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ORIGINAL ARTICLE

Factors influencing renal replacement therapy modality choice from the nephrologist's perspective

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Abstract

Background Peritoneal dialysis (PD) offers quality of life and empowerment for persons with end-stage kidney disease (ESKD). Nevertheless, the prevalence of PD is low in Belgium and Europe in general. Reimbursement, patient mix and late referral have been quoted as underlying reasons. However, to date no one-size-fits-all solution increasing uptake of PD has been successfully implemented.

We aimed to understand the nephrologist's perspective, beliefs, and experiences on dialysis modality selection and to clarify underlying process-level and intrinsic motivations steering final decisions.

Methods Using purposeful sampling, Belgian nephrologists (non-/academic, geographical spread, age, gender) were selected. We conducted semi-structured interviews, and audiotapes were transcribed verbatim. Meaningful units were grouped into (sub-)themes, and a conceptual framework was developed using grounded theory according to Charmaz as guidance.

Results Twenty-nine nephrologists were interviewed. We identified four themes: Trust and belief (in PD as a technique; own expertise, knowledge and team; in behavior of patient, family practitioner), feeling of control (paternalism; insecurity; prejudice), vision of care and approach (shared decision making; troubleshooting attitude; flexibility and creativity; complacency), and organizational issues (predialysis; access; financial; and assisted PD).

Conclusions Based on these interviews, it is apparent that next to already identified singular issues such as late referral, predialysis education, patient mix and financial incentives, more intrinsic factors also impact uptake of home-based therapies. These factors intertwine and relate both to process-level topics and to attitudes and culture of the nephrologists within the team.

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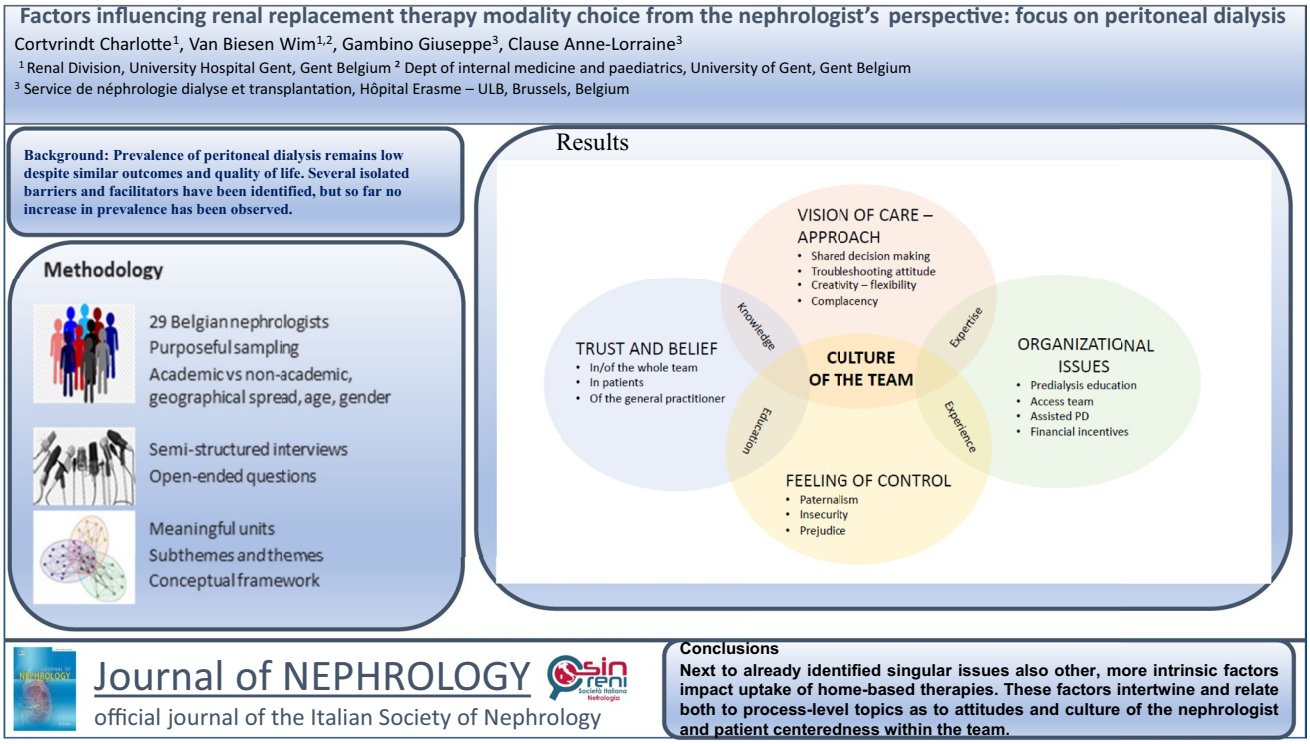
Graphical Abstract



Keywords Predialysis education · Qualitative research · Shared decision making

Introduction

> *"We know it all starts with interest, knowledge and belief in a technique, which will first bring you patients, while expertise will only come afterwards.""*

Prevalence of peritoneal dialysis (PD) differs widely across regions, but remains rather low. Nevertheless, PD has medical advantages, such as preservation of residual diuresis, continuity of solute removal, preservation of vascular access, better post-transplant outcomes [1] and better quality of life. Survival outcomes on PD vs hemodialysis (HD) are equal for nearly all relevant subgroups [2].

Many barriers hindering the growth of PD have been identified [3]: financial incentives [4–6] [7], although the proportion of PD is also variable in regions with the same financial structure[8]; late referral and unplanned start of dialysis [9–11], lack of patient education [12–15], peritoneal access [16], and poor exposure to PD during training [5, 9]. These barriers mostly originate from an organizational level, such as absence of structured predialysis programs, established peritoneal access teams, or assisted PD programs [17], or lack of collaboration [18]. It can therefore be postulated that all the different identified barriers have a common, not yet identified, underlying ground [18, 19]. We hypothesized that this common ground is a combination of beliefs, culture, and motivation, all directly and indirectly affecting organizational aspects within the unit. We aimed to understand the nephrologist's perspective, beliefs, and experiences on the decision process of dialysis modality selection to clarify broad underlying motivations steering the final decision.

Materials and methods

This study was designed as an explanatory, thematic, qualitative study based on Charmaz' constructive approach to Grounded Theory [20]. This method allows to explore conceptual categories and mechanisms underlying the data, fitting with the aim of this study to learn about process-related and intrinsic motivational aspects underlying dialysis modality choice.

The Consolidated Criteria for Reporting Qualitative Studies (COREQ) was used [21].

Using purposeful sampling we selected a representative sample of 30 Belgian nephrologists (Table 1), with maximal distribution in geographical area, age, gender, working in

Table 1 Demographic data of respondents

Participant	Gender	Age category	Geographical area	(Non-/) academic	Size of PD program
1	F	3	West-Flanders	NA	2
2	F	2	Flemish Brabant	NA	2
3	M	1	West-Flanders	NA	1
4	M	2	West-Flanders	NA	1
5	F	2	Limburg	NA	1
6	F	1	East-Flanders	NA	1
7	M	1	Antwerp	NA	1
8	M	2	Flemish Brabant	A	1
9	M	3	West-Flanders	NA	1
10	F	3	Antwerp	NA	1
11	M	3	Limburg	NA	1
12	F	3	Flemish Brabant	A	2
13	F	2	West-Flanders	NA	1
14	M	1	West-Flanders	NA	1
15	F	3	East-Flanders	NA	1
16	F	3	East-Flanders	A	2
17	M	1	Wallonia	NA	1
18	M	3	Wallonia	NA	2
19	M	2	Brussels	NA	2
20	M	2	Brussels	A	2
21	F	2	Brussels	NA	1
22	F	1	Wallonia	NA	2
23	F	1	Wallonia	NA	1
24	M	1	Wallonia	NA	1
25	M	3	Wallonia	NA	1
26	M	1	Wallonia	A	2
27	F	3	Wallonia	NA	2
28	F	2	Wallonia	NA	1
29	F	2	Wallonia	NA	1

F Female gender, *M* Male gender, *NA* Non Academic, *A* Academic;

Age category: 1: age < 40; 2: age 40–50; 3: age > 50 years

Size of PD program: 1: less than 10% of total HD program; 2: more than 10% of total HD program

an academic vs non academic hospital and size of the PD program, as it was postulated that these factors could influence opinions. Most of them were not acquainted with the interviewers. One nephrologist refused participation because he believed his experience with PD was insufficient.

Each of the participants was interviewed once, using a semi-structured interview guide consisting of five main questions and three case scenarios (supplement 1). This guide was adapted [2] as potential themes or new questions emerged.

The interviews were carried out face to face or through video call by one of two female [3] authors (CC, resident in Nephrology and ALC, Nephrologist). No one else was present during the interviews. After each interviewer performed three interviews, interview style was peer-reviewed to enhance the validity of data collection. Field notes were taken during and shortly after the interview. When identification of themes reached saturation, no more interviews were carried out. All interviews were audio-taped and transcribed verbatim by an administrative person. Based on these, each interview was coded by two authors (CC and ALC), and results were triangulated during meetings with the other male [1] authors (WVB and GG). Meaningful code fragments were structured as subthemes and themes. Finally, an overall conceptual framework was constructed by all authors. During this process, maximum attention was given to reflexivity and openness to the true meaning of the data. The study was approved by the Ethical Committee of the University Hospital Ghent (THE-2022-0179).

Results

In total, 29 nephrologists were interviewed (10 from Wallonia, 3 from Brussels and 16 from Flanders; 9 < 40 years, 10 between 40 and 50, and 10 > 50 years; 14 males; 24 non-academic; Table 1).

Themes and subthemes

We identified four main themes: trust and belief; feeling of control; vision of care and approach; organizational issues. In the following paragraphs, all themes and the underlying subthemes will be explained and substantiated. They are illustrated by quotes from respondents during the interviews (Table 2).

Trust and belief

Subtheme: in PD as a technique

Not all respondents were convinced PD provides efficient fluid and toxin removal. Furthermore, it emerged that many nephrologists do not trust PD to function in most patients. Others however indicated having faith in PD in a variety of patients and reported a limited number of complications. This difference in opinion and belief appears to be related to previous experiences, mostly during training. While respondents agree HD and PD have similar reported patient survival, most attribute this to selection bias and consequently only advocate PD for healthier, younger patients. Most respondents considered PD a temporary technique for patients with preserved diuresis.

Subtheme: experience, expertise and knowledge

Trust and belief in PD appeared to be influenced by knowledge, previous experiences and expertise. Experiences are presented as patient cases, or results achieved with PD. Expertise represents the procedural knowledge acquired over time. Respondents report that (lack of) exposure to PD during training (negatively) affects their subsequent clinical practice. Some admit being afraid to put overly complex patients on PD due to their insufficient knowledge or expertise, whereas others are confident as they have seen success stories during their career.

Subtheme: trust in the attitudes of the patient

As medical supervision in PD is sparse, respondents reported that faith in the patient on PD is more important than for those on in-center HD. Interviews revealed that the patient's socio-environmental factors favoring such trust are young age, high intellectual capacity, technical skills, good personal hygiene and tidiness at home, perceived compliance, good cognitive and functional status, a reliable family network, absence of language barriers and strong patient motivation to undergo PD. Patients not ticking all these boxes were rapidly considered as non-suitable for PD. Respondents with more expertise were more inclined to propose PD despite the presence of negative patient factors.

Subtheme: beliefs in and of other healthcare providers:

The beliefs, opinions and trust of the whole team and the general practitioner (GP) were mentioned to play a role. Respondents highlighted that nurses often implement the predialysis program. The nephrologist will be encouraged to recommend [1] PD when convinced the whole team has good knowledge, experience, trust and expertise in PD.

Feeling of control

Subtheme: paternalism

Respondents have the perspective that the best way to help the patient is to guide him/her towards what the respondent thinks is best. This idea is apparently motivated by the conviction that not all patients have the medical background, intellectual capacity or desired (social) behavior to make the "correct" decision. Further, respondents admit communicating their modality preference to their patients and the pre-dialysis educator before the predialysis conversation. In more complex patients, respondents appear to more swiftly propose the modality with the most frequent patient-doctor contacts, because this offers the highest feeling of control. The paternalistic attitude may thus be grounded in a mix of desire for control and an "I know what is best for you" attitude.

Subtheme: uncertainty and doubt about security

Doubt about security can relate to behavioral, medical or socio-psychological phenotype of the patient. There is often doubt whether quality of care will be sufficient without substantial control by the medical team.

Uncertainty can also emerge from doubt in one's own medical skills and expertise in PD, since for most nephrologists PD is less well-known than HD.

Subtheme: prejudice

Various non-substantiated reasons were mentioned for not choosing PD, for instance: vision loss, cognitive or functional deficit, polycystic kidneys, abdominal scarring, anuria

Table 2 Quotes from respondents to illustrate different (sub)themes

Trust/belief	Participant number	
In PD as a technique	1	"I was trained in an academic center with the opinion of survival advantages of PD in the first years, because of better preservation of diuresis. So for me, patient prognosis in PD is better than HD, in the first years."
	6	"What I am afraid of in PD, is the fact that I often see patients in inadequacy, weight gain and hypervolemic for years… I do not trust PD to reach perfect volemic control."
	8	"In the literature, there is no evidence of survival advantages of one technique compared to other and we cannot compare patient survival in PD, in-center HD, HHD as these techniques apply for different patient phenotypes."
Experience, expertise and knowledge	2	"PD failure is not a problem. I almost never had a patient in whom we couldn't manage volume or metabolic status anymore."
	8	"I think nephrologists choose the modality more, that they have seen the most in their education."
	14	"I would not directly put too complex patients with problematic social-behavioral aspects (lack of compliance, hygiene, language barriers) on home based treatments. But maybe because I lack expertise in home dialysis."
	17	"I have got very bad experiences with encapsulating peritoneal sclerosis onset in PD patients, treating for more than four years… So I tell my patients that it is a temporary technique."
Trust in the attitudes of the patient	25	"One of my young PD patients was in the emergency department for pulmonary oedema. I am sure it was because he didn't do his exchanges correctly… I will never forget."
	26	"In New Caledonia, some patients are doing PD in their caravan without electricity… I think we overestimates the risk in patients living in more hazardous conditions
	13	"If a 70-year-old patient is alone at night, I am afraid he will panic and not be able to react in the right way when he has an alarm, so I think we will have to choose HD."
	21	"In an untidy patient who does not have a sterile space without cats or dogs, it is hard to do PD."
Beliefs of, and trust in, other healthcare providers	18	"PD catheter mechanical complications are no longer an issue for our team, as we got a big experience in it."
	8	"We are sometimes very surprised by the resources of old patients and their caregiver to manage PD… I mean for old couples, it makes sense to share the disease and its treatment all together, they are complementary until the end."
	11	"The advice of the GP to do PD is important in our region. I have recently faced twice a refusal from the GP to do PD, while these patients would have been perfect candidates for PD."
	10	"Multiplying the number of nurses who do assisted PD at home, increases the risk of peritonitis."
Feeling of control		
Paternalism	19	"If I estimate that the patient can do PD, I will propose him/her PD first strategy."
	3	"I think that not every patient is sufficiently educated or in a position to make all decisions for himself. When a patient comes to the consultation alone without family, does not smell well or does not listen to what I say, I will not guide that patient towards PD."
	13	"I think that PD is better for quality of life. Although for real paupers I think that there is not much added value, then I think it is less meaningful. You know if your patient will be able to do it or not."
	1	"Most of the time I have a preconceived idea on the preferred dialysis modality and I communicate it to the pre-dialysis nurses."
	20	I believe they have the right to say "no PD", and then we say: OK, pity you do not opt for PD, but it's your choice. They have their reasons not to take our advice. It is important they know we accept their choice
Uncertainty and doubt about security	9	"If we doubt, if we see that the patient's house is not very clean, then we advise against PD, because you cannot just let go of the patient ant trust him to do dialysis at home."
	29	Yeah, I mean…. Elderly, or patients with heartfailure… revolving door in and out the hospital several times…if you take those in HD and you see them 3 × per week, than you have more control, you can intervene

Table 2 (continued)

Trust/belief	Participant number	
Uncertainty on own expertise	9	"Because I don't do PD, I don't have a lot of experience with it. I would be afraid that it will fail when I start it in a non-compliant patient."
	3	"The patient is not suitable to do PD if he cannot do it by himself, because he is for example blind, very clumsy, mentally retarded, bedridden, or does not have the intellectual capacities."
	10	"Visual impairment is a relative contraindication, so are big polycystical kidneys and skin conditions like severe psoriasis."
	14	"With severe cognitive impairment, I would suggest in-center HD or conservative treatment as I would fear PD catheter problems (infection, pull out) in delirium time."
	14	"In center HD offers a social advantage for isolated patients who need caring and compassion of the nurses and doctors thrice a week."
Vision on care and approach		
Shared decision making	21	"I evaluate the patient and when I think there is a possibility to do PD, I push towards PD. If I think the patient is not suitable for PD, I do not explain PD."
	8	"We explain all options to every patient, and let the patient decide. We notice that when the patient can choose, therapy compliance is a lot better and it gives us more fulfilment. There is always a reason why a patient chooses one of the options, and I think it is important to accept that. I would want that too, if I were the patient."
	11	"I often communicate to my patient my personal opinion regarding a given dialysis modality, not to impose my preferences, but rather to lead them a bit."
Troubleshooting attitude	16	"We have several patients in PD living in precarious housing, even one patient who lives with his cows! But so far, we have always found solutions."
Flexibility and creativity	2	"Nursing homes asked us to train their nurses to do PD. It was energy-consuming, but we did it and it works."
	2	"I do not fear to tell a complex patient that we can try, and if we were wrong, change modality. Transfer between modalities is totally feasible. Starting dialysis is not a straightforward road."
	16	"I once had a patient whose home was not tidy enough to do PD, so I asked the social worker to arrange a thorough cleaning of the house."
	2	"We have had all kind of patients in PD: blind or deaf people, patients with cognitive impairment, transplanted patients, with ADPKD, or non-compliant patients. We have done it all."
	16	"I believe that one of the reasons that PD is less chosen, is that it demands another kind of investment and involvement from the nephrologist and the team."
Complacency	17	"We don't do assisted PD with nurses or help from the family. We do not have the habit to do that, even not in residential care centers, we just don't do that."
	15	"We do not have the culture to invest time and energy to explain all to the patient. I think for us it is easier to start someone in HD, that is just what we always do."
	21	"In our centre, a lot of patients are late referrals and did not have predialysis education. It is hard to recruit them for home therapies afterwards."
	17	Yeah.. but I do not really know… I really do not know for certain… maybe we should put more effort in peritoneal dialysis…. But at this moment the majority of people opt for in centre HD… I believe this is because this is a very well-organized service
	2	"In my opinion, reluctance to propose PD is more related to nephrologist's culture than to real medical contra-indications"
Organizational issues		
Organization of predialysis	16	"We organize several predialysis sessions and if the patient still cannot decide, we accept that and classify him in the category 'decide not to decide'. We give him more time, more sessions and in that way try to not push him in a direction."
PD access	1	"We are lucky to have a very skilled surgeon to put our PD catheters, she is available so that PD catheters are not a problem for us."
	17	"PD is not easy to start at short notice, for instance when the surgeon is on holidays."
	2	"We have one surgeon that almost exclusively places PD catheters, so he knows very well what we want and that works great."

Table 2 (continued)

Trust/belief	Participant number	
	22	I was new in the unit, as was the surgeon. That surgeon really had a learning curve after his colleague retired. The old one was perfect, as he placed all catheters, but when he retired the new guy needed to learn it from scratch…. Now we are comfortable again and everything is running smoothly
	3	We don't have PD surgeon anymore and that limits us to propose PD to patient…since departure of our previous surgeon, we are facing only technical failure."
(Financial) incentives	17	"A nurse is not reimbursed to do home based dialysis, so assisted PD is a problem. In case the patient cannot do the dialysis himself, we have no other choice than in center HD."
	9	I would profoundly regret if the government would stimulate PD by increasing reimbursement. I would think that to be unfair as I would then have the feeling I would push people to PD even if they would not prefer that themselves
	5	"the long distance between home and HD center may be an incentive in the modality decision-making process as the bill for organized transportation may rise as high as 500 euros per month and insurance does not refund all."
	11	"Before reaching the critical mass of PD patients, we try to convince some patients to choose PD, but when you reach it, you drop the pressure because the program runs itself and nurses can be dedicated to it."
	17	"At the startup of our home dialysis program, I felt pressure and motivation and tried to guide my patients towards home based dialysis."
	1	"Providing pre-dialysis education is and relies on the good willingness of the centers to do it…it would be great to get a specific reimbursement to motivate centers to organize a more qualitative pre-dialysis educational program"
Availability of assisted PD	9	"we are limited by the number of nurses accepting assisted PD. They tend to refuse if we ask for more than two visits per day."
	25	"For home based dialysis, the patient absolutely needs to be self-reliant. The less self-reliant a patient is, the more the nurse needs to do and you cannot always count on that. You can educate a nurse, but that is maybe one nurse of a whole team and she will not always be available. The experiences are not always positive."
	13	I fail to see the added value of assisted PD…. Come on, why do we offer PD? To give patients autonomy. If they are so comorbid they cannot perform PD themselves, what is then the added value I ask myself?

etc. Mental disability, as well as isolation or lack of a family caregiver were often forwarded as factors to not choose PD.

Vision of care and approach

Subtheme: shared decision making

In former times, doctors used to make decisions for their patients in a hierarchical structure. Respondents state this structure has become more horizontal and shared decision making is now considered the golden standard. Sometimes, the nephrologist sincerely tries to provide objective information, but admits wondering if this is successful. Respondents admit nudging patients by subtly guiding them in a given direction. This can be accomplished by consciously or unconsciously highlighting the advantages of one and the disadvantages of the other modality. However, some nephrologists openly indicate they are selective in the information they provide on the different modalities. They find it rightful—as an integral part of their medical role—to share their opinion to guide their patients. There often seems to be a strong factor of identification and projection of their own beliefs and values onto their patients.

Subtheme: troubleshooting attitude

Respondents observe that programs for PD tend to be less elaborate and established than those for in-center HD. For many situations in PD, processes need to be developed from scratch. As the number of patients on PD is mostly low, many centers lack motivation to develop PD-related protocols. Furthermore, they reveal that for in-center HD, it is easier to install standardized operating procedures as they are all performed by medical professionals in a well-organized surrounding for a great number of patients. In contrast, in a PD program, every patient is perceived as being unique and protocols need personalized adaptation. Running a PD program consequently is considered to require a troubleshooting mindset, which is perceived as a positive

challenge and rewarding for some respondents and as a burden by others.

Subtheme: flexibility and creativity

In PD, an open mind is needed to reflect whether deviating choices would be possible or equally good, and how those could be effectuated in practice. Respondents state that in some cases, creative solutions must be fulfilled to enable [2] the patient's expectations and peculiarities. A positive open mind towards PD in all stakeholders emerges as a key factor in successful PD programs. Finding such solutions is reported to be energy-consuming, but also energizing when the "pieces fall together" in a successful case.

Subtheme: complacency

It appears that most nephrologists have the feeling the ongoing predialysis and global dialysis trajectories are fine the way they are, and that there is no real need to change or enhance predialysis education or to provide an upgrade of the knowledge and skills of those responsible for it. In-center HD is perceived to be "accepted", as it "works", is feasible in almost all patients, the team knows what to do and how to handle problems, and patients do not spontaneously ask for other options.

Organizational issues

Subtheme: organization of predialysis

According to the respondents, most nephrology centers in Belgium have a predialysis program, however, the time point of referral seems to differ, as does the structure, organization and content of such programs. Mostly, predialysis education is provided by a nurse, who can have variable degrees of PD expertise. The education can consist of one single or several conversations, with or without family member(s). Nephrologists sometimes inform the nurse in advance to emphasize one modality more than the other or to even not mention one of the modalities at all. The interviews suggest most respondents do not know the content of the provided education in detail. Apparently few predialysis nurses have followed specialized courses in patient education.

Subtheme: organization of access-team

Many respondents struggle to motivate surgeons who sometimes lack experience in peritoneal access techniques. Likewise, complications or dysfunction of access appear to be hard to solve, resulting in technique failure and negative experiences. Some respondents, in contrast, report very good collaboration with the access team, which emerges as a stimulus to motivate patients towards PD.

Subtheme: financial incentives

Most respondents deny reimbursement is an incentive to guide their patients in modality choice. Some respondents indicate they are uncertain whether reimbursement of PD covers all costs related to disposables and staff. Also, some indicated assisted PD to be disadvantaged, as the fee for the nurse is considered insufficient to motivate community nurses, and as it must be paid by the PD center.

Reimbursement of a specific predialysis education trajectory however is a matter of concern for some respondents.

Subtheme: assisted PD

In Belgium, there is the (reimbursed) option of assisted PD. In patients who want to undertake PD, the most important issue is to find nurses willing to come several times a day, as reimbursement is considered low. Most respondents seemed to have limited flexibility in PD prescription, prohibiting flexible arrangements with staff providing assisted PD. Some respondents indicated that for them, assisted PD was a contradiction, as the true intention of PD should be to increase the patient's level of independence, whereas in assisted PD, the patient becomes dependent on the community nurse. Some nephrologists stated that in residential care centers assisted PD is easier to organize, whereas others report the opposite experience.

Overarching framework

All themes and subthemes are in fact intertwined and dovetail each other (Fig. 1).

The weight of each individual theme in the final attitude of the nephrologist and the impact on modality decision making can vary, both between nephrologists as well as within the same nephrologist depending on the individual patient. Each theme and subtheme has a "positive" and a "negative" side, meaning it can both act as a facilitator and as a barrier. Consequently, much is determined by the mindset of the nephrologist and culture of the team. In-center HD programs are mostly well-developed, run smoothly and can serve a wide range of patients. This makes the difference in effort to build up a PD program substantial, which is exactly an attractive challenge for some, and results in complacency for others. This idea is well captured in a quote from a respondent:

> *"We know that it all starts with interest, motivation and belief in a technique, which will first bring you*

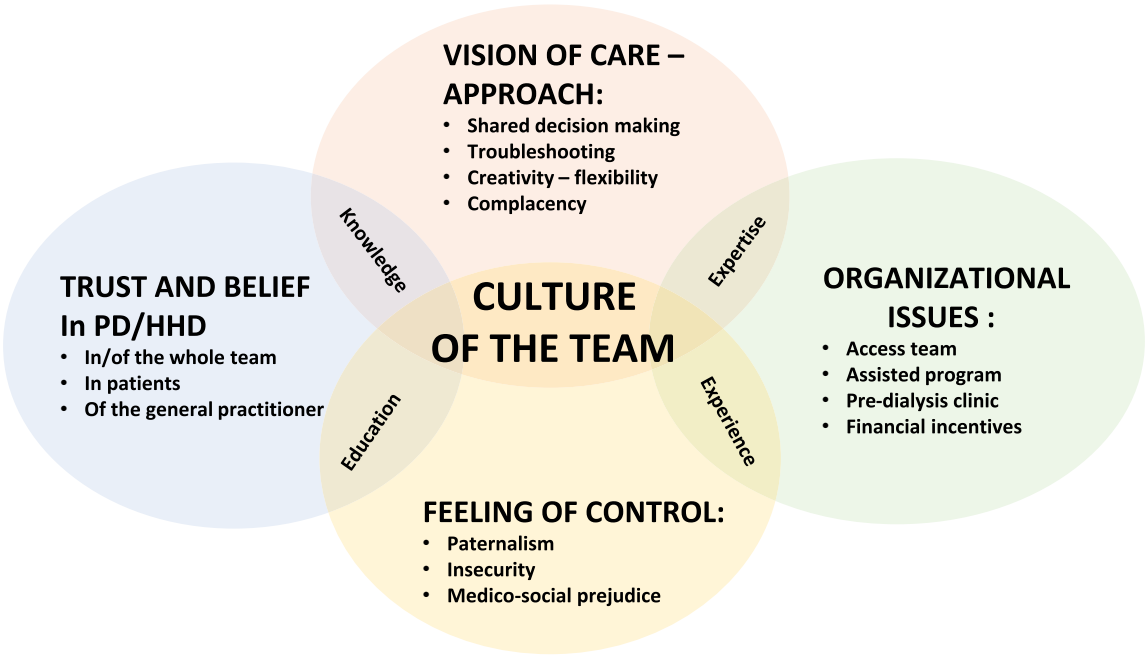


Fig. 1 Visual representation of the overarching framework of factors influencing modality selection

patients while expertise and knowledge will only come afterwards."

Discussion

Based on this qualitative study, it appears that uptake of PD programs is substantially mediated by a complex interplay of factors rather than by stand-alone aspects. These factors relate both to organizational issues (predialysis and access team, financial incentives and availability of assisted PD) and to factors related to attitudes and culture of the nephrologist and the team (trust and belief; perception of control; and vision of care and approach).

Initiatives to promote the possibility of PD uptake should combine interventions aimed at increasing knowledge and expertise as well as raising enthusiasm and counteracting complacency.

Previous quantitative and qualitative research already identified individual factors influencing modality selection [5, 22, 23] but did not specifically explore their potential interaction or the impact of culture and perspectives within the teams. We found that intrinsic motivation and culture within the team are essential components of a patient-centered approach, intended as having the right patient on the right treatment.

Predialysis clinics have become a popular concept over the last decades, as confirmed by our respondents. They are associated with growing numbers of patients on home-based treatments, likely because teams motivated to start a predialysis clinic are also more motivated to grow their PD program [18]. Our current work adds that, although most nephrologists are convinced they have a well-established predialysis clinic, actual practices are widely variable. Education on kidney replacement therapy (KRT) is an essential step for shared decision making, but seems to remain suboptimal [12, 23, 24]. Our study reveals most pre-dialysis programs are ill-defined, with a strong emphasis on medical-factual knowledge rather than a patient-centered focus. Few programs seem to focus on the life goals and meaningful activities of the patients as a starting point for counselling on KRT, although these are highly relevant to patients [25]. There is a substantial variation in the level of expertise of predialysis staff, and their job description. Little attention is given to the pedagogical or empathic skills of the predialysis staff. None of the respondents actually mentioned specific training for nurses involved in predialysis care. Nevertheless, it has been well-established that teaching chronic patients requires specific skills [26]. Prediaysis programs seem thus to grow PD programs only when they are a consequence of the wish to increase shared decision making, and when they are conceived thoroughly by a motivated team. There is complacency in the efforts to establish and grow high quality predialysis programs intended to provide the most suited [3] treatment fitting the life goals of the patient.

Our interviews reveal nephrologists find it difficult to stay neutral during predialysis counselling. This is largely driven by individual knowledge, trust, beliefs and experiences in

one or other techniques [27]. Patients need reassurance by their clinicians that PD is a safe and suitable option for them [5]. As most teams lack expertise and conviction for PD, this might result in a subliminal negative influence, and finally the misconception that patients do not want PD. Such negative stance towards PD as a technique was illustrated by the fact that a minority of the respondents would choose PD for themselves while the majority would choose high dose home hemodialysis.

The current qualitative study reveals that uptake of PD programs is substantially mediated by a more complex interplay of intrinsic and extrinsic factors. The former are related to attitudes and culture of the nephrologist and the team. The core here is belief and trust in the technique combined with knowledge, yielding expertise as positive experiences accumulate. The latter will enhance motivation and a patient-centered approach to solve (external) shared organizational issues such as a PD access team or assisted PD programs or predialysis education. In some cases, prejudice towards PD appears to be based on misconceptions or lack of knowledge, but knowledge does not necessarily translate into actions. Individual barriers identified earlier are thus mostly not the true *cause* of a failure to implement a PD program, but themselves *the consequence* of an underlying lack of motivation to do so. Surpassing the *complacency* to build up a PD program is thus an important hurdle in growing home-based therapies.

Like all research, our study also has limitations. The study was performed in the context of the Belgian Health care system and might therefore not be generalizable to other jurisdictions. Although we did our utmost best to interview a sample representative of the nephrology community, it may be that only nephrologists with an interest in the topic agreed to participate.

In conclusion, our qualitative research illustrates that besides the already identified single issues, other, more intrinsic factors also impact uptake of home-based therapies. These factors intertwine and relate both to process-level topics and to attitudes and culture of the nephrologist and patient centeredness within the team.

Supplementary Information The online version contains supplementary material available at https://doi.org/10.1007/s40620-024-01915-w.

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Author contributions All authors contributed substantially to this current paper according to the ICMJE criteria: conception or design of the work (WVB, CC, A-LC, GG); acquisition of data through interviews (CC, A-LC), analysis and interpretation of data (CC, A-LC, GG, WVB). Drafting and critical revision of the paper for important intellectual content (WVB, A-LC, CC, GG). All authors gave final approval of the version to be published, and agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

Data availability Interviews are in native language; the original quotes maybe shared upon reasonable request to the authors.

Declarations

Conflict of interest The authors declare they have no conflict of interest with regard to the presented research.

Ethical approval The study was approved by the Ethical Committee of the University Hospital Ghent (THE-2022-0179). The study was conducted according to the guidelines of the Declaration of Helsinki.

Human and animal rights The present study complies with the guidelines for human studies. The current study does not involve animals.

Informed consent Informed consent was obtained from all persons involved in the study.

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