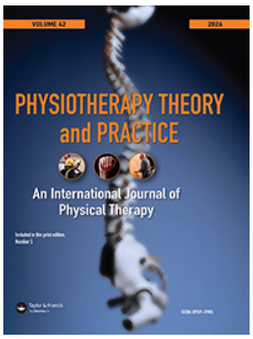

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QUALITATIVE RESEARCH REPORT

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Orthopaedic consultant's experiences and perceptions regarding advanced practice physiotherapists in orthopaedic clinics: a qualitative study

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ABSTRACT

Background: Perceptions of key stakeholders may be barriers or facilitators to advanced practice physiotherapy services. However, the experience and perception of orthopedic consultants regarding advanced practice physiotherapy roles is poorly understood.

Objective: Explore orthopedic consultants' experiences and perceptions regarding advanced practice physiotherapists in adult orthopedic clinics.

Methods: Qualitative study: Reflexive thematic analysis of data from semi-structured interviews with twelve orthopedic consultants practising at Royal Perth Hospital. Interviews were driven by indicative questions based upon contemporary literature regarding advanced practice physiotherapy and conducted using a constructivist lens to capture diverse perspectives. Themes/subthemes were reviewed by the entire research team.

Results: Four themes, capturing conflicting views, were derived: 1) APP role clarity. 2) Enhancement of orthopedic services. 3) Health system challenges. 4) Expectations of orthopedic services. Theme one reflected a lack of clarity, amongst orthopedic consultants interviewed, regarding the advanced practice physiotherapist's role, scope of practice and level of education, while complimenting their diagnostic skills. Theme two highlighted enhancement of orthopedic services through thorough biopsychosocial assessments, contrasting perceptions regarding advanced practice physiotherapist efficiency, and considered whether advanced practice physiotherapists are a burden on orthopedic clinics. Theme three considered shifting clinical responsibilities and the perceived need for clinical pathways. Theme four highlighted negative perceptions of patient and referrer feedback.

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Advanced practice; orthopedics; qualitative; consultant; perception; physiotherapist

Introduction

Worldwide, the number of Advanced Practice Physiotherapists (APPs) is growing (Tawiah et al., 2021), with the majority in musculoskeletal care (Tawiah et al, 2025). Such roles have existed in orthopedics for over 35 years (Byles and Ling, 1989). APPs function similarly to orthopedic consultants regarding diagnostic accuracy, appropriateness of triage, patient satisfaction and outcomes (Lafrance et al, 2023; Trøstrup, Juhl, and Mikkelsen, 2020; Vedanayagam, Buzak, Reid, and Saywell, 2021). APP services decrease waiting times and healthcare expenditure (Trøstrup, Juhl, and Mikkelsen, 2020). Despite the volume of evidence validating APPs in practice, there are many barriers to implementation and continuity of APP roles (Shaw et al, 2018).

Perceptions of key stakeholders may be barriers or facilitators to APP services (Shaw et al, 2018; Wiles and Milanese, 2016). APP orthopedic services are generally perceived positively and supported by referring general practitioners (GPs) (Byles and Ling, 1989; Pellekooren et al., 2022). APPs often work closely with qualified, orthopedic consultants – running concurrent clinics and discussing complex cases. Consultant perceptions of APP services in other specialties (e.g. emergency department) have been examined (Barrett and Terry, 2018; Ferreira, Traeger, O'Keeffe, and Maher, 2018; O Mir et al, 2021) and are generally positive. However, despite a longstanding APP presence in adult orthopedics, the experience and perception of orthopedic consultants regarding APP roles is poorly understood.

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One early study (Milligan, 2003) examined orthopedic registrar perceptions of APPs. It limited interview topics to APPs' clinical ability and effectiveness – views regarding which varied, being more favorable with personal experience of APPs; and concerns regarding litigation risks. While of its time, over the more than 20 years since publication, APP roles have evolved. There is an absence of contemporary qualitative research regarding orthopedic consultants' experiences and perceptions of APP services in adult orthopedics. Orthopedic consultants are highly influential regarding APP services (Shaw et al, 2018; Wiles and Milanese, 2016), therefore understanding their experiences and perceptions is a crucial step in service development and provision. This study aimed to explore orthopedic consultants' experiences and perceptions regarding APPs in adult orthopedic clinics.

Materials and methods

This was a qualitative study exploring orthopedic consultants' experiences and perceptions regarding APPs. It followed the Consolidated Criteria for Reporting Qualitative Research checklist and reporting guidelines (Tong, Sainsbury, and Craig, 2007).

The research complied with the Australian National Health and Medical Research Council National Statement on Ethical Conduct in Human Research (National Health and Medical Research Council, 2023) and Declaration of Helsinki (World Medical Association, 2013) and received ethical clearance from the WA Health Health Central Human Research Ethics Committee (Approval number: RGS0000006667, August 8, 2024). Participants gave written informed consent.

All orthopedic consultants ($n = 21$) practising at Royal Perth Hospital were invited to join the study by e-mail via the department administrative team, through posters and meeting announcements. Given debate regarding sample sizes in qualitative research, particularly for reflexive thematic analysis (Ahmed, 2025; Braun and Clarke, 2021, 2024; Wutich, Beresford, and Bernard, 2024), we aimed to recruit as many participants as possible. Participants were provided with indicative questions and the background to the research question prior to participation.

Inclusion criteria: Participants were orthopedic consultants practising at Royal Perth Hospital.

Participants completed a questionnaire capturing: age, gender, years qualified as a consultant, country(s) where they trained in orthopedics, whether they worked with APPs during orthopedic training, whether they have worked with APPs as a consultant, and whether they currently work alongside an APP.

Participants completed a 20–40-minute semi-structured interview with one researcher (MR/NF) with whom they did not work clinically. The interview was driven by indicative questions, based upon contemporary literature regarding APP services and the research team's expertise. Questions were generally open in nature, allowing capture of perceptions, experiences, and understandings of the participants (Appendix). Interviews were conducted using a constructivist lens, aiming to capture diverse perspectives (Hunt, 2009). Questions were tailored to capture positive and negative perceptions and experiences of APPs.

Interviews were conducted face-to-face at Royal Perth Hospital, audio recorded and transcribed verbatim using Microsoft Teams. No field notes were taken, however, the interviewer reviewed the transcript for accuracy at the earliest convenience and provided a copy to the interviewee for verification, allowing them to correct errors.

Data were analyzed using reflexive thematic analysis, a flexible approach allowing inductive linkage of data to semantic and latent themes and messages within the data, providing great insight into phenomena (Braun and Clarke, 2006; Terry and Hayfield, 2021). To focus on the meaning within the data and reduce the researcher's preconceptions, coding was derived from the data rather than based on preexisting coding framework (Braun and Clarke, 2006). Two researchers (MR/DOB) independently coded data to develop themes/subthemes, then discussed their findings, resolving discrepancies (Terry and Hayfield, 2021). Data collection and analysis were carried out concurrently, allowing insights developing in earlier interviews to be checked later (Hunt, 2009). Developed themes/subthemes were presented to the entire research team for review, ensuring a deep level of interpretation concerning the research question (Terry and Hayfield, 2021). Researchers not involved in data collection were blinded to participant identities.

Royal Perth Hospital is a public tertiary teaching hospital serving approximately 2.8 million people over approximately 2.5 million square kilometers. APP spinal surgery services commenced at Royal Perth Hospital in 2007 and have been followed by orthopedic foot/ankle and shoulder APP clinics, and a chronic pain APP clinic, since 2019. APPs independently assess and manage people referred with chronic orthopedic complaints (clinics have standard operating procedures and referral criteria for different disorders e.g. hallux valgus), discussing cases with consultants where necessary. Wait times for clinic appointments for chronic conditions currently vary from one to three years. The duration of new

patient appointments is 60 minutes for spinal clinics and 30 minutes for foot/ankle and shoulder clinics. Follow-up appointment duration is 30 minutes. Of the 21 orthopedic consultants practising at Royal Perth Hospital eight currently hold clinics concurrently with APPs (1.3 FTE).

Interviewers were experienced orthopedic APPs at Royal Perth Hospital. MR has practised as an APP in the U.K. and Australia, for over six years. NF has practised as an APP in Australia for 18 years. Within the public health system in Australia, APPs are unable to refer for imaging other than X-rays, have limited referral rights to other healthcare practitioners, cannot prescribe, inject or list for surgery. Researchers conducting analyses (MR/DOB) were experienced musculoskeletal physiotherapists and experienced qualitative researchers. DOB is based in Aotearoa New Zealand. Other researchers included CB, a Specialist Musculoskeletal Physiotherapist (As awarded by the Australian College of Physiotherapists in 2010) with over 25 years' experience as an APP in the U.K.; and PR, an orthopedic consultant in the U.K. with over 25 years' experience working closely with APPs. Therefore, the team brought diverse, international perspectives to the analysis.

Results

Twelve orthopedic consultants with between four and 36 years since qualification as consultants (median 9.5 years, interquartile range 7.25–22.25 years), seven currently working alongside APPs (Table 1), were interviewed between September and December 2024. Five participants specialized in spinal orthopedics and seven in peripheral orthopedics. Four themes, capturing conflicting views, were derived: 1) APP role clarity 2) Enhancement of orthopedic services. 3) Health system challenges. 4) Expectations of orthopedic services.

APP role clarity

For some orthopedic consultants, despite having worked alongside APPs previously, there was a lack of clarity regarding APP roles, as summarized by participant 1: *"the difficulty is in defining what it is that they can do and also what it is they can't do."* Several participants were unsure if they worked with APPs: *"I find it difficult to identify advanced physios, so I don't know for sure if I have been working with them* [APPs]" (Participant 3).

Clinical role

The clinical role of APPs was not clear to all orthopedic consultants. There were conflicting views regarding the diagnostic/triage role of APPs or whether APPs should fulfill traditional physiotherapy roles. However, orthopedic consultants were complimentary regarding APPs diagnostic skills.

Some consultants expressed uncertainty about what the role should entail, particularly regarding diagnostics/triage. Participant 8, not currently working alongside an APP, stated, *"[it's not] your [APPs'] job to go, "Does this person need surgery or not?"* Participant 4, who does work alongside an APP, voiced, *"I'm not aware that you [APPs] are allowed to make a decision without running it by us."* Conversely, participant 5 who has had high career exposure to APPs, said, *"Find out if a patient needs surgery or not. As simple as that. It's black and white. That is the role of the APP,"* while participant 7 complimented, *"you've been very good at separating out surgical, non-surgical, physiotherapy, pain medicine and without you [APPs], I think we'd be inundated with non-surgical patients."*

Table 1. Demographic details of participating orthopedic consultants.

Participant number	Age (years)	Gender	Years qualified as an orthopedic consultant	Country(s) where trained in orthopedics	Worked with APP during orthopedic training (Yes/No)	Worked with APP as orthopedic consultant (Yes/No)	Currently work alongside APP (Yes/No)
1	47	Male	9	Australia, U.K.	Yes	No	No
2	55	Male	20	U.K.	Yes	Yes	Yes
3	44	Male	10	Australia	Yes	Yes	No
4	53	Male	16	Australia	No	Yes	Yes
5	69	Male	34	Australia	Yes	Yes	Yes
6	37	Male	4	Australia	Yes	No	No
7	47	Male	8	U.K.	Yes	Yes	Yes
8	57	Male	29	Australia, U.K.	No	Yes	No
9	41	Male	8	Australia	Yes	Yes	Yes
10	46	Male	5	Australia	No	Yes	Yes
11	44	Male	5	Australia	Yes	Yes	Yes
12	71	Male	36	Australia	No	No	No

APP – advanced practice physiotherapist.

Highlighting role confusion, some orthopedic consultants described APPs as fulfilling traditional physiotherapy roles, such as *"physio input for urgent patients"* (Participant 3), *"personalised rehabilitation programs,"* or *"manual therapy"* (Participant 10), despite working alongside APPs during their careers. Conversely, for several consultants APPs were seen to *"function like a registrar,"* and were *"very much a screening tool"* (Participant 6). Consultants running concurrent clinics with APPs elucidated this as: *"[The APP's role] should be to plan to a pathway, make a diagnosis, find the pain, confirm the pain – that's injections – and then come and say, well, we've now reached a stage where I would like to you* [the orthopedic consultant] *to consider this patient for surgery,"* (Participant 2), or, *"Working them up . . . you'll [the APP] be able to select patients that have exhausted non-operative management including injections and need to be referred for surgery"* (Participant 11). One consultant saw APPs as, *"definitive care for patients that don't need surgery,"* (Participant 9), allowing, *"orthopaedic surgeons to focus on operative cases,"* (Participant 10).

Working in diagnostic/triage roles, APPs need appropriate skills. At odds with participants' varied thoughts regarding APPs' scope/role, views were generally complimentary regarding diagnostics. Participant 2 said APPs, *"produce a comprehensive assessment far in excess of what most registrars and trainees* [trainee orthopedic surgeons] *can,"* adding, *"Physiotherapists are unlikely to order spurious investigations*." Participant 8 commended, *"I have never had one where I think it's been misdiagnosed or mismanaged to the point where I'm covering*." Participant 5 said, *"I actually can't remember the last time I didn't agree."*

APP education

Asking orthopedic consultants what education an APP has, or needs, revealed varying levels of understanding and suggestions for "on-the-job" training. Participant 12, who has never worked alongside an APP, stated, *"I have not been educated in what they [APPs] actually do or how they're qualified."* Conversely, while participant 10 (runs concurrent clinics with APP) mentioned a *"lack of consistent, national, Australia-wide standards,"* they knew "*to become an APP you need a Master's degree in physiotherapy on top of a Bachelor's degree."* With similar exposure to APPs, participant 7 noted, *"I don't know if there's a formalised process of training"* but acknowledged APPs, *"should have a more specialized understanding of the field they're practicing in,"* without knowing, *"how you credential that"* (Participant 9).

Many suggested *"exposure to the thought processes of the consultants"* (Participant 2) was important as part of *"apprenticeship-based learning"* (Participant 5). This necessitates *"having continuity long-term . . . .they [APPs] get to know how the department typically manages things"* (Participant 6). On-the-job training could involve, *"sitting in surgeries to see what it is we [orthopaedic consultants] actually know and understanding why we do things a certain way"* (Participant 3) and case discussions: *"present your positive findings and present a plan and then you see the thought processes behind why I [orthopaedic consultant] am going to do this next"* (Participant 2). However, barriers were raised. Participant 9 stated, *"I don't think orthopaedic surgeons need to be involved in credentialing,"* while participant 7 echoed views of several consultants: *"Those clinics are crazy, you can't really teach."* One consultant, who has never worked with APPs, highlighted a potential educator role for APPs: *"You guys should be involved in registrar education because of your specific knowledge of musculoskeletal pathology and anatomy"* (Participant 12).

Scope of practice

In the Australian public health system APPs extension of scope is limited, for example, they cannot independently request imaging beyond x-rays, prescribe or perform injections. Many consultants believed the APPs at Royal Perth Hospital Hospital could extend their scope further. Several consultants currently running clinics alongside APPs suggested APPs' *"should be able to fill out MRI scan forms,"* (Participant 5), however, it was suggested that *"if it was CT or something with more radiation, it should be run past someone"* (Participant 11). Many participants believed APPs should inject, e.g. *"Nerve root sleeve injections or facet joint injections – they could be achieved quite easily by an extended scope practitioner* [extended scope practitioner – often used interchangeably with APP]" (Participant 2), enhancing service provision: *"Injecting the subacromial space? . . . if you were going three doors that way to get jabbed by someone who's doing six of them today, that's a pretty good service"* (Participant 11). However, some consultants, not currently working with APPs, were unsure of the usefulness of APPs having prescribing rights, stating, *"I wouldn't say it's a definite [that] prescribing will provide benefit for an advanced scope physiotherapist,"* (Participant 6), or the scope of any prescribing, *"Prescribing: absolutely fine – you know, anti-*

inflammatories … It's where you draw the line," (Participant 8) and noted an educational gap *"[regarding pharmacology/interactions] a doctor in that role would know that these are the potential things that could interfere,"* (Participant 6).

Enhancement of orthopedic services

Orthopedic consultants' opinions varied on whether APP services were efficient. While some consultants highlighted the usefulness of APPs biopsychosocial approach to care, others suggested APPs increased clinic burden and detracted from trainees' experience.

Benefits of a biopsychosocial approach

Some consultants, working closely with APPs, acknowledged APPs holistic, biopsychosocial assessments noting APPs *"value add … .bring a different outlook to the disease and management of disease to what we do."* (Participant 4) Participant 5 noted *"[APPs] have the time and expertise to go into those issues in a bit more detail which is beneficial for patient."*

Questionable efficiency of APP services

Efficiency of APP services was questioned by some. The view of a consultant who had worked with APPs during training, but no longer does, was, *"[The APP service] It's an administrative requirement to make the wait list look better,"* adding *"Patients ideally would like to be seen by a doctor, so it's more of a workforce allocation. They don't want to pay more doctors,"* (Participant 1). Another consultant who holds concurrent clinics with an APP acknowledged they were unaware of how many patients APPs saw: *"It'd be nice to see what the numbers are like"* (Participant 4). Several participants currently working alongside APPs held more positive views. Participant 10 suggested an APP service "*improves efficient access to healthcare,"* and participant 9 stated, *"my waitlist was out of control, it was a good way of seeing some more referrals."* Perhaps the middle-ground, reflective of other opinions, was given by participant 2: *"[Are APPs efficient?] In terms of numbers? No, but that's fine. Or waiting lists? No. Well, absolutely every single patient that gets seen is a patient less."*

Burden on orthopedic clinics

Some participants felt APPs increase clinic burden: *"You're basically overbooking [the consultant's] clinic if you [the APP] have to talk to him"* (Participant 1, worked with APPs during training, but not since). Participant 9, who currently runs a clinic alongside an APP, mentioned, *"There'd be multiple patients per clinic that I'll probably go have a look at, so running in that hybrid model is less desirable for us because it doesn't decrease our workload to the same degree or it doesn't increase the amount of patients that can be seen."* However, many interactions between APPs and consultants relate to imaging. Participant 4 noted the APP does, *"a lot of waiting around for me [orthopaedic consultant] to be free when she [APP] could actually be seeing the next patient – she often needs me to countersign imaging requests."* Participants not working alongside APPs expressed beliefs APP clinics were, *"taking away registrar experience"* (Participant 12), or that registrars, *"would feel cheated that all the easy ones are going to the physio,"* (Participant 6), while participant 1 recalled, *"when I was in London, we were left with all the horrible, complicated, dissatisfied patients."*

Health system challenges

Consultants suggested APP services needed to be driven by physiotherapy departments, need to be developed using clear guidelines/pathways and that consideration should be given to APPs roles/responsibilities within the orthopedic department.

Implementation challenges

Participant 6, who does not have an APP clinic running concurrent to theirs, said, *"For implementation of an advanced scope physiotherapy pathway, I would say that a lot will come down to the physiotherapy department to be able to structure something."* Participant 9 noted inertia would need to be overcome, *"that's how historically it's run over the last 30 years, there's more of a culture of just accepting things the way they are."*

Related to diagnostics/triage, participants suggested clear pathways were important. Participant 6, who has not worked alongside an APP since their training, believed, *"[APPs] work best with clear guidelines about what is expected and pathways, but it is knowing when to deviate from said pathway, or when a patient is deviating from said pathway, that is the potential drawback to having an advanced scope physiotherapist."* Conversely, the experience of participant 5 who runs concurrent clinics with an APP suggested, *"if the physio concerned has any doubts at all about what pathway to go, they'll discuss it with the consultant,"* and regarding which patients APPs should see, participant 8 thought APPs and orthopedic doctors should *"all work together off the same list … there is really no blatant surgical [candidate]."*

Shifting responsibilities

The suggested need for pathways may relate to concerns that APPs have taken on roles without corresponding shifts in responsibilities. Participant 6, who has not worked alongside an APP since training, noted, *"Anything that happens to the patient is medically our responsibility, which we are protected in public hospital with hospital defence, but honestly it still doesn't take away the fear and the hesitancy."* Stronger views were voiced: *"As an orthopaedic surgeon who has the most power in management of these type of patients, I would think it's a bad thing, because we like to have power, and we don't like to give it up,"* adding APPs are, *"a new discipline trying to achieve power and perhaps a modicum of control over patient management, and to influence policy, and standard practice,"* (Participant 12, who has never worked alongside an APP). Conversely, consultants with high exposure to APPs felt APPs were accepted, *"by the vast majority,"* (Participant 9) within the department, while participant 11 noted it would be helpful to know, *"the roles and processes, and know how people are selected to go to ASPs* [advanced scope physiotherapists – often used interchangeably with APPs] . . . . *Explain what your responsibilities are."*

Expectations of orthopedic services. Orthopedic consultants relayed their perceptions of how patients and referrers might regard APP services.

Relating to patients

Participants reflected on service–user interactions. A *"lack of public awareness"* regarding APPs was noted (Participant 10). Despite varied exposure to APPs, views regarding patient perceptions of orthopedic services appeared negative. Participant 6 suggested this necessitated *"managing patient expectation to be clear that when patients come into clinic they are going into the physio-led clinic"*. Participant 9 said, *"the issue is that they've been waiting for years and then they just see a physio,"* suggesting, *"to keep patients happy you have to bring them in somewhat earlier, you can't bring them in [after] 3 years, into an ASP only clinic and hope they're going to be happy because a lot will be needing surgery."* However, participant 5 noted similar complaints, *"when patients in the busy orthopaedic [clinics] see a registrar or even a fellow"* and participant 2, who works closely with APPs, complimented, *"Am I going to do any patients a disservice by having you or one of your colleagues [APPs] see them? No."*

Relating to referrers

Similar GP complaints were recollected. Participant 3 said, *"What I will hear from GPs is they do get peeved when they send a referral off from a GP to a specialist, only then to be seen by a physio and then referred straight back to the GP – the management might actually be completely appropriate."* Similarly, participant 2 said, *"I have GPs say, I didn't refer them to see a physio and I shout back, I don't care what you referred – we use the resources the best way we can."* Participant 9 noted, *"There is obviously historical bias. There are still some GPs in practice and there are still some patient expectations along those lines as well."*

Discussion

Despite APP roles having existed in orthopedics for over 35 years (Byles and Ling, 1989), and perceptions of key stakeholders being barriers to APP services (Shaw et al., 2018; Wiles and Milanese, 2016), research has not explored consultants' experiences and perceptions regarding APPs in adult orthopedics. This study derived four themes, with several subthemes, relevant to APPs.

The first theme highlighted contradictory viewpoints regarding APPs, including role, scope and whether APPs enhance orthopedic services. When Milligan (2003) published themes from interviews with orthopedic registrars (advanced trainee orthopedic surgeons), similar contradictions regarding diagnosis/triage and scope of practice were voiced. Milligan (2003) concluded, "clinical experience of the ESP [extended scope physiotherapists – often used interchangeably with APPs] alters one's perceptions favorably." (*p10*) Despite strong evidence that APPs function similarly to orthopedic consultants regarding diagnostic accuracy, appropriateness of triage and outcomes (Lafrance et al, 2023; Trøstrup, Juhl, and Mikkelsen, 2020; Vedanayagam, Buzak, Reid, and Saywell, 2021), some consultants' perceptions did not reflect this, suggesting that a sea change in perception regarding APPs has not occurred.

Despite the number of APPs growing worldwide (Tawiah et al, 2021), barriers to implementing these roles remain complex, as acknowledged by national-level strategies to drive role development (Masso and Thompson, 2016; Morris et al, 2014; Pellekooren et al, 2022). While there are commonalities across APP roles internationally (Fennelly et al, 2020), development of international competency standards for APPs (Maddigan et al, 2025; Tawiah et al, 2024, 2024a), and stakeholder education regarding these standards, will be key facilitators. Orthopedic consultants had varied understandings of APP education levels, possibly reflective of their international training and varying APP educational (both formal and on-the-job) standards across jurisdictions. APPs should consider how they best communicate their role, skills and expertise to

other healthcare practitioners, including referrers, and to the public.

The second theme explored consultants' beliefs as to whether APPs enhance orthopedic services. Despite significant international data highlighting APPs' positive effects on waiting times and healthcare expenditure (Lafrance et al, 2023; Trøstrup, Juhl, and Mikkelsen, 2020; Vedanayagam, Buzak, Reid, and Saywell, 2021), several viewpoints suggested APPs were inefficient and actually placed a burden on orthopedic clinics and the education of trainee orthopedic surgeons. A novel finding was the appreciation of APPs' ability to offer thorough biopsychosocial assessments for more complex cases.

Theme three reflected barriers to advanced physiotherapy practice flagged during previous research, such as the need for physiotherapy departments to drive for service implementation, perceived need for clear practice pathways and concerns regarding legal responsibilities surrounding patient care (Milligan, 2003; Shaw et al, 2018; Wiles and Milanese, 2016). Finally orthopedic consultant recollections of negative feedback when patients "*just see a physio,*" were captured, despite being contrary to broader evidence showing high patient satisfaction and positive GP perceptions of APP services (Byles and Ling, 1989; Fennelly et al, 2020; Lafrance et al, 2023; Pellekooren et al, 2022; Samsson, Bernhardsson, and Larsson, 2016; Trøstrup, Juhl, and Mikkelsen, 2020; Vedanayagam, Buzak, Reid, and Saywell, 2021).

This study offers several strengths, enhancing the depth and credibility of its findings. By focusing on orthopedic consultants, critical decision-makers for APP services (Shaw et al, 2018; Wiles and Milanese, 2016), insights are directly relevant to APP service implementation and continuity. Participants were heterogeneous across age, consultant tenure, international training, subspecialty and current exposure to APPs, enriching contextual understanding. Insider interviewing by experienced APPs enabled informed, probing dialogue, while reflexive thematic analysis allowed capture of nuanced, contradictory views. To strengthen rigor, we maintained reflexivity, included an analyst with no APP background, and sought external review by an experienced APP and orthopedic consultant outside Australia, broadening perspectives and enhancing credibility. Limitations reflect an interpretivist, context-bound design. This study drew on a relatively small sample, recruiting as many orthopedic consultants as possible from one tertiary teaching hospital, tempering transferability. All participants were men practising in Australia's public system where APPs do not have an extended scope (e.g. do not inject); views may therefore differ in other systems or gender-diverse, international cohorts. It should be noted that several participants were unsure if they currently worked with APPs, which may have influenced their perceptions, even if they had worked with APPs in the past. Researcher positionality is an inherent consideration when interviewers are APPs. We mitigated this through reflexive practice, analytic triangulation with a non-APP analyst and external peer review. Accordingly, findings should be read as context-rich insights rather than broad generalizations. Consistent with our interpretivist aim, this study's value lies in deepening understanding of how orthopedic consultants perceive APPs, with methodological reflexivity supporting the credibility of these interpretations.

This study highlights key considerations for APP services. There is a need for the conveyance of explicit role definitions, educational standards and international credentialing to support safe and effective integration of APPs. APP roles need collaboration across all stakeholders (physiotherapy departments, orthopedic consultants, patients, referrers) to facilitate clarity and set expectations. Critical evaluation of APP services' patient-centredness is needed to ensure end-user benefit. It should also be considered that APP services may add alternative value to orthopedic services, such as offering thorough biopsychosocial assessments. Despite international data reflecting positive effects of APP services on waiting lists and healthcare expenditure (Lafrance et al, 2023; Trøstrup, Juhl, and Mikkelsen, 2020; Vedanayagam, Buzak, Reid, and Saywell, 2021) APP services should examine efficiencies and cost-effectiveness locally to influence departmental perceptions.

Author contributions

CRediT: **Martin Rabey:** Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Project administration, Resources, Supervision, Validation, Visualization, Writing – original draft, Writing – review & editing; **Nicky Fortescue:** Conceptualization, Formal analysis, Investigation, Methodology, Project administration, Resources, Validation, Visualization, Writing – review & editing; **Catherine Barrett:** Formal analysis, Methodology, Validation, Visualization, Writing – review & editing; **Peter Reilly:** Formal analysis, Methodology, Validation, Visualization, Writing – review & editing; **Daniel O'Brien:** Conceptualization, Formal analysis, Methodology, Resources, Validation, Visualization, Writing – original draft, Writing – review & editing.

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Data availability statement

The data that support the findings of this study are available from the corresponding author, MR, upon reasonable request.

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Appendix

Orthopedic consultants' experiences and perceptions regarding advanced practice physiotherapists (ASPs) in orthopedic clinics: A qualitative study.
Research Question: What are the experiences and perceptions of orthopedic consultants regarding advanced practice physiotherapists in orthopedic clinics?

Interview format

Introduction to the research
The researcher(s) introduction – provide a little information about the project, purpose and goals, and the researcher(s).
Introduce the participant based upon their demographic questionnaire data

Indicative Questions

Key "starter" questions:
Can you tell me about your understanding of the APP role?
What are the strengths of APPs? What are their weaknesses?
Can you tell me about a time when you thought an APP acted with a very high/inadequate level of competency?
Are APPs accepted/integrated within the orthopedic department? What influences this level of acceptance/integration?
What level of education do you think an APP has/needs? What makes them competent?
What impacts do ASPs have on orthopedic services?

Potential follow-up questions:

Are APPs capable of managing the orthopedic patient's entire episode of care?
Have your perception of APPs changed over time? Why?
Is "on the job training" / mentoring important?
In the UK APPs have greater autonomy. What are your views on APPs ordering/interpreting investigations – e.g. MRI, bloods? Triaging? Prescribing? Injecting? Listing patients for surgery?
Who do you believe is ultimately responsible for the APP Clinic and its patients? Do you consider APPs vulnerable to litigation?
Do you have a perception of patient satisfaction with APP services?
Do you think APPs have an educational role?
Anything you would like to bring up that we haven't discussed?