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Understanding multilevel influences on the adaptation of a complex intervention for oncology to palliative care transitions: a qualitative study across seven European countries

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Abstract

Background Adapting complex healthcare interventions for use across diverse healthcare systems requires balancing fidelity to core components with responsiveness to local contexts. The Pal-Cycles project aims to support transitions in care for patients with advanced cancer across seven European countries. Understanding the multilevel factors that influence adaptation is essential to ensure contextual fit while maintaining intervention integrity.

Aim To explore the multilevel factors that influenced the adaptation of the Pal-Cycles intervention across seven European countries.

Methods A qualitative study was conducted with purposively sampled country lead team members from all participating countries. Data were derived from focus groups, in which participants reflected on and discussed their experiences of cross-country adaptation meetings, and were analysed using framework analysis.

Results Fourteen country lead team members participated in the study. Analysis identified five areas reflecting multilevel factors that influenced the adaptation of the Pal-Cycles intervention: (1) Organisational variability as a barrier to adapting the Pal-Cycles intervention, (2) Disparities in training and shared motivation to improve palliative care communication, (3) Multidisciplinary collaboration shaped by organisational and cultural contexts, (4) Balancing optimism and practical constraints: stakeholder views on the Pal-Cycles intervention, (5) Working together to adapt the Pal-Cycles intervention across cultures. Organisational variability influenced service availability, integration between oncology and palliative care, and communication pathways. Disparities in previous training and shared motivation shaped clinicians' engagement with the intervention's training component. Multidisciplinary collaboration varied across settings, affecting role clarity and coordination among healthcare professionals. Stakeholder perspectives, including those of cancer clinicians, general practitioners, and consortium members, informed decisions

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about which elements of the intervention were most relevant in each context. Finally, working together to adapt the intervention across diverse cultural and organisational settings involved iterative discussions that balanced flexibility with preservation of the intervention's core components.

Conclusion The adaptation of Pal-Cycles was shaped by interrelated organisational, professional, and cultural factors. Recognising how local contexts influence the prioritisation and operationalisation of intervention components is essential for achieving a balance between standardisation and flexibility in cross-national healthcare interventions.

Keywords Adaptation, Complex interventions, Transition, Advance cancer, Qualitative research

Background

In advanced cancer care, the complexity of patients' needs increases, often requiring greater attention to psychosocial wellbeing, communication, and quality of life [1]. Across many European healthcare systems, palliative care is integrated alongside oncological treatment, providing an additional layer of support that addresses emotional, social, and practical concerns throughout the illness trajectory [2]. However, patients and families often experience multiple, complex transitions in care - between care settings, healthcare teams, and treatment goals - which require careful coordination across different levels of the healthcare system to maintain continuity and person-centred care [3].

Research shows that poorly coordinated transitions can undermine continuity, compromise quality of care, and leave patient needs unmet [4]. Patients and families may experience confusion, anxiety, and emotional distress when communication and support are insufficient, particularly when changes involve multiple clinicians or adjustments in treatment priorities [4]. Variability in organisational structures, care models, and local practices across healthcare systems further complicates these transitions, making it challenging to provide consistent, person-centred support [5]. Understanding these factors is critical for designing interventions that are flexible and responsive to the diverse contexts in which transitions occur.

Ensuring smooth transitions is therefore essential to maintaining continuity of care, improving patient outcomes, and supporting the complex needs of patients and their family members [6].

This study is part of the Pal-Cycles project, which aims to adapt, implement, and evaluate a complex intervention designed to support transitions for patients with advanced cancer across seven European countries: Germany, Hungary, the Netherlands, Poland, Portugal, Romania, and the United Kingdom [7]. The Pal-Cycles intervention is hospital-initiated, delivered during patient admission, and focuses on improving communication around goals of care among patients, families, and healthcare teams [8]. By fostering structured discussions and shared decision-making, the intervention helps clarify care priorities, coordinate responsibilities between hospital and community services, and support care planning that is aligned with patient preferences. The intervention is built on five cornerstones: early identification of patients with palliative care needs; structured, compassionate communication with patients and families; collaborative development of a multidimensional care plan; periodic review and adaptation of that plan; and enhanced clinician skills to recognise and respond to the terminal phase of illness (Fig. 1) [8]. It also includes a blended training programme comprising five modules and 12 teaching units, designed to strengthen clinicians' knowledge and skills in areas such as patient assessment, communication, symptom management, and care planning. The Pal-Cycles intervention is designed to be flexible and adaptable to local cultural and healthcare contexts, allowing implementation across diverse European systems while retaining its core components.

Given the multinational scope of the Pal-Cycles project, adapting the intervention to diverse healthcare contexts was of high importance. A team at Lancaster University coordinated the adaptation process in collaboration with country lead teams from each participating country. Each country lead team included researchers and healthcare professionals with expertise in oncology, palliative care, or community-based care. Adaptation was guided by the ADAPT framework, which provides a structured, evidence-based approach to modifying interventions while retaining core components (Hooley RL, Payne S, Brunsch H, Surges SM, Mosoiu D, Hurducas F, et al: Adapting a palliative care intervention across seven European countries: The Pal-Cycles intervention, unpublished). To identify context-specific influences that could influence the intervention implementation, consultancy workshops were held in each country with healthcare professionals from a range of backgrounds, including oncology, palliative care, and community services, excluding clinicians from study sites to prevent trial confounding (Hooley RL, Payne S, Brunsch H, Surges SM, Mosoiu D, Hurducas F, et al: Adapting a palliative care intervention across seven European countries: The Pal-Cycles intervention, unpublished). In five countries, Germany, Poland, Romania, the Netherlands, and the United Kingdom, additional workshops included patients and family members (Hooley RL,

Fig. 1 Original Pal-Cycles intervention [8]

Payne S, Brunsch H, Surges SM, Mosoiu D, Hurducas F, et al: Adapting a palliative care intervention across seven European countries: The Pal-Cycles intervention, unpublished). Structured decision-making methods, such as nominal group techniques, were used during these workshops to systematically incorporate stakeholder input and prioritise local adaptation needs (Hooley RL, Payne S, Brunsch H, Surges SM, Mosoiu D, Hurducas F, et al: Adapting a palliative care intervention across seven European countries: The Pal-Cycles intervention, unpublished). For instance, the Edmonton Symptom Assessment System Revised (ESAS-r) was adopted uniformly as the symptom measurement tool to maintain standardisation, even though it is less commonly used in the United Kingdom. Meanwhile, some intervention-specific questionnaires were tailored for each country by omitting items that were not relevant to certain healthcare systems (Hooley RL, Payne S, Brunsch H, Surges SM, Mosoiu D, Hurducas F, et al: Adapting a palliative care intervention across seven European countries: The Pal-Cycles intervention, unpublished). Figure 2 illustrates the adaptation process.

Adapting complex interventions for use in diverse settings requires balancing fidelity to their core components with responsiveness to local contexts. This process often involves navigating variations in health system organisation, professional roles, and cultural understandings of care (Hooley RL, Payne S, Brunsch H, Surges SM, Mosoiu D, Hurducas F, et al: Adapting a palliative care intervention across seven European countries: The Pal-Cycles intervention, unpublished). Such contextual factors are particularly salient in cancer care, where communication about goals of care is integral to aligning treatment decisions with patient values, preferences, and anticipated needs [10].

This study therefore aims to explore the multilevel factors influencing the adaptation of the Pal-Cycles intervention across seven European countries, examining how contextual determinants shaped the process of adjusting the intervention to local systems, practices, and resources. Specifically, it addresses the research question: What contextual, organisational, and individual-level factors influenced the adaptation of the Pal-Cycles intervention across diverse European countries?

Methods

Study design

A generic qualitative design was used for its flexibility in exploring the research question without specific theoretical constraints [11]. Focus groups were conducted to capture diverse perspectives and how group interactions influenced views, making it a suitable approach for examining the multilevel factors influencing the adaptation of the Pal-Cycles intervention.

Setting and participants

Participants were members of the country lead teams involved in adapting the Pal-Cycles intervention in each participating country. Country leads were appointed through the Pal-Cycles consortium based on their institutional role and responsibility for coordinating national implementation activities. Participating sites within each country reflected services involved in the main Pal-Cycles study. These sites were purposefully selected to capture diversity in healthcare settings rather than to achieve statistical representativeness.

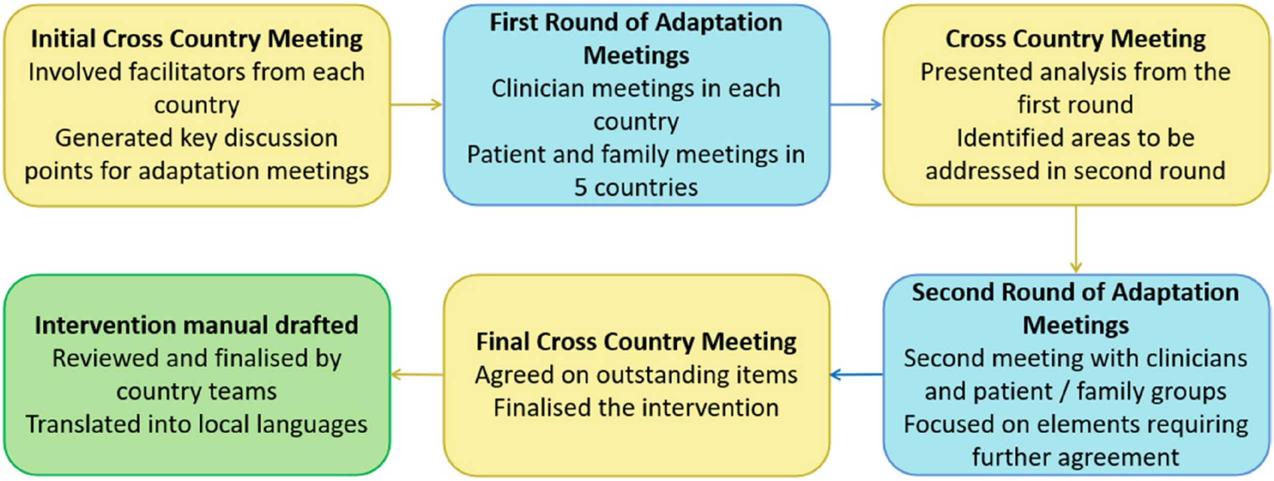

Fig. 2 The Pal-Cycles intervention adaptation process (Hooley RL, Payne S, Brunsch H, Surges SM, Mosoiu D, Hurducas F, et al: Adapting a palliative care intervention across seven European countries: The Pal-Cycles intervention, unpublished)

In addition to these team members, clinical collaborators, mainly healthcare workers such as oncologists, specialist nurses, and palliative care physicians, who had participated in the national consultancy workshops or provided input on local adaptation needs were also invited to participate. Clinical collaborators were eligible if they had taken part in national consultancy workshops, contributed to local adaptation discussions, or were directly involved in delivering or coordinating aspects of the Pal-Cycles intervention. Not all clinical collaborators involved in the wider study were invited. National leads identified and invited those with direct experience of the adaptation process and availability to participate. Together, these participants represented a multidisciplinary group directly involved in, or informed about, the adaptation process of the intervention across countries.

Recruitment and sampling

We contacted members of the Pal-Cycles project consortium involved in the adaptation process and invited them to participate in this study. Consortium members then sought permission from clinical collaborators for further contact by the University of Navarra research team to provide details about the study. Those who agreed to be contacted received an invitation email describing the study aims, procedures, and confidentiality measures. All participants were informed that participation was voluntary and that they could withdraw at any time without consequence.

Ethics

Prior to participating in the study, potential participants were provided with a Participant Information Sheet and a Consent Form. These documents were shared during initial contact to allow participants ample time for review. Signed consent forms and sociodemographic data were collected online before the focus groups began. To ensure confidentiality, audio recordings of the focus groups were transcribed verbatim and checked for accuracy. The study received ethical approval from the University of Navarra Research Ethics Committee on January 26, 2024 (Ref. 2023.223).

Data collection

Three online focus groups were held via Zoom, each lasting 60 to 90 minutes which were audio recorded and field notes taken. The focus groups included participants from different countries to ensure diversity of perspectives, and each group comprised both consortium members and clinical collaborators. Each participant attended only one of the focus group meetings. The focus group guide, developed by the research team after multiple discussions, was informed by an integrative review of care transition barriers and facilitators [12] and summaries of consultancy workshops. The focus group discussions constituted the primary data source for the analysis presented in this paper. While summaries of consultancy workshops and cross-country adaptation meetings informed the development of the focus group guide and the wider study context, no data from these meetings were included in the formal analysis. To ensure confidentiality, identifying details such as names and specific locations were removed from the transcripts and replaced with unique identifiers throughout the analysis (e.g., P1C3, where 'P' indicates Participant and 'C' refers to the country the participant comes from), thereby de-identifying the data. Participants requested that their countries of origin remain undisclosed, noting that their views may not represent those of their respective countries. In addition, the analysis considered how group interactions influenced participants' views. For example, participants sometimes built on, agreed with, or contrasted

Table 1 Analytical framework and application

Framework Analysis Stage	Description and Application in This Study
1. Familiarisation	The goal of this stage is to become thoroughly acquainted with the data and to build an overall impression of the complete dataset. As a first step, two researchers (TR and AB) independently read the focus group transcripts and listened to the audio recordings simultaneously. Both researchers took notes throughout this process. After the independent review, they discussed their observations and shared their notes. Key ideas, recurring concepts, and potential patterns were identified, and informal memos were created to reflect on the data's meaning and highlight areas for further inquiry.
2. Identifying a thematic framework	Following the familiarisation stage and guided by the research aim, we developed an initial thematic framework collaboratively. This process involved both inductive and deductive coding: inductively, by deriving codes directly from the data (e.g. "cultural diversity"), and deductively, by drawing on the structure of the Pal-Cycles intervention and the adaptation process (e.g. "familiarity with the ESAS-r scale"). Initially, we identified 18 codes through independent and group discussions. We reviewed the codes multiple times, critically assessing whether they accurately represented the data, were mutually exclusive, and collectively covered all relevant aspects of the dataset. Through this iterative process, we refined the codes, merging or splitting them as needed to ensure clarity and comprehensiveness. This process resulted in a final set of 13 codes, providing a robust framework for subsequent stages of analysis.
3. Indexing (coding)	The final coding framework was applied to all transcripts. TR and AB independently coded the transcripts, meeting regularly to discuss and reconcile any differences in code application. When discrepancies arose, they were resolved through discussion and, if necessary, by consulting a third team member (MA) to achieve consensus. New codes that emerged during this phase (e.g. "level of integration of oncology and palliative care") were incorporated into the framework through further discussion, ensuring the coding structure remained dynamic and reflective of the data.
4. Charting	Coded data were summarised in a matrix format where rows represented individual focus groups and columns represented thematic categories.
5. Mapping and interpretation	Through collaborative discussions with the broader Pal-Cycles team (including six consortium members who participated in the focus groups), key themes were refined and finalised. The interpretation was shaped by both the data and the project's aim to understand barriers and facilitators. These themes provided a framework for understanding the process of cross-national intervention adaptation.

their peers' statements, and these dynamics were noted in the field notes and highlighted in the coding process. Non-verbal cues, such as nodding or gestures, were also captured and included in parentheses alongside a representative quote. These observations allowed us to account for the influence of discussion dynamics on the perspectives shared.

Data analysis

Data were analysed using a framework analysis approach based on Ritchie and Spencer's five-stage framework to identify meaningful themes [13]. Two researchers, TR and AB, independently coded the data, which was then reviewed by MA. All focus groups were conducted in English and transcribed verbatim in English. Analysis was carried out directly on the English transcripts, enabling systematic comparison across focus groups and countries without the need for translation. To enhance the credibility and trustworthiness of the analysis, we held three additional meetings with six members of the Pal-Cycles project consortium who had participated in the focus groups. These participants were purposively selected to ensure representation across all focus groups, different countries, professional backgrounds, and roles within the project. They were not additional data sources; rather, their role was to provide feedback, discuss preliminary findings, and validate interpretations. During these meetings, preliminary findings were presented for discussion, clarification, and validation. Their feedback informed our interpretation and led to refinements in the coding framework, resulting in a more coherent and contextually grounded set of themes. The application of the five-stage framework analysis in this study is described in Table 1.

Findings

Participants characteristics

Of the 20 country lead team members invited to participate in the focus groups, 16 accepted. Two clinicians were ultimately unable to attend due to work obligations, resulting in a final sample of 14 participants. The group was predominantly female ($n = 10$) and aged between 38 and 70 years. Participants included five researchers, seven physicians, one psychologist, and one nurse, with 2 to 18 years of experience in their current roles. All participants represented country lead teams from the seven participating European countries: Germany, Hungary, the Netherlands, Poland, Portugal, Romania, and the United Kingdom.

Findings

Framework analysis identified five principal themes describing multilevel factors that influenced the adaptation of the Pal-Cycles intervention across seven European countries. These themes emerged from participants' accounts of barriers, facilitators, and contextual influences shaping how the intervention was tailored to local healthcare systems and professional practices: (1) Organisational variability as a barrier to adapting the Pal-Cycles intervention, (2) Disparities in previous training and shared motivation to improve palliative care communication, (3) Multidisciplinary collaboration shaped by organisational and cultural contexts, (4) Balancing optimism and practical constraints: stakeholder views on the Pal-Cycles intervention, (5) Working together to adapt the Pal-Cycles intervention across cultures.

Organisational variability as a barrier to adapting the Pal-Cycles intervention

Participants described substantial differences in the systems, structures, and processes supporting primary and palliative care across countries, which influenced how the Pal-Cycles intervention could be adapted. These differences included access to services, integration between oncology and palliative care, and the effectiveness of communication systems. The term "primary and/or palliative care" reflects variations in how palliative care is defined and delivered across countries. In some contexts, palliative care is embedded within primary care, while in others it functions as a distinct specialty.

Accessibility to primary and/or palliative care services for patients with advanced cancer varies across countries, with some having well-developed primary care services, while others have limited availability and access. Additionally, the distance to palliative care services and the cost of accessing them further complicate access in certain regions.

> *"There is very good community care for patients in the C7, but it's lacking in C2." (P1C2).*

> *"Very often these patients or their families have to come to the oncology clinic, maybe from hundreds of kilometres, and this is very difficult not only for patients but for their families too." (P1C6).*

In their discussions, participants emphasised that integrating oncology and palliative care is crucial for optimising access to palliative care for patients with advanced cancer. However, the level of integration varies across countries. Some countries have more cohesive systems with standardised procedures, where referrals and access to palliative care are smoothly integrated into the transition process. In contrast, other countries have less systematised approaches and more limited availability of palliative care services.

> *"In C2, we are at the beginning of this journey. We are integrating palliative care into oncology and finding the palliative care's role for general practitioners." (P1C2).*

Participants generally recognised the need for better communication strategies among healthcare professionals, patients and family members.

> *"Good communication with patients from the beginning, and good communication with our colleagues from other specialities." (P1C6, all participants were nodding as sign of agreement with this statement).*

Two key aspects of communication were highlighted. In some countries, the flow of patient information is supported by efficient electronic systems, while others rely on paper-based methods. The latter creates uncertainty about whether key patient information will be transferred to the appropriate healthcare professionals in a timely manner during transitions through the healthcare system.

> *"We are lucky to have an electronic system." (P1C2).*

> *"There is a medical letter that the specialist gives to the patient to give to the doctor and it's up to him if he delivers it or not." (P1C6).*

Furthermore, participants noted the need for direct and improved communication channels, such as telephone consultations, between hospitals and general practitioners to facilitate smoother information exchange. However, challenges within networks and communication make this direct contact difficult. Factors such as the reliance on online appointment booking platforms, the absence of a regular general practitioner (a practice that may have been more common in the past), and administrative barriers can hinder seamless contact between hospitals and general practitioners. Participants referred to electronic health records primarily in terms of information flow. However, no detailed discussion emerged regarding what type of information was documented or whether records captured contributions from different professionals or care domains.

> *"I want to add to what P2C1 said that, in my opinion, they (healthcare professionals) ask for direct contact, for example, via telephone to improve these connections between hospitals and general practitioners, for example." (P3C1).*

Variations in the organisational infrastructure of primary and/or palliative care services created challenges during the adaptation of the Pal-Cycles intervention. Specifically, the limited availability of these services was seen as a barrier, as patients might lack essential support and continuity of care after leaving the hospital. Additionally, differences in communication channels had to be carefully evaluated when adapting the intervention's component for sharing relevant patient information.

Disparities in previous training and shared motivation for ongoing learning

Participants described considerable differences in the processes and opportunities for gaining knowledge, skills, and competencies in communication and palliative care across countries. The quality, content, and availability of training for oncologists, specialist nurses, and general practitioners varied, with some countries offering more extensive programmes than others.

> *"There is a lot of training available, and it's high-quality training." (P1C7).*

Despite having broad training opportunities, some clinicians expressed openness to participating in the additional training provided as part of the Pal-Cycles intervention, reflecting a shared motivation for continued learning rather than a general need for more training.

> *"There were a lot of people saying they'd already had lots of training about communication and things like that. I think they felt like refresher training would be more helpful for them, that it wasn't so much that they needed lots and lots of training. There's lots of training available." (P3C7).*

Participants noted that knowledge can impact the effectiveness of palliative care delivery and the frequency of early referrals.

> *"Most of the physicians had no communication training at all, during the whole university and the whole education. Nowadays, they need that. I think they also have no knowledge about palliative care… I have to say, it seems it's totally new for them." (P1C6).*

Disparities in previous training availability across countries posed a barrier to adapting the training element of the intervention. While some countries have established comprehensive training programmes for oncologists and primary healthcare providers, others face gaps in training on communication and palliative care approach. These differences created challenges in standardising the training component of the intervention, as the needs and starting points varied widely between countries. However, a commonly recognised need for continued learning, particularly focused on practical communication and the palliative care approach, emerged as a key facilitator across countries. This shared understanding provides a foundation that can help drive the adaptation process and align countries with differing levels of previous training.

Multidisciplinary collaboration shaped by organisational and cultural contexts

Participants noted that less visible aspects of healthcare system organisation, such as collaboration and communication between oncology, general practice, and palliative care professionals, influenced the delivery of care for patients with advanced cancer. In some countries, participants reported that collaboration was well-established and considered a routine part of care.

In some countries, collaboration appears to be more present among healthcare professionals and seen as a standard part of providing care to patients with advanced cancer. Multidisciplinary meetings and shared care planning demonstrate strong networks and communication within the healthcare teams.

> *"In a collaborative effort to establish a treatment plan within the hospital, there is a lot of collaboration between the different wards, or there's a palliative care team, and they have multidisciplinary meetings every week to discuss the more difficult patients. In some instances, the general practitioners also join those meetings, whether physical or online." (P1C3).*

In other countries, the existing collaboration is described as more limited. One concern that emerged was whether general practitioners have sufficient access to information about patients from oncologists. This communication appears to be one-way, usually leaving general practitioner without an opportunity to ask further questions.

> *"Therefore, what we have is that we can't actually reach the general practitioner, or the family medic, and for them, it's hard to reach us and have answered questions go back and forth. I think that's a very important point." (P2C1).*

During the discussion, participants highlighted that collaboration on aspects of palliative care approach, such as advance care planning and goals-of-care conversations, might depend on what is culturally acceptable within each country. The degree to which these practices are embraced or integrated into care varies according to cultural norms, values, and societal attitudes toward end-of-life discussions. In some cultures, open conversations about future care preferences are encouraged and seen as a normal part of care, while in others, such topics may be considered sensitive, private, or even taboo.

> *"I am a palliative care provider. That's tough. Talking from the oncologist's perspective, who I met at some of these discussions, they are not at all comfortable talking about anything about palliative care, end-of-life care, or anything." (P1C6).*

In the context of the adaptation of the Pal-Cycles intervention, these variations posed challenges in identifying aspects of care that could be addressed in a multidisciplinary manner while remaining acceptable across different countries and cultures.

Balancing optimism and practical constraints: stakeholder views on the Pal-Cycles intervention

Participants reported differing perspectives on the Pal-Cycles intervention, reflecting the views of oncologists, general practitioners, and project consortium members regarding its relevance and applicability. They highlighted variability in the availability and quality of training in communication and palliative care across countries. Participants also noted perceived resource constraints and concerns about integrating the intervention into existing care practices, which influenced decisions about how the intervention could be adapted to local healthcare systems.

Focus group participants expressed a positive attitude toward the Pal-Cycles intervention, viewing it as a valuable tool for improving palliative care for patients with advanced cancer. This positive perception itself was seen as a facilitator in the intervention adaptation process.

> *"I think that this project is really helpful for the patient. It's a very patient-centred study. This is why it goes more softly, and it's good that we are taking part in it because we're doing something good (for the patients)." (P1C2).*

Despite this positive outlook, some participants expressed concerns regarding the added value of the Pal-Cycles intervention in contexts where similar approaches were already in place.

> *"Most of these parts of the intervention are already standard practice or included in discharge letters. They (clinicians) are unsure whether the time invested in this project would be valuable and pay off." (P1C3).*

Questions arose about specific elements of the intervention and responsibilities for delivering them. The role of nursing staff in providing care to patients with advanced cancer varies across countries and may impact the implementation of the intervention. In some settings, nurses actively participate in key aspects of palliative care approach like goals-of-care discussions.

> *"Unlike in C6, where the nurses will just be doing the assessment, I think in the C7, it may well be that the nurses are very actively involved in this intervention and may well be doing the goals of care conversations or at least following them up, so there is time for patients and families to discuss them further. I think that another thing that is going to be different across our partner countries is the role and status of nurses vary hugely across countries in Europe." (P1C7).*

Participants discussed clinicians' perceptions of the Pal-Cycles training content and format, noting challenges in reaching consensus across countries. It is worth noting that these accounts primarily reflect clinicians' practical preferences and constraints in their own settings, rather than disparities in previous training. They agreed that recognising palliative care needs and conducting goals-of-care conversations should be compulsory in the training programme. Some clinicians criticised the initial training content for being too general and lacking practical tools.

> *"They were very sceptical about the proposed training video; it was too general and didn't offer enough new tools." (P3C1).*

Regarding the format, there was a broad agreement that the training should be short, practical, and preferably conducted face-to-face.

> *"Our colleagues were very eager to accept the idea of face-to-face training. That was an easy part." (P1C2).*

Resource constraints, especially time and space, were seen as barriers to adaptation. Participants agreed that clinicians face considerable time pressures, complicating the integration of additional demands into daily practice.

> *"What I see as a problem is always time—we have too little time, and we have too many patients to see daily." (P1C4).*

Space limitations were also mentioned as a barrier in certain contexts. Some participants noted the difficulty of finding appropriate settings for goals-of-care conversations. The shortage of staff compounded these challenges.

> *"How can you find the place for a goal of care and communication?" (P1C2).*

Barriers to adapting the Pal-Cycles intervention included doubts about the intervention's added value, along with resource constraints, but the positive perception of the intervention was seen as a facilitator.

Working together to adapt the Pal-Cycles intervention across cultures

The adaptation of the Pal-Cycles intervention was seen as essential for ensuring cultural relevance and context-specific adaptation across diverse healthcare settings. Participants highlighted the importance of addressing country-specific differences to ensure the intervention was meaningful and aligned with clinical realities. This reflects the implementation process construct of 'assessing context', as understanding the unique needs and conditions of each setting guided adaptation decisions.

> *"I think the most important thing is that although we want to have an intervention that is more or less comparable across all countries, the context and setting of each country, and even the specific settings where we want to implement this intervention, differ so much..." (P1C3).*

They noted that teaming with the group leading the adaptation process was key to its success, with all members describing it as beneficial and 'easy to apply.' This collaborative effort brought researchers, clinicians, and patients together to coordinate and adapt the intervention.

> *"I'm not sure that that's a good answer, but I think that's how it was built, that we had continuous communication with the team who led the adaptation process. They provided a presentation to show questions [for the clinicians]. Then, we had the first consultation based on the feedback [from the clinicians]. There was a second presentation with other [consequent] questions. Then, we had a second meeting with the [clinicians and then with the adaptation leading team...]. I think it was this time, the whole process I found good and easy to apply." (P1C2, most of the participants nodded).*

As a European study spanning diverse contexts, the adaptation process was challenged by the diverse settings involved. However, participants stressed the importance of focusing on core components and upholding decisions made in cross-country meetings, while allowing flexibility for non-essential aspects.

> *"Flexibility across countries of the intervention so that there can be some changes, and it could still have the core components of the intervention." (P3C7).*

Additionally, the participants described challenging moments during the adaptation process, and in this regard, the flexible, open, and compromising attitude of the consortium members facilitated progress.

> *"I would say that in terms of process, I think one of the facilitators was flexibility from the research team and adapting to the schedule of clinicians. This, from a research perspective, was a facilitator, and trust. Even in the management of expectations, the fact that the clinicians who participated in our country consultations knew our research team already. There was already some degree of trust facilitated when we had to manage some expectations. They were realising that perhaps this is not so novel anymore for us. I think, in the long run, that's what's keeping them on board. Trust and flexibility, I think, were facilitators in operational terms." (P1C5).*

Assessing the needs of key stakeholders was considered essential, and enrolling clinicians, family members, and patients in the cross-country meetings (Fig. 2) was viewed as paramount to this process. Their contributions enabled the consortium to gather valuable insights into priorities, preferences, and needs, which directly informed the adaptation of the intervention.

> *"I think what was really important, it wasn't just the research teams, we had the clinicians present, and I think they would have failed without the clinicians present." (P3C7).*

It was felt that the feedback from patients and clinicians was heard by the Pal-Cycles consortium members, who made some changes to the intervention. Adaptation of the intervention before implementation was considered a continuous effort conducted between the participants of the cross-country meetings and the consortium members of the project.

> *"The good part that was taken into account, into consideration, the key messages that every partner, and every country sent because there are a lot of differences between us, between the country, between the process in every country, and also the patient voice, and this was fantastic." (P2C6).*

A special mention was made regarding the participation of the general practitioners in the cross-country meetings, for their insights on improving transitions between hospitals and the community.

> *"I think that in country-level meetings, it was really good having a representation of different groups,*

> *and I think having the general practitioners there was really important because they just brought a different experience. I think if we had just done it with oncology teams, there would have been less challenge for them. It was really good having the general practitioners saying, "I've got that, sounds amazing, I'd love that, that would be really helpful. We never know what's going on". I think sometimes the hospital teams don't realise how little the community knows. I think it added something to the conversation by having different voices in the room and different experiences." (P3C7, P1C5 nodded in sign of agreement).*

The collaborative and well-structured nature of the adaptation process was seen as a facilitator of successful intervention adaptation.

Discussion

We conducted a qualitative study to explore the multilevel factors that influenced the adaptation of the complex healthcare intervention Pal-Cycles. The analysis resulted in five main themes: (1) Organisational variability as a barrier to adapting the Pal-Cycles intervention; (2) Disparities in previous training and shared motivation to improve palliative care communication, (3) Multidisciplinary collaboration shaped by organisational and cultural contexts, (4) Balancing optimism and practical constraints: stakeholder views on the Pal-Cycles intervention, (5) Working together to adapt the Pal-Cycles intervention across cultures.

In our study, we found that variation in the availability and organisation of primary and palliative care services across countries was one of the key factors influencing the adaptation of the Pal-Cycles intervention. Our findings align with previous research showing that adapting interventions in areas with inadequate services and financial constraints is particularly challenging [14]. We found notable disparities in access to palliative care across different European countries, especially in areas with fewer healthcare resources, which is consistent with earlier studies [15, 16]. For example, countries with well-established palliative care systems tend to have more cohesive referral processes and easier integration between oncology and palliative care [17]. These systems typically have the necessary infrastructure in place, such as appropriate environments, communication technologies, access to medications, and trained staff, which support implementation of new healthcare practices [18]. In contrast, countries where palliative care is less established often lack the necessary infrastructure, creating a barrier to smooth implementation of healthcare interventions for patients with advanced cancer. A study about integrating palliative care into primary health care showed that attempts to develop palliative care services faced significant challenges due to limited resources, widespread illiteracy, poverty, and a lack of awareness about the accessibility of health care facilities [19]. Limited access to palliative care in rural areas has been widely reported as a critical challenge, with research emphasising the negative impact on patients who are unable to receive timely palliative support [20]. Addressing these disparities in service availability and access is essential for thoughtful adaptation of the core elements of the intervention. This is particularly important for interventions whose core components rely on the presence of certain services to ensure successful implementation. Moreover, the degree of service availability and access is also likely to shape the nature and frequency of care transitions, such as those between care settings, healthcare teams, and treatment goals, observed across different countries. It also became evident from participants' discussions that during the adaptation process not all five cornerstones of the Pal-Cycles intervention were perceived as equally relevant across contexts. While the overarching principles, such as early identification of patients with palliative care needs and structured communication around goals of care, were universally valued, other components, including periodic review of the care plan or recognising the terminal phase, were prioritised differently depending on local clinical practices and available resources. Recent systematic review evidence shows that multicomponent and multidisciplinary specialist palliative care models which improve elements like symptom assessment, advance care planning, and team coordination moderately improve quality of life of patients [21]. This finding highlights how participants actively negotiated which elements should be emphasised within their healthcare systems, reinforcing the importance of flexibility in operationalising complex interventions. Moreover, this is in line with European regional analyses showing that only a minority of countries reach high levels of palliative care integration, while most have low or very low integration capacity across domains such as primary care, oncology, cardiology, paediatrics, long-term care and volunteering [22]. This study highlights that local health systems differ not only in how many services they offer, but also in how well palliative care is embedded in routine practice, which helps explain why not all components of Pal-Cycles (e.g. early identification of patients with palliative care needs, compassionate communication, collaborative treatment plans, periodic review, recognition of the terminal phase) are equally relevant or feasible in every country.

Disparities in availability of previous training in communication and palliative care for healthcare professionals across countries emerged as an important factor that influenced the adaptation of the Pal-Cycles training programme. In our study, we found that clinicians from countries with robust training frameworks often felt that a brief refresher or orientation might be sufficient, as they believed they already possessed the core competencies needed to deliver the intervention. This aligns with previous findings suggesting that resistance to training is common among healthcare providers who considered that they are already equipped with the requisite skills [23]. For instance, physicians in countries with well-established palliative care training programmes may question the value of introducing new interventions that contain training components [24]. In contrast, in countries where training opportunities are limited, clinicians expressed a welcoming attitude toward training initiatives and viewed them as beneficial for enhancing their skills and competencies, aligning with previous research that indicates healthcare providers in such contexts are often eager for additional educational resources [25]. The challenge, therefore, is to design a training programme that is flexible enough to meet the diverse training needs across various countries. Designing training content of the intervention to accommodate both novice learners and experienced professionals is essential for overcoming resistance [26, 27]. Interestingly, an unexpected finding was that clinicians in some countries with extensive existing training expressed a willingness to participate in additional training sessions, suggesting a complex landscape of learning needs. This also highlights the potential for diverse strategies and forms to introduce training programmes as integral components of intervention implementation [9]. Although the literature emphasises the importance of training programmes for all staff involved in intervention implementation [23], in practice it is often challenging to ensure full participation [28, 29]. This is particularly the case in countries where similar training opportunities are already available. In such contexts, framing the training as a refresher or complementary session, and offering online training options may encourage greater engagement from experienced professionals.

Collaboration practices, and communication patterns, often described as 'the way things are done here' form part of the organisational culture in healthcare settings that shape how healthcare is delivered to patients [30, 31]. Collaboration and communication among professionals from different disciplines, can act as both a barrier and a facilitator in the adaptation process. In clinical settings where healthcare providers from different disciplines, such as general practitioners, oncologists, and palliative care specialists work closely together, the adaptation of the intervention's core components is likely to be more successful [32]. Conversely, in settings where multidisciplinary collaboration is weak, the continuity of care for patients in the terminal stage of illness is disrupted, which hinders the utilisation of palliative care services and complicates the adaptation process [33]. Adapting interventions that involve interprofessional collaboration requires careful consideration of existing teamwork and communication patterns. Professionals and teams who already share resources and coordinate efforts across disciplines were better positioned to integrate the Pal-Cycles intervention into their local context [34]. However, in some settings, the lack of established collaboration channels between disciplines posed a barrier. Inconsistent communication between healthcare professionals from different disciplines can impede this collaboration and hinder adaptation of interventions which core elements require interdisciplinary collaboration. To address these barriers, the Pal-Cycles intervention was specifically adapted to support interprofessional collaboration. For example, the training programme was offered in a multidisciplinary format, bringing together oncologists, nurses, and palliative care specialists to learn and practice communication skills collaboratively.

Exploring views of key stakeholders is particularly important when implementing complex palliative care intervention across different settings and populations [35]. One of the key facilitators identified in the adaptation process regarding the Pal-Cycles intervention is the widely recognised need to enhance communication skills and improve the palliative care approach across various countries. Previous research showed that a collective acknowledgment of the necessity for improvement and further training in core competencies can facilitate the adoption of new practices [36]. Additionally, the positive perception of the Pal-Cycles intervention among healthcare professionals emerged as a key facilitator. The intervention's flexible design, offering varied benefits to different stakeholders, was also seen as an important facilitator. When clinicians view an intervention positively and recognise its flexibility, it not only increases their willingness to engage with it but also boosts their motivation to participate in training and implementation efforts [37]. This aligns with existing literature, which suggests that positive attitudes toward interventions influences their acceptance and integration into clinical practice [38–41]. Therefore, using this common understanding of needs and positive views can help navigating the complexities of the adaptation process.

Future research should further explore the nuances of the adaptation process, particularly the strategies that can help mitigate barriers in resource-limited settings. Investigating how countries with fewer resources can adapt interventions like Pal-Cycles within their existing infrastructure while maintaining fidelity to the core components would provide valuable insights.

Limitations

One primary limitation of this study is the potential sampling bias arising from our recruitment strategy.

The adaptation process was conducted through workshops in each country involving consortium members, clinical collaborators, health professionals, and, in some cases, patients and family members. However, to ensure feasibility and manageability in English, we contacted only Pal-Cycles consortium members who were directly involved in the adaptation process. These members then invited selected clinical collaborators to participate, which restricted our sample to those for whom permission was granted. As a result, the perspectives captured may not fully reflect all individuals engaged in the adaptation process. While the insights generated provide valuable context, they should be understood as the experiences of the participating individuals rather than as fully representative of each country's perspective. Additionally, the findings of this study should not be generalised to all palliative care interventions, as our focus was specifically on the adaptation processes surrounding a complex intervention designed to support transitions in care for patients with advanced cancer. As previously outlined, transitions in this context encompass changes in goals of care, care settings (e.g., from hospital to home), and coordination between different clinical teams. Therefore, the results are most relevant to efforts aimed at adapting interventions that address these transition-related challenges. The contextual nature of our research means that the insights gained may be most applicable to similar healthcare interventions, thereby limiting their relevance to other types of interventions or settings. Lastly, the self-selection of participants who agreed to be contacted may also introduce a bias, as those who chose to participate may have different levels of engagement or motivations compared to those who declined or could not attend due to clinical duties, further influencing the results.

Conclusion

This study explored the multilevel factors that influenced the adaptation of the Pal-Cycles intervention across seven European countries. The findings highlight that adaptation is shaped by the interplay between organisational structures, professional cultures, and available resources within each healthcare context. While the intervention was developed around five core cornerstones, the adaptation process revealed that their relative relevance varied across settings, reflecting local priorities and capacities. Understanding these contextual differences is essential for adapting complex interventions in ways that preserve their core components while ensuring local fit. Future cross-national adaptation efforts should adopt flexible, participatory approaches that acknowledge and respond to variations in healthcare organisation, professional practices, and cultural expectations.

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Authors' contributions

MA, TR and AB contributed to the design of the work. TR and AB collected the data, analysed and interpreted the data. MA was involved in the data analysis and interpretation. TR, MA and AB drafted the manuscript. NP, SP, SMS, FH, WL, IK, SMP, BDF and JH critically reviewed and revised the manuscript. All authors approved the final version and participated sufficiently to take public responsibility for relevant content portions.

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Data availability

The datasets generated and/or analysed during the current study are not publicly available due to protecting the participants privacy but are available from the corresponding author on reasonable request.

Declarations

Ethics approval and consent to participate

Ethical approval for this study was granted by the University of Navarra Research Ethics Committee on January 26, approval number 2023.223. All procedures performed in this study involving human participants were conducted in accordance with the ethical standards of the institutional ethics committee and with the Declaration of Helsinki. All participants provided written informed consent to participate.

Consent for publication

All participants provided consent for the use of their anonymised data for publication.

Competing interests

The authors declare no competing interests.

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