with other PTs' experiences of CPGs. I understand that it may be different to my own experience with CPGs.
SNAPE and SPENCER (2003)	Reality is only known through socially constructed meaning.	I understand that our reality will be known through socially constructed meaning.

(Appendix) Table 2: Epistemological stance

Epistemology researchers	**How we can know about reality**	**My positionality**
BERGER (2013)	Researchers need to carefully self-monitor the impact of their biases, beliefs and experiences through practice of reflexivity.	I must highlight the use of reflexivity as a process that I followed since the design of my study, during data collection and data analysis.
COHEN and CRABTREE (2006)	Researchers' values are intrinsic, findings emerge through dialogue.	I have to acknowledge my own values and how they influence my interpretation of the data.
DERVIN (2003)	Context is a process. Attention must be given to change over time, to emergent and fluid patterns.	I have to understand how my thought processes have changed during the data collection period, but also during the process of data analysis.

HIGGS (2001)	Reality is constructed intersubjectively through interpretivism.	I acknowledge that how I conducted each interview and how I follow the iterative process of data analysis, is constructed through my own interpretation of the answers given and the data presented to me.
LINCOLN and GUBA (1985)	Impossible to separate cause from effect as all entities are in a state of simultaneous shaping.	The interviews may have started to change the way I look at my own experience of CPGs and will influence how I interpret the data during the process of analysis.
PENG and NISBETT (1999)	The dialectical process allows a community with different cultural backgrounds to come to an understanding of their social world.	I acknowledge that I interviewed PTs from different sectors, but due to all the participants being physiotherapists, we were able to engage with each other during the interviews.
PICKARD (2007)	Interpretivism seeks to understand the entire context both micro and macro.	I wanted to understand each PT in their own environment and how they experienced CPGs.
SNAPE and SPENCER (2003)	An interpretivist/constructivist research paradigm assumes the researcher and the social world impact on each other, and findings are inevitably influenced by the researcher's perspective and values.	I acknowledge that my experience in CPG influenced me as the researcher, but also influenced me in how I interpret the data. The researcher thus influences the research and even the researched, as the way I conducted interviews were influenced by the interaction with the participants.
RUSSELL and KELLY (2002)	Acknowledge transient nature of reality while being mindful of the interpersonal relationships that ultimately shape and define our experience.	I acknowledge that during this process of interviewing, the way I approached the interview and how I conducted subsequent interviews, have also influenced how I interpret my data and have influenced how I perceive CPGs.
	Reflexivity also allows researchers to become aware of what inhibits their seeing or knowing.	I have to stay conscious of how I am interpreting the data and stay focused on my research question and what I want to achieve through my data analysis.
WATT (2007)	Use of reflexivity is deemed essential because researcher is primary instrument of data collection.	I acknowledge that I am part of the research through being the primary instrument of data collection and I cannot remove my own experience and perceptions from the interpretation of my data due to me being part of the data collection.

What do I believe underpins my knowledge of my topic?

I come from a clinical background, working in the field of musculoskeletal physiotherapy for 11 years before entering the academic arena in 2015. I worked in South Africa and Australia and was privileged to know how the private sector and then public sector work in South Africa and Australia. The participants that agreed to participate in my study noted that they agreed because they were trying to assist someone in a field that they felt passionate about. When I was a clinician, I did not use CPGs and I relied heavily on text books and colleagues when I needed advice on the management of certain conditions. Even though I attended courses in physiotherapy, I would not have labelled my practice as evidence-based. When I was introduced to CPGs as a

new academic, I felt slightly embarrassed that this did not form a bigger part of my previous practice. This became both a drive for me to educate PTs in this practice and a point of frustration, as I felt that I couldn't be the only PT that was using CPGs often in practice.

Where did I gain this belief?

I completed my undergraduate Physiotherapy degree at Stellenbosch University and master's degree at the University of Western Australia, I had a good experience in both South African and Australian teaching. At an undergraduate level, we had one subject on problem-based learning that focused on EBP, but I cannot remember that CPGs were prominent in teaching practices.

How does this belief influence the way I react to situations and people?

I think that on some level I want to think that other PTs are also not aware of CPGs to support my gut-feeling that EBP is not practiced widely among PT clinicians. I think that my background also shaped the way that I approached my interviews and that the people that haven't used EBP as often, I perhaps felt more of a connection to.

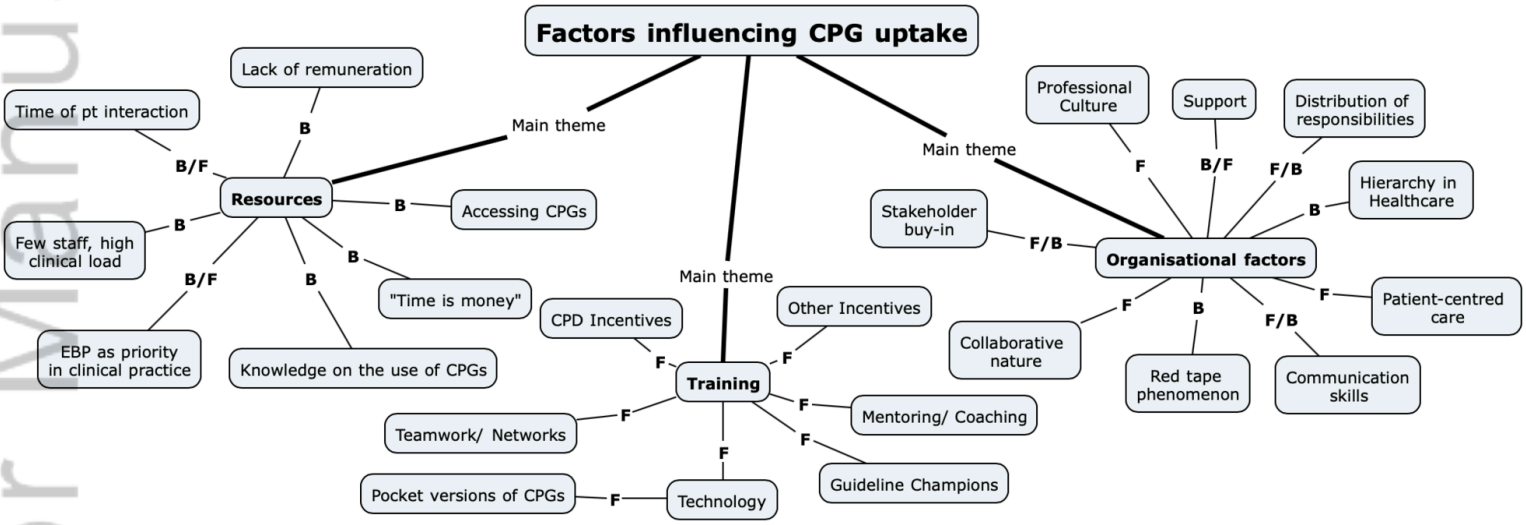
How do the assumptions, which I have accumulated from my life experiences, affect my reflexivity in my research?

I need to constantly bring myself back to my research question, but also to the literature as a manner in which to maintain my objectivity during my data analysis, and not wanting to interpret other PTs' experiences as similar to my own, but rather for their "story" and their view to be imprinted onto their views.

Power relationship between researcher and participants

There may have been a perceived power dynamic between myself, as the researcher, and the study participants [32]. This could be due to some participants that knew me from previous professional associations that I was involved with, previous student interactions or even that some felt unsure what CPGs were concerning and thus contributing to a feeling of uncertainty with how to answer questions. Some of the participants would ask me after answering a question, whether that was the "correct" answer. I addressed the power relationship as much as possible by sharing some of my own experiences with CPGs and assuring them that their view/ uncertainty with regards to CPGs, would help sculpt a way forward with CPGs.

JEP_13182_Figure 1.tiff



JEP_13182_Figure 2.tiff