



Healthcare Professionals' Perspectives of Nonsurgical Care of Older Inpatients with Class II or III Obesity and Comorbidities: A Qualitative Study

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Background: Older people with Class II or III obesity and comorbidities experience complex care needs with frequent hospital admissions. In 2019/20 the National Health Service in England reported a 17% increase in hospital admissions of patients with obesity compared to 2018/19. Gaps in care for this population have been identified.

Purpose: The purpose of this study was to understand the experiences and perspectives of healthcare professionals delivering non-surgical care to older people with Classes II or III obesity admitted to a tertiary care hospital.

Methods: Healthcare professionals delivering non-surgical care to older people admitted with Class II or III obesity with comorbidities were recruited from an Australian tertiary referral hospital. Qualitative semi-structured interviews were conducted with 24 healthcare professionals from seven disciplines between August and December 2019. The interviews were audio-recorded, transcribed, and reviewed by participants for accuracy. Thematic inductive data analysis was deductively mapped to the Theoretical Domains Framework (TDF).

Results: Four major themes of Barriers, Facilitators, Current Practice, and Recommendations and 11 subthemes were identified and mapped to nine domains in the TDF. The Barriers subtheme identified perceived patient related factors, health system issues, and provider issues, while the Facilitators subtheme included a patient centred approach, knowledge, and resources in the subacute setting. The major Current Practice theme explored factors influencing clinical management, and the Recommendations subthemes included engaging patients, access to quality care, education and support, and obesity as a chronic disease.

Conclusion: This novel application of the TDF provided broad insights related to the barriers and facilitators in delivering non-surgical care to this hospital population, from the perspective of healthcare professionals. Understanding how these barriers interact can provide strategies to influence behaviour change and assist in the development of a holistic multidisciplinary model of care.

Keywords: model of care, theoretical domains framework, hospitalized, obesity

Introduction

Older people with Class II or III obesity (defined as body mass index (BMI) ≥ 35 kilogram divided by height in meters squared (kg/m^2) or body mass index ≥ 40 kg/m^2 , respectively) have age and weight related comorbidities needing complex care and frequent hospital admissions.¹⁻⁴ In 2017–18 Australian data reported 31% of adults were living with obesity (BMI ≥ 30 kg/m^2).⁵ In 2019/20 the National Health Service in England reported a 17% increase in hospital admissions of patients with obesity compared to the 2018/19 period.⁶ Readmission to hospital is also higher for people with severe obesity. Fusco et al⁷ reported a 28-day readmission rate of 8.1% for those with severe obesity compared to 5.4% for people without obesity. With the increasing challenge of hospital admissions and readmission for older people

with Class II or III obesity and comorbidities there is a need to understand health care professionals concerns around care delivery of this population.^{1,8}

In Australia, Class II and III obesity are classified as a chronic condition, however several organizations internationally classify this level of obesity as a chronic disease, resulting in variations in approaches to funding and treatments.^{9–12} Internationally, policy documents and clinical guidelines recommend person-centred models of care (MOC) for effective prevention, assessment, and management of obesity.^{11,13–16} To implement a person-centred model of care an understanding of factors influencing HCP and patient behaviour is required.¹⁷ The Theoretical Domains Framework (TDF) has 14 domains and has been successful in assisting researchers and quality improvement managers to understand factors influencing behaviours.¹⁸ Using these factors in conjunction with other frameworks like co-design,¹⁹ or the behavior change wheel,²⁰ successful strategies for MOC and improving patient care have been developed.^{17,18,21–23}

Little is known about factors influencing care of people with obesity in the non-surgical inpatient setting. Qvist et al²⁴ identified a gap in the literature on the experiences and perceptions of HCPs delivering inpatient care to people living with obesity (PwO) however, their study explored the experiences and perceptions of clinical leaders and managers rather than front line HCPs. Gunasekaran et al²⁵ also reported the same gap in the literature as Qvist et al, stating HCP perspectives on stigma and recovery in mental health settings “may provide important insights towards stigma that are otherwise unattainable from caregivers and consumers”. We therefore sought to understand the experiences and perspectives of healthcare professionals delivering non-surgical care to people with Classes II or III obesity admitted to a tertiary care hospital.

Materials and Methods

Study Design

This qualitative study used a hybrid method of thematic analysis of HCP interviews, incorporating inductive and deductive analysis. Approval for the study was granted by the Hunter New England Human Research Ethics Committee (NSW REGIS 2018/ETH00601). The Consolidated Criteria for Reporting Qualitative Research (COREQ)²⁶ guided reporting ([Supplementary Box 1](#)).

Setting, Participants, and Recruitment

This study was conducted within a tertiary referral hospital in regional Australia. Participants were eligible for this study if they were HCP providing non-surgical care to inpatients with Class II or III obesity. The patient group they were providing care for was people over the age of 50 years for non-Indigenous people and over 45 years for Indigenous people. The age ranges for this study were defined after considering the years of life lost for people with obesity (13 years), as reported by Fontaine et al,²⁷ and by examining the 28-day readmission rate for patients with a BMI ≥ 35 kg/m² within the district health service where the study was conducted. The district health service data reported a 28-day readmission rate of 37% for non-Indigenous patients ≥ 55 years of age and 40% for Indigenous patients ≥ 45 years of age (unpublished data). Invitations to participate were extended to HCPs by nurse unit managers, staff meeting chairpersons, and through study flyers displayed in staff tearooms. [Table 1](#) details the inclusion and exclusion criteria. The first author

Table 1 Inclusion/Exclusion Criteria

Inclusion Criteria	Exclusion Criteria
Consenting to participate	Not consenting to participate
Available for a semi-structured interview	Unavailable for a semi-structured interview
Delivering non-surgical care to older inpatients with BMI ≥ 35 kg/m ² and comorbidities in a tertiary referral hospital (Changed to maintain anonymity)	Not delivering non-surgical care to older inpatients with BMI ≥ 35 kg/m ² and comorbidities in a tertiary referral hospital (Changed to maintain anonymity)

Abbreviation: BMI, body mass index.

obtained informed consent from all participants. The participant information sheet and the consent form both informed participants of the possibility of publication of anonymized quotes. All data were deidentified before analysis.

Data Collection

Semi-structured interviews were conducted within the privacy of staff offices or hospital meeting rooms between August and December 2019 using an interview guide developed by the research team ([Supplementary Table 1](#)). Interviews were ceased at data saturation, this was the point where no new themes, ideas or information were evident during the interviews.²⁸ The guide was consumer tested with a patient hospitalized with Class III obesity and comorbidities at the time of development. Interviews were audio-recorded and transcribed using an external encrypted transcription service. Transcriptions were checked against the audio-recordings by one member of the research team (the first author) and emailed to the participants for verification. Transcriptions with participant corrections (n=3) replaced the original transcriptions in the analysis.

Data Analysis

The NVIVO 12 Pro software program (QSR International, Melbourne, Australia) was used to assist with data organization. The interview raw data were analysed using inductive thematic analysis as described by Nowell et al.²⁹ Deductive thematic analysis mapped the themes to the domains of the TDF version 2 to identify factors influencing HCP behaviors.¹⁸

Initially 10% of the transcripts were coded by one member of the research team (the first author), and these codes were discussed with the other members of the research team. To ensure rigor a second member of the research team (the third author) independently coded 10% of the interviews and interrater reliability was assessed resulting in a Kappa coefficient of 0.85, indicating almost perfect agreement across subthemes and themes. These two research team members then defined the codes and developed a coding tree. The first author then coded the remaining 90% (totaling 100%) while the third author independently coded a total of 50% of the interviews for comparison. Coding comparison at completion of all coding achieved a Kappa coefficient of 0.75, indicating substantial agreement across domains.³⁰ Disagreements were resolved through discussion and data checking for accuracy. Broad themes were extracted from the codes and discussed and confirmed with all authors.¹⁸

Results

Participants

The disciplines of the 24 HCPs who completed the study were doctors (n=4), nurses (n=6), dietitians (n=2), physiotherapists (n=5), pharmacists (n=2), occupational therapists (n=3), and social workers (n=2). Seven participants were previously known to the interviewer. Rigor was strengthened by following COREQ guidelines. Validation strategies were also used, these included the interviewing researcher's reflective diary, having participants confirm their interview transcripts, co-coding of the transcripts, and discussion of the data and codes amongst the research team.^{26,28}

To ensure anonymity participants' data were pooled into Medical/Nursing and Allied Health. HCPs years of experience ranged from 1.5 to 43.0 years [median = 11.5, (7.5, 20.0)], 66% of participants were female, and 63% worked in the acute care sector. Demographics and characteristics of participants are summarized in [Table 2](#).

Interviews totaled 633 minutes of audio-recording, with interviews ranging from 18 minutes to 41 minutes [mean = 26.5 minutes (SD = 7.2)].

Inductive and Deductive Themes

Inductive analysis identified four major themes (Barriers, Facilitators, Current Practice, and Recommendations) and 11 subthemes. Deductive analysis matched these themes to nine of the 14 domains within the TDF ([Figure 1](#)).^{18,22,31}

Criteria used for mapping the themes to the TDF domains included the frequency of belief statements across the domains,³² presence and prevalent beliefs,¹ and evidence of strong belief influencing behaviour.¹⁸ The relevant domains from the TDF included memory, attention, and decision process; knowledge; social influences; environmental context

Table 2 Demographic and Professional Characteristics of the Participants

Characteristic	Participants
Sex	
Male	8 (33.3%)
Female	16 (66.6%)
Work Setting	
Acute	15 (62.5%)
Subacute	11 (45.8%)
Profession	
Medical Officer	4 (16.6%)
Nursing	6 (25.0%)
Pharmacy	2 (8.3%)
Social Work	2 (8.3%)
Physiotherapy	5 (20.8%)
Occupational Therapy	3 (12.5%)
Dietitian	2 (8.3%)
Medical Officer/Nursing	10 (41.6%)
Allied Health	14 (58.3%)
Years working in the profession	
Range	1.5–43.0
Median (IQR)	11.5 (7.5–20.0)
≤5	6 (25.0%)
6–10	3 (12.5%)
11–15	5 (20.8%)
16–20	6 (25.0%)
21–30	3 (12.5%)
≥41	1 (12.5%)

and resources; beliefs about consequences; skills; social/professional role and identity; beliefs about capabilities; and goals. Themes and subthemes mapped to the TDF domains are supported by participant quotes in [Table 3](#).

Theme 1 Barriers

This theme identified three subthemes. The HCP described barriers to provision of optimal care due to perceived patient related factors, health system issues, and provider issues.

Perceived Patient Related Factors

This subtheme related to the TDF domains of social influences, knowledge, and memory, attention, and decision process. Patient motivation, and HCP knowledge and attitudes highlighted a disconnect between the HCPs and patients. The

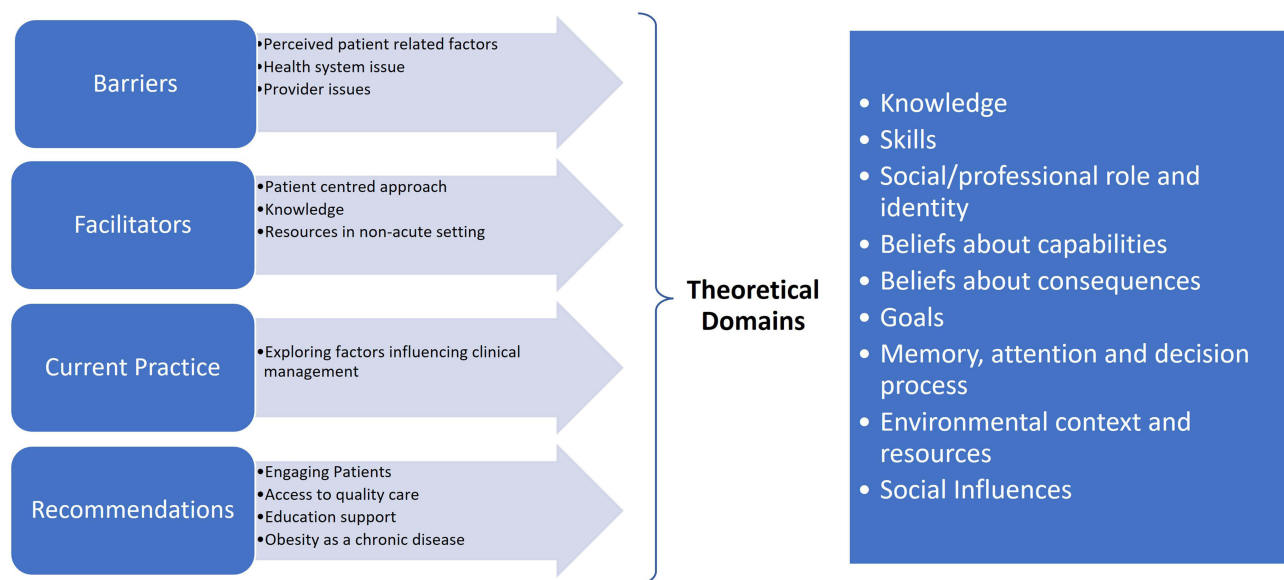


Figure 1 Themes and subthemes mapped to the Theoretical Domain Framework.

social influence domain related to patient visitors bringing in food not recommended in the patient care plan and was viewed by HCP as detrimental to the patient's recovery and health. The HCPs perceived the reasons for these family interactions to be a lack of education (mapping to the knowledge domain). The memory, attention, and decision process domain related to HCPs' perception that patients lack motivation to change. HCPs saw patients' decisions and behaviours contrary to HCPs recommendations as patient barriers to care.

Health System Issues

The TDF environmental context and resources domain mapped to this subtheme exposed the HCP perceptions relating to a lack of community support services, staffing, and physical resources. Additionally, HCPs stated that inpatient systems for patient assessment and management, and access to equipment and resources were not fully implemented and/or did not meet the patients' care needs, emphasizing the gaps in both the HCP and patients' ability to assess and manage obesity related health according to best practice recommendations.

In the acute sector obesity related health is expected to be managed within the community setting unless it directly hinders the resolution of the patient's acute health issue and/or delaying discharge. However, the HCPs stated this was a lost opportunity for patient education and appropriate intervention while identifying the inability of patients to access community care because of the lack of services, and/or financial and physical access issues.

Providers Issues

Lack of teamwork, a prevailing culture of blaming the patient, and a gap in HCP education, knowledge and training was evident within this subtheme. The social/professional role and identity TDF domain related to teamwork. A collaborative team approach depended on the context of the HCP workplace. While subacute HCPs and the HCPs of one acute ward identified collaborative multidisciplinary teams working well together, HCPs working within other areas of the acute sector experienced less cohesion and lack of accessible multidisciplinary team members. HCPs identified that care within the acute care sector was often siloed to admission diagnosis where the patients' care was solely around their acute illness without a holistic overview. Although some HCPs discussed improvement in staff attitudes and a reduction in stigmatization, many gave recent examples of inappropriate hospital staff behaviour, highlighting the domains of social influences and beliefs about consequences.

This subtheme also mapped to the knowledge domain with formal education and knowledge of Class II or III obesity (including pathophysiology), limited to a minority of the HCPs interviewed. There was a gap in the comprehensive

Table 3 Themes and Subthemes Mapped to Theoretical Domains

Themes/ Subthemes	Mapped TDF Domains	Illustrative Quotes
I. Barriers		
Perceived Patient Related Factors	Social Influences	PI 15: There's social factors and barriers and family bringing in, or friends bringing in alternative foods that we may not recommend, and their ability to look after themselves and to prepare their own foods as well as I guess the barriers of fitting this population in with their other medical conditions and follow-up appointments.
	Knowledge	PI 10 ... impact of the enabling with food. Need for intervention with family and support people. PI09: in my experience, a lot of them as a general health literacy they will have it, but the complex chronic care that they may have, not necessarily as well informed as they could be.
	Memory, Attention, and Decision Process	PI06: Then you get to the worst-case scenario where due to their weight – and maybe they are no longer walking but still want to go home. Have the capacity to make that decision. PI21: I think it's always important. I think the challenge is when patients are not making decisions that are in the betterment of their own health and maybe do not have the foresight or insight to be able to make that decision.
Health System Issues	Environmental Context and Resources	PI 14: I do not think there's much additional support in any other way, either, in my experience. Again, unless mobility is flagged as an issue on admission, I do not think there's routine physio or occupational therapy involvement. I have already mentioned dietetic involvement is patchy and dependent on availability. PI 15: Barriers is just the state-wide food service system. It's a state-wide system so our barriers I guess are what we have available in the kitchen because it's limited. PI 18: Some of our equipment, like our ward sling hoists are only weighted to 227 kilos so whenever we have someone larger than that we need to access the Work Health and Safety sling hoist and they do not actually tilt [into] space. So, you can really only transfer the patient into a bariatric water chair from there. Then trying to stand the patient from that chair is challenging and getting them back into that chair from a standing position is nearly impossible because they are quite high. PI02: There are no weight loss medications that are covered by the PBS, which is a bit short-sighted. PI 11: I think what is not working is a hospital system that cannot afford to give people the time they need, Then the next part is that there's maybe not adequate support services in the community that are easy to access, and easy to utilize, to maintain. PI02: there's very few resources and I think they are going to have to like – when you look at a dose for a drug, they will have a dose for pediatrics and they will have a dose for renally impaired, and if it matters about their liver function, they will have about that, and then they will have aged elderly. There will be nothing in there outside the healthy weight range, even smaller people, but definitely nothing for bigger people. PI07: If the patient needs, for example, four or five people to move them, we do not have the staffing requirements to accommodate that patient. ... it's a time factor as well.

Providers Issues	Social/Professional Role and Identity	<p>PI 15: ... it's not particularly collaborative I would not say. I feel like if we are focusing predominantly on weight loss for these people in hospital, say the Optifast program, feels like it's fairly siloed. There's not a lot of team approach, I think.</p> <p>PI 12: I think we focus only on the mobility problems, and we do not focus on the whole person. The environment they came from, the environment they are going back to, the emotional issues that I think must be associated with becoming that overweight and we do not treat it as a mental illness as we would do someone who does not eat.</p>
	Beliefs about Consequences	<p>PI08: So, I think, yeah, I have noticed that sometimes people can be quick to say, oh that person's not progressing or not making gains and that sort of thing. They might be slower, but again, it might be to do with their weight and maybe they have more anxiety around mobilizing and reaching their goals because of their weight.</p> <p>PI03: I still feel there is a lot of stigmatizations of the bariatric population. Then over the last few years, the patient being overtly blamed for being overweight, lazy, their own fault. We cannot do much to help them.</p>
	Knowledge	<p>PI09: So, at university I do not have memory of there being any particular specified course, or topic or even lecture. It was certainly mentioned throughout other courses, but more just if it was related to equipment prescription ...</p> <p>PI03: I think the knowledge is just being on the ground running.</p> <p>PI 12: I have had no formal. Had nothing provided by the workplace. I have done some online education myself just to try and get my head around a few things.</p> <p>PI 18: I do not remember there being specific formal education on it at university. Self-educated from reading the occasional journal article, and then at times looking for information, I guess like a self-generated enquiry, when I have a patient who I recognize their pharmacokinetics might be different to the average person, and I go looking for that information.</p> <p>PI20: To be honest, we have not had much education. They brought out the over – where you have to write the care plan for someone ... But they did not really go into much information. That's probably something that we do not really fill out that we should. Other than that, there's been a little bit of manual handling.</p>
	Social Influences	<p>PI02: Unfortunately, there's a perception from nursing and from medical staff, you see a big person in a bed, and you want to give them a big dose and it's really hard to change that mindset.</p>
2. Facilitators		
Patient centred approach	Beliefs about Consequences	<p>PI03: I have found a vast majority of the patients I am able to build a rapport with early on and we do end up exploring those things, because I have the – have time being in rehabilitation rather than the acute setting – have more case management time with patients, that we are able to explore those things. First, is building that rapport, the person to know that I am not sitting up in judgment upon them. I have found in most cases they will open up. In a majority of cases of bariatric patients, I have found that, indeed, they have had histories of trauma, abuse, complex family systems are quite evident and complex lives. Trauma not only by being hurt, trauma in their lives. A lot of change of environments or that sort of thing.</p>
	Skills	<p>PI02: I think the nurses are getting better as we care for more of these people, they are getting better at caring for them but also motivating them and being proactive with people. Where once with the big people everybody used to be whispering about them, now it's we see it as a challenge. We have had success with people and now we can see that we can be successful again</p>
	Social/Professional Role and Identity	<p>PI22: I guess as physios and nurses, do a good job of feeding that back to the team and making sure that they have got pain relief on board for the next session or for what we plan to do next. Again, taking the patient's goal setting and being part of that conversation as well, to try to make it as easy and as able for them as possible. Timing all of that. It's hard but I think yeah, we do.</p> <p>PI 16: I think being part of a team on the ward. I think allied health, and also the case manager and the nurse in charge, on most wards they seem to work together, I think, quite well. When you have got people who know each other and recognize each other's value on the ward, that that helps a lot.</p>

(Continued)

Table 3 (Continued).

Themes/ Subthemes	Mapped TDF Domains	Illustrative Quotes
Knowledge	Social/Professional Role and Identity	PI18: So, I have worked here at [this hospital] for about 11 years now. In that time frame I have covered most of the medical wards and some surgical and intensive care wards here as well during that time, as well as doing some work rurally in different areas and in out-patients as well. In that timeframe I have come across a lot of patients with a higher BMI, I think particularly looking at the elderly populations ...
	Skills	PI02: certainly, the nurses are becoming more comfortable using those bigger pieces of equipment. PI13: Probably the more appropriate referrals that I get are what we were just talking about, they might be obese, but they have not been eating very well, they will ask us to see them in regard to their poor intake and possible malnutrition.
	Knowledge	PI13: ... wards that do it best are probably wards like [Respiratory] who do a lot of sleep medicine where the staff are particularly experienced in this group of patients. PI14: I think nursing staff in general do manage these patients very well. As to the allied health teams particularly the occupational therapists and dieticians as well.
Resources in non-acute setting	Environmental Context and Resources	PI07: We do our risk assessments. Before the patient even comes to us, we do a lot of groundwork on what equipment needs that person needs for us to be able to manage them here. PI03: In this setting and in the rehabilitation, because we are not an acute hospital, I think what works here is I guess the availability of equipment, appropriate equipment. I guess the staff to patient ratio and the lower turnover of staff than [in the acute sector]. Patients become more familiar with their staff, the nurses. It's a little bit more consistent, so might help with some of the fear that the patient may have of being in the environment ... I have the – have time being in rehabilitation rather than the acute setting – have more case management time with patients, that we are able to explore those things.

3. Current Practice		
Exploring factors influencing clinical management	Beliefs about Capabilities	<p>PI03: ... you know every patient I see I know that it's not just the person in the bed now, they are a person that has history, that has luggage, that has multiple things that have happened to them.</p> <p>PI01: I think number one is probably their psychological well-being, how they are feeling, because so many of them, you'll hear, well that nurse, they are judging me, or I feel uncomfortable.</p>
	Social Influence	<p>PI03: but I often reflect that the fact that they are bariatric often means they have got, or have had, complex psycho-social backgrounds. So, I come in from that psychosocial perspective and empathy.</p>
	Knowledge	<p>PI12: Well people go home ... you have got to get community physio. They are short term and again I do not know if – I do not know because I do not do any research afterwards whether people continue with that program, whether they actually continue with the dietitian or go and meet a new dietitian that they have never met before and a new physio that they have had before. Allow them in, you know, so I do not know. I would think that it probably is ad hoc, and it would depend on that particular patient's motivation to continue, would be my thoughts.</p>
	Memory, Attention and Decision Process	<p>PI18: Then objectively what we are looking at for the patient in general – observations and getting a bit of an idea of their cognitive status at the time of review.</p>
	Skills	<p>PI18: Their falls history, musculoskeletal assessment and if they are managing any pain or injuries and then looking at that acutely versus chronically.</p> <p>PI22: trying to get an idea of what their weight is in terms of how that might restrict starting off with your basic functional assessment in bed and then progressing as you feel appropriate with – and the amount of staff, equipment, etcetera, that you might need.</p> <p>PI18: Then from a purely physiotherapy point of view, looking at the bed mobility, sitting balance, transfers, and if they are up to mobilizing, how we would recommend doing that at their current level of function. Assessing their pain and working with the medical team or pain service when that's required to make sure that's under control.</p>
	Goals	<p>PI10: ... what their own goals are, both short term and long term in terms of returning home and re-engagement and independence at some level in their ADL activities.</p> <p>PI19: But there is another big side; I think it's huge. That is the practical and functional aspect and meeting their care needs in the acute, subacute home settings. That's obviously something big. But when we approach the patient, our first and foremost priority is the medical aspect.</p>
	Environmental Context and Resources	<p>PI22: I guess you need to take into account as well, what equipment that you might need and the amount of staff that you'd need to have on hand and the amount of space that you'd need to work with for this population.</p> <p>PI16: I would consider whether they might need a dose adjustment for any of their medication, keeping in mind that some drugs we dose based on actual body weight, and some drugs we base on ideal body weight, and some drugs there's just one standard dose for everyone for that indication.</p> <p>PI15: I guess access to foods as well as access to be able to monitor these patients and their weight particularly. ... Time to be able to assess and treat them and manage them appropriately.</p> <p>PI14: There are not many options. So, for public patients really the endocrine clinic does provide some obesity support for those with diabetes. If there's no diabetes then the waitlist to be seen is very, very long. Then we are really looking to the GPs and primary care providers to pick up the slack there, which is a variable process, and some are very, very good at it and do a fantastic job. But other GP practices either do not run a care model like that or do not have the time or attention to deal with these patients. So, there's a huge potential for them to be lost to follow-up and any chance for an intervention lost.</p> <p>PI22: Sometimes a barrier to discharge for this patient population is that they might need certain levels of assistance that is very difficult to be provided.</p>
	Social/Professional Role	<p>PI18: ... so when we assess any patient, we are looking at their social history and their living arrangements and their baseline functional mobility status before they come into hospital and how they were coping at home.</p> <p>PI16: Then other factors that I would take into consideration are that obese patients are maybe more likely to have diabetes, or cardiovascular conditions, compared to our other patients. If I have not noticed that there are charted diabetes medications, I would do a – my own little check just to make sure we have not overlooked insulin or something important for them.</p> <p>PI11: So, the first thing is to identify whether the BMI, how much of an actual risk is it to the patient, and what areas is it a risk to the patient. Sometimes there are implications on cholesterol and cardiovascular disease. Sometimes it's less of a risk. Sometimes the risk is more focused on – is determined by how the BMI got to be there, and then that's an exploration around lifestyle, and motivators for the lifestyle.</p>

(Continued)

Table 3 (Continued).

Themes/ Subthemes	Mapped TDF Domains	Illustrative Quotes
4. Recommendations		
Engaging patients	Beliefs about Consequences	<p>P108: Probably start by engaging the patient and sort of asking what their opinion is as to what they need, what they should be doing.</p> <p>P101: I really feel like removing stigmas and judgments as to why our patients have ended up in these positions and supporting them in that this is a health problem, and we as carers are here to support people and care for them to improve their quality of life and meet their goals and needs.</p> <p>P101: So, understanding, trying to walk in their shoes, I think. Then as health professionals learning about that experience, how can we improve on that experience, and meet the needs of these people.</p>
	Skills	P119: So I think in my opinion, we need to have our skillset as clinicians to build up a good rapport with the different patients, different personalities, people from different social backgrounds versus different geographical background, different cultural backgrounds. So that is a very important skill.
	Knowledge	<p>P108: Then based on what they are reporting, then maybe engage other members of the multidisciplinary team to ensure that they have received adequate education while they are in hospital about ...</p> <p>P116: I see a bit of reluctance with patients sometimes to engage in interviews with me, because they have already had a conversation about their medication with the doctor, and they do not understand why I am asking them the same questions. I think that's more to do with not understanding the role of a pharmacist.</p>
Access to quality care	Environmental Context and Resources	<p>P102: Just that pharmacy probably need to do more and be more proactive with dosing and making sure that we are giving the right doses for these people ... they need a little formulary that says for this morbidly obese person you give the same dose as what you would for everybody else. Or you give them whatever dose.</p> <p>P112: ... once they get here, need any tests, investigations, or emergency care, they cannot access it. We need to improve just the way we transport people and the flow of people between the [acute] and this facility [subacute].</p> <p>P108: ... we could have someone specialized in that role to come and have a quick informal chat with those people and just potentially ask them about their hospital stay and they can identify what they may need to get the best outcomes. So, someone specialized in that role to potentially come and chat to them, similar to what we would have for particular other demographics ... even if they could give education sessions to the nurses.</p> <p>P115: Ideally, I would always say cooked fresh would be my ideal, I guess ...</p> <p>Packaging, presentation, food. It's not what they are used to and that's often the comment is that the food is not what they would eat at home.</p>
	Knowledge	P119: But many other areas we need to improve, especially resources, education, educating the staff, educating the doctors, nurses, the multidisciplinary teams, and the physical resources as well. So human resource, physical resources, they need to improve a lot.
Education support	Knowledge	<p>P108: ... I think if we were to get somebody specialized in the role, and even if they could give education sessions to the nurses, particularly, because they are the people that are spending the majority of the time with these people. Like a bit of an in-service as to how to best care for these people and how to maintain their dignity at the same time</p> <p>P112: ... with more and more people coming in that are overweight and obese, probably more formal based education sessions. Their needs, their emotional needs, their psychological needs and just challenge when you hear people being judgmental or saying negative things about, you know, the same as you do for other people.</p> <p>P107: We often get people – for example, someone came yesterday who needed bariatric equipment and bariatric requirements. But the ward she had come from they had not even weighed the patient, so they did not even know how big the patient was. They just said, oh, yeah, she's obese. I said, well, does she need bariatric equipment? Oh, I do not know, she's just using what we have got. So, that's unsafe, for a start, for the patient to be using equipment that does not take their weight.</p>

	Environmental Context and Resources	<p>P123: Certainly, one of the cons is stigma and I think you'd have a damn hard time finding staff willing to say they are consistently happy to deal with that cohort, and not finding enough staff to be able to do it consistently because it is the challenging area. But I know that some people would not want to. It just boils down to cohorting the necessary equipment, necessarily staffs with the appropriate training. Just like every other medical specialty has their own staff and their own training program. To me it's getting to the point that the volume of patients that we get in this cohort, that it really does need to be treated in a similar sort of fashion to be able to ensure that we are getting appropriately trained staff and appropriately equipped areas to make it work properly.</p> <p>P119: and the physical resources as well. So human resource, physical resources, they need to improve a lot.</p>
	Social Influences	<p>P111: I think it's very hard to put all the messages together in what people would want to be a succinct campaign with one or two key messages. So, I do not think that there are clear definitions around what healthy eating and healthy diets are, within those particular campaigns. There are separate campaigns around where it makes healthy eating, but does that then target people who are obese, and is it enough to change an attitude in those people? I do not think so.</p> <p>P111: Again, I think I did mention it, there's got to be this public health approach, not just in pressuring individuals, but having a very strong public health approach, which we have seen at times, of course with advertising campaigns, and information campaigns on the TV. I know a lot of clever people put them together, but I am not sure that they are targeting the message clearly enough.</p>
Obesity as a chronic disease	Beliefs about consequences	<p>P102: I do not want it to be a chronic disease. I want it to be something we can fix. Chronic disease is something you cannot fix; it's going to go on forever. I still believe these people can be helped. I do not think it's a quick fix and I think it will take a lot of work, but to call it a chronic disease implies that that's it.</p> <p>P111: I have not looked at the arguments for it against that. I think that, like anything, it's a double-edged sword. With classification as a chronic disease, it leads to a bit more acceptance in the community, and easier access to government-funded health services that can be directed at it, and more research directed at it. The disadvantage is that you may be taking a group of people who would like to feel that they have a degree of health, and it may get classified as having a disease. Even though their BMI is elevated, they may otherwise be relatively healthy.</p> <p>P114: I think it is a disease state physiologically. It's a pro-inflammatory state, it's carcinogenic and you can measure the negative outcomes in both quality adjusted life years and healthcare dollars. So, whether you are looking at an economic model or a physiologic model this is a chronic disease and until it's identified as a chronic disease there's an additional barrier to putting any management measures in place.</p>

holistic knowledge of the pathophysiology of obesity, assessment, and management, and associated available services and resources within the current system. Knowledge was discipline specific; medical officers had the most comprehensive knowledge. Within nursing and with allied health there were gaps in knowledge resulting in their failure to use available health service systems for the assessment and management of inpatients with obesity. For example, some participants stated they were aware of a Bariatric Assessment and Management Plan form, however, they had never completed one, while others stated they were unaware of how to access bariatric equipment and were unable to do so after hours because they usually referred this to the nursing or allied health managers for actioning. Most HCPs reported that obesity related in-service training was limited to manual handling, or assessment, prescription and/or use of equipment. Several HCPs discussed their self-directed learning and educational sources while a minority stated they had not received any education or training related to care of PwO, relying on experiential learning from their professional colleagues. Mapping to the TDF social influences domain several HCPs highlighted the difficulty in changing some staff behaviours. They gave examples of some HCPs' incorrect perceptions that PwO require larger doses of medication than patients without obesity and incidents where PwO are not given adequate recovery time to return to their baseline function, resulting in PwO not receiving the same opportunities as patients without obesity.

Theme 2 Facilitators

Within Theme 2, HCPs discussed elements that enhanced the healthcare of this patient group. The subthemes of patient centred approach, knowledge, and resources in the non-acute setting mapped to the domains of beliefs about consequences; skills; social/professional role and identity; knowledge, and environmental context and resources.

Patient Centred Approach

The beliefs about consequences domain related to the mental health issues, past trauma, and/or difficulties in patients' history identified as a significant issue by most of the HCPs. When discussing the elements of successful patient care, collaborative teamwork, building a strong rapport, and a non-judgmental attitude within a patient-centred approach that is individualized to each patient, (mapped to the skills, and social/professional role identity domains), were strongly emphasized by the HCPs.

Knowledge

The domains of social/professional role and identity, skills, and knowledge related to this subtheme. The level of knowledge within all disciplines except for medical officers depended on years of experience, area of clinical practice, and individual self-generated enquiry. HCPs level of knowledge and skills were limited to their social/professional role and identity. Staff were aware of knowledge gaps with patient care challenges prompting several HCPs to discuss their self-directed education and the experiential learning strategies used to improve knowledge and clinical practice.

Resources in Sub-Acute Setting

Within the environmental context and resources domain HCPs from the subacute setting identified facilitators that they believed were less available in the acute setting, which lead to rehabilitation staff having extra support when caring for PwO. These related to the rehabilitation MOC and timely booked admission, which limited the number of patients with Class II or III obesity to two on the ward at a time, patient goal setting, multidisciplinary collaborative management plans, reduced staff turnover, and longer length of stay were advantages leading to better experiences for the HCPs caring for this inpatient group compared to those in the acute sector.

Theme 3 Current Practice

Theme 3 included one subtheme of exploring factors influencing clinical management. This mapped to eight domains of social/professional role and identity; beliefs about capabilities; social influences; knowledge; skills; goals; environmental context and resources; and memory, attention, and decision process.

Exploring Factors Influencing Clinical Management

Within the Current Practice theme, patient and HCP factors influenced clinical management. Patients' psycho-social

well-being, complexity of comorbidities, cognitive status, physical status, and mobility, reflected in their decision making, recovery outcomes and level of engagement with staff and mapped to the domains of beliefs about capabilities, memory, attentions, and decision process, and skills, and goals domains. The HCP emphasized the importance of psychological support and an understanding of the patient's history. For the HCPs their individual social context and personal beliefs, education/knowledge of obesity and its management, access to resources, and the inability to ensure optimal continuum of care when discharging patients was reflected in their experiences of caring for this patient cohort, and mapped to domains of social influences, knowledge, environmental context and resources, and social/professional role and identity. Mobility assessments and lack of access to resources and services causing difficulties in maintaining continuum of care and best practice discharge processes, were the most frequent experiences expressed by the HCPs.

Theme 4 Recommendations

HCP recommendations for strategies to address the gaps in care included internal and external approaches, some of which are beyond the scope of the health service and require collaborations with higher level government, social policy changes, and health planning. Internal recommendations included engaging patients in their care, improving the quality of current care, increasing access to education, support, equipment, resources, and services. These mapped to the domains of beliefs about consequences, skills, knowledge, and environmental context and resources, respectively. Recommendations requiring external collaboration and resources include increased services and resources, strategies targeting societal stigma and discrimination towards PwO, and classification of Class II and III obesity as a chronic disease. These recommendations mapped to the domains of environmental context and resources, and social influences – political domains.

Engaging Patients

While all participants identified the importance of building a therapeutic relationship with patients, some disciplines experienced better patient engagement than others. This related to the domains of beliefs about consequences, skill, and knowledge. Patient knowledge and understanding of HCP roles assisted with engagement. Pharmacists reported time pressures and patients not understanding their role, which affected their capacity to establish rapport with some patients. While physiotherapists believed patients were accepting of their role, even if the patients did not fully participate within their goal orientated care plan.

Access to Quality Care

The dominant domain for this subtheme was environmental context and resources. All HCPs described frustrating experiences and difficulty in accessing timely services and resources, hindering their ability to deliver best practice and dignified care. Their recommendations included increased accessibility to appropriate equipment with accompanying storage areas, access to a broader variety of accessible quality fresh food, adequate HCP staffing within all specialties, specialized pharmacy resources (mapped to the environmental context and resources domain) and education for HCPs, all hospital staff, and patients (mapped to the knowledge domain).

Education Support

The knowledge domain related to education gaps identified by most HCPs. Lack of implementation of current systems supporting this patient group within the health service was demonstrated by some HCPs within the acute sector. HCPs discussed how they were aware of bariatric assessment care plans but had never commenced one or received education on their use. They were also unaware of available resources or how to access resources. Incomplete assessment on referral and admission (such as weighing patients) was also discussed by several HCPs. HCP suggested health service education sessions, and the development of specialist HCP roles, similar to current specialized diabetes and respiratory roles. The environmental context and resources and social influences domains were mapped to one HCP discussing the need for a broader public health approach to obesity related health and prevention strategies at a society level rather than the individual level, questioning the effectiveness of current multmessage campaigns.

Obesity as a Chronic Disease

This subtheme related to the beliefs about consequences and social influences—political domains with many of the HCPs identifying the chronic nature and/or mental health factors associated with obesity. Some HCPs believed a reclassification of obesity as a chronic disease would reduce patient blame and stigmatization and increase funding, research, resources, and services. Others considered this classification as detrimental to the patients' well-being.

Discussion

The current study explored HCPs perceptions in delivering non-surgical care to older inpatients with Class II or III obesity and comorbidities. Findings identified the absence of a holistic MOC for this patient group. Currently siloed care addresses patient comorbidities (eg, respiratory or endocrine) which do not incorporate obesity management, unless it is impeding recovery from their admission diagnosis. HCPs experienced an inability to achieve patient-centred dignified multidisciplinary best practice care due to some staff practices stigmatizing patients, inadequate environments (room size, doorway width and storage space), a lack of HCP and patient education/knowledge of bariatric assessment and management, staffing (both levels and timely availability), resources (bariatric equipment and education), and services. The HCP interviews highlighted key major themes of Barriers, Facilitators, Current Practice and Recommendations, with subthemes including factors to improve the care for this patient group. Deeper understanding of these themes was achieved by mapping to the nine TDF domains. Condensing the five most frequent TDF domains into three key groups of 1) knowledge and skills; 2) environment and resources; and 3) social/professional role and identity and beliefs about consequences can inform development of strategies for the implementation of a holistic obesity MOC.

HCPs develop their knowledge and skills from formal and in-service education programs, policies, clinical guidelines, and mentor/experiential training. Research, obesity clinical guidelines, and policy documents within Australia and internationally, clearly map evidence-based requirements for the prevention, assessment, and management of Class II and III obesity across all areas of the healthcare system.^{13–15,32,33} Most HCPs, however, reported little to no formal education on the pathophysiology or a holistic view of the causes of obesity or patient-first evidence-based care for this inpatient group. This is consistent with the Snodgrass et al³⁴ survey of 296 allied health professionals and nurses.

HCPs reported that local guidelines focused on manual handling, access to equipment, and some patient assessments, indicating a lack of an overarching MOC (like other chronic disease MOC) for this patient group. A lack of knowledge and/or implementation of admission procedures including weighing patients on admission, use of bariatric care plans, and/or accessing and use of appropriate equipment and services was evident as some HCPs were unaware of, and/or had not fully implemented existing clinical guidelines and processes that were available to support their practice. Failure to record patient's weight on admission resulted in HCP not recognizing patients as Class II or III obesity or considering them of lower weight status. This aligns with the evidence of an assessment gap,^{1,35,36} and guideline implementation failure at inpatient level reported in the United Kingdom and Canada.^{13,33,37}

The HCP obesity knowledge and skills gaps found in this study were previously identified within this district health service in 2015, 2016, and 2019.^{2,34,38} Results from a scoping review by Ewens et al aligns with the results described in this study that HCPs experience a lack of education and access to equipment and resources.¹ This knowledge/skills gap is common within health services in Australia and internationally.^{34,38,39}

The Australian, Canadian, and United Kingdom policies and guidelines all recommend further HCP education and training,^{13–15} with obesity education programs shown to improve care for patients with obesity.^{4,40} A Norwegian qualitative study found an educational program linking general practitioners, physicians, and staff at three hospitals treating large numbers of patients with obesity over an extended training period resulted in primary and secondary integrated care, and improvements in professional relationships, knowledge, competence, and service delivery.⁴ Sanchez-Ramirez et al⁴⁰ found a 1-day education program improved HCP skills and attitudes when caring for patients with obesity.

Staff identified their roles and were willing to deliver education and care to this patient group. However, they reported that without an obesity MOC they were unable to fulfil their professional roles adequately due to acute inpatient bed pressures, lack of trained staff, resources, and services across all continuums of care. In a qualitative study, Pearce et al⁴¹ interviewed 23 participants from upper/middle-level management and 23 clinical frontline staff. Their findings aligned

with HCPs' experiences in the current study, including a disconnect between aims at policy level and practical implementation with negative consequences for patients.

HCPs observed that the stigmatization of patients has reduced due to staff familiarity and experience caring for the increased numbers of admissions of patients with obesity. The HCPs reported that their experiences in the acute care environment was not conducive to caring for this inpatient group. Inadequate bariatric equipment storage, room access, acute care silos, lack of staffing, MOC, and ad hoc multidisciplinary teams affected their ability to deliver timely appropriate and dignified care. This interfered with their ability to build patient rapport and partnership, and increased patients' embarrassment and stigma. Phelan et al⁴² reported the impact of HCP weight bias on patient care and its negative impacts on patient outcomes. The implication for patients is that they may perceive they are a burden within the system.

Inpatient and ongoing outpatient specialist services/MOC, were recommended by the HCP as strategies to improve care. A MOC is broadly defined by the NSW Agency for Clinical Innovation as "the way health services are delivered." It outlines best practice care and services for a person, population group, or patient cohort as they progress through the stages of a condition, injury, or event.²³ Evidence of specialist obesity services, with policies, guidelines, and assessment tools are well documented in the literature, particularly from countries where Class II and III obesity are classified as a chronic disease.^{11,13–16,43} Countries that identify obesity as a chronic disease and are supported by health service funding have identified programs at clinical ward level with continuum of care follow-up.^{44,45}

Rees et al¹² scoping review reported on the variation of approaches to treatment for this inpatient group. In the current study, HCPs experiences aligned with many of the scoping review findings including knowledge gaps, practice implementation gaps, difficulty with lack of patient engagement, gaps between guideline best practice recommendations and frontline activity, lack of funding, services and resources, incomplete multidisciplinary teams, and lost opportunities for interventions. Cost-benefits from specialist MOC were demonstrated by Brain et al's⁴³ analysis of chronic wound clinics and Mudd et al's⁴⁶ analysis of a multidisciplinary aerodigestive service. With annual predicted direct costs of obesity for the study district health service of \$A339,338,879 expected to increase by 3% annually further research into the cost-benefit of an appropriate MOC is urgently needed.²

Strengths and Limitations

As a single site study within one tertiary referral hospital in Australia the generalization of these results is limited to other similar service health care settings. With data collection completed just prior to the COVID-19 pandemic the HCP experiences post-COVID are unknown. As a long-standing staff member some of the HCPs interviewed were known to the interviewer, however rigor was strengthened by following COREQ guidelines. Strengths are the inductive thematic analysis as guided by Nowell et al,²⁹ and the deductive analysis using the TDF¹⁸ and the addition to the literature of frontline HCPs experiences and perceptions in delivering care to this inpatient cohort.

Conclusion

This paper builds on previous research highlighting the continuing gaps in HCPs knowledge, resources, services, and best practice MOC. There is a disconnect between the overarching policies, and available clinical guidelines which impacts frontline HCPs ability to deliver best practice care to this cohort.^{13–15,47} By linking our key findings to TDF domains, barriers to best practice have been identified and solutions offered.¹⁸ Adopting a holistic multidisciplinary team MOC within a chronic disease framework could facilitate patient engagement and improvements in HCP practice and patient outcomes. Further research is required to implement strategies to overcome these barriers in the development of a non-surgical inpatient MOC. The authors recommend the development of strategies using the themes mapped to the TDF, to develop a patient-centred non-surgical MOC.

Abbreviations

TDF, Theoretical Domains Framework; BMI, body mass index; SD, standard deviation; HCP, healthcare professional; MOC, model of care, COREQ, Consolidated Criteria for Reporting Qualitative Research; IQR, interquartile range; COVID, Coronavirus Disease.

Acknowledgments

The authors thank the participants for their valuable time.

Disclosure

MR received support from an Australian Government Research Training Program Scholarship and a Dr Richard Adams Trust Memorial Scholarship (2018). CEC is supported by an NHMRC Investigator Grant Leadership Fellowship (L3 APP2009340). EM and VM report no other conflicts of interest in this work.

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