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Implementing lifestyle-related treatment modalities in osteoarthritis care: Identification of implementation strategies using the Consolidated Framework for Implementation Research-Expert Recommendations for Implementing Change matching tool

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Abstract

Aims: Despite recommendations in international clinical guidelines, lifestyle-related treatment modalities (LRTMs) are currently underutilised in the conservative treatment of patients with hip and/or knee osteoarthritis. This study aimed to identify implementation strategies in order to address barriers to implementing LRTMs from the perspective of healthcare professionals (HCPs).

Methods: The Consolidated Framework for Implementation Research (CFIR)-Expert Recommendations for Implementing Change (ERIC) Implementation Strategy Matching Tool was applied. First, previously identified influencing factors among primary and secondary HCPs were mapped onto the corresponding CFIR constructs/subconstructs by two researchers. Second, the CFIR-based barriers relevant for all HCPs were entered into the tool. Third, the CFIR-based barriers specific to one or more subgroups of HCPs served as additional input for the tool. Finally, a selection of ERIC implementation strategies was made based on the tool's output.

Results: Fourteen implementation strategies were selected. The strategy most endorsed by the tool was 'build a coalition'. Eight of the selected strategies belonged to the ERIC cluster 'develop stakeholder interrelationships'. Other strategies were part of the clusters 'use evaluative and iterative strategies' ($n = 3$), 'utilise financial strategies' ($n = 2$), and 'engage consumers' ($n = 1$).

Conclusions: The findings emphasise the importance of an interdisciplinary approach when addressing the implementation of LRTMs in osteoarthritis care. The final selection of implementation strategies forms the basis for a tailored implementation plan. Future work should focus on further operationalising the implementation strategies and evaluating the effectiveness of the resulting implementation plan.

1 | INTRODUCTION

Osteoarthritis (OA) is a highly prevalent joint disorder and a major public health concern. In the Netherlands, nearly 1.5 million people were affected by OA in 2018 (Rijksinstituut voor Volksgezondheid en Milieu [RIVM], 2020). Since the incidence of OA is rising due to an ageing society, the obesity epidemic and physically inactive lifestyles (Bijlsma et al., 2011; Hawker, 2019), this number is expected to increase to over 2.5 million by 2040, making OA the most prevalent chronic disease by then (Rijksinstituut voor Volksgezondheid en Milieu [RIVM], 2020). To counteract the increasing burden associated with OA, both at the individual patient level and the societal level, OA should be treated at an early stage (Hunter & Bierma-Zeinstra, 2019; Leech et al., 2019). International clinical guidelines recommend starting with conservative treatment, including lifestyle-related treatment modalities (LRTMs) such as exercise programs with or without dietary weight management, before considering referring patients for surgical intervention (Bannuru et al., 2019; Fernandes et al., 2013). However, research has evidenced that LRTMs are currently underutilised both in the Netherlands and elsewhere (Bennell et al., 2021; Ingelsrud et al., 2020; King et al., 2020; Van Zaanen et al., 2020). This finding suggests that the demonstrated effectiveness of clinical interventions in controlled research settings alone is not sufficient for successful implementation in daily practice (Bauer & Kirchner, 2020).

To improve the implementation of evidence-based interventions at a large scale in real-world settings, more attention is needed for contextual factors beyond the intervention itself (Bauer & Kirchner, 2020; Reis et al., 2016). Implementation research has been defined as 'the scientific study of methods to promote the systematic uptake of research findings and other evidence-based practices into routine practice, and, hence, to improve the quality and effectiveness of health services' (Eccles & Mittman, 2006). To increase the uptake of evidence-based clinical innovations, two steps are broadly distinguished within the field of implementation science: (1) identify uptake barriers and facilitators and (2) develop and apply implementation strategies that overcome these barriers and enhance the facilitators (Bauer & Kirchner, 2020). Our research team has previously focused on the first step by conducting a needs assessment among primary and secondary healthcare professionals (HCPs) involved in OA care using three research methods. Potential influencing factors for implementing LRTMs were identified with a scoping review and a qualitative study (Bouma, van Beek, Alma, et al., 2022; Bouma, van Beek, Diercks, et al., 2022), and further investigated among a larger group of HCPs using a cross-sectional survey (Bouma et al., 2023). Seven potential barriers were identified: (1) organisation of the Dutch healthcare system; (2) audits within the

organisation; (3) lifestyle climate in Dutch society; (4) patients' health skills; (5) patients' possibilities; (6) budget within the organisation; and (7) communication between HCPs in the work region. The second step, where implementation strategies will be matched to these barriers, has yet to be performed.

To guide researchers in selecting implementation strategies, the Consolidated Framework for Implementation Research (CFIR)-Expert Recommendations for Implementing Change (ERIC) Implementation Strategy Matching Tool (hereinafter 'CFIR-ERIC tool') was developed (Waltz et al., 2019). The CFIR is a determinant framework that includes common constructs from published implementation theories, which can be used to identify potential implementation determinants (Damschroder et al., 2009). The ERIC compilation provides a list of 73 discrete implementation strategies that can potentially be used to compose a tailored multicomponent strategy (Powell et al., 2015). The CFIR-ERIC tool allows users to select CFIR-based barriers and receive a prioritised list of ERIC implementation strategies based on expert opinion (Waltz et al., 2019). Although the CFIR-ERIC tool has been increasingly used in recent years (Dekker et al., 2022; Howell et al., 2022; Shin et al., 2022; Weir et al., 2021), to our knowledge it hasn't yet been applied within the context of OA care.

The aim of this study was to identify implementation strategies to improve the uptake of LRTMs in the conservative treatment of patients with hip and/or knee OA that match the previously identified barriers among primary and secondary HCPs using the CFIR-ERIC tool.

2 | METHOD

2.1 | Design

We used the CFIR-ERIC tool with input about barriers and facilitators from studies that developed a cross-sectional survey based on the results of a scoping review and focus group study (Bouma, van Beek, Alma, et al., 2022; Bouma, van Beek, Diercks, et al., 2022). This survey was completed by 213 primary and secondary HCPs, including dieticians, exercise therapists, general practitioners (and in-training), lifestyle counsellors, orthopaedic nurse practitioners or physician assistants (and in-training), orthopaedic surgeons (and in-training), other HCPs in general practice, and physiotherapists. Participants responded to 32 research-derived statements on implementing LRTMs, broadly defined as all the ways HCPs can stimulate patients to increase their physical activity level and lose weight. Based on participants' responses, each of the 32 proposed factors was classified as 'barrier' (n = 7), 'facilitator' (n = 20), or 'no agreement' (n = 5).

The survey's results, described in detail in a separate publication (Bouma et al., 2023), served as input for the CFIR-ERIC tool.

2.2 | The CFIR-ERIC tool

The CFIR-ERIC tool was built upon the results of a study among implementation experts, aiming to identify which ERIC implementation strategies would best address specific CFIR-based barriers (Waltz et al., 2019). The CFIR includes constructs/subconstructs organised into five domains: (1) intervention characteristics; (2) outer setting; (3) inner setting; (4) characteristics of individuals; and (5) process (Damschroder et al., 2009). For each CFIR-based barrier, the participating implementation experts were asked to select and rank up to seven ERIC implementation strategies that would best address the barrier (Waltz et al., 2019). These rankings were used to develop the CFIR-ERIC tool, which is publicly available and can be downloaded from the website of the CFIR Research Team (CFIR-ERIC Barrier Buster Tool V0.53). The tool's CFIR worksheet allows users to select one or multiple barriers and then initiate a query. The output of the query is subsequently presented on a different worksheet, and comprises a list of all 73 ERIC implementation strategies sorted by endorsement percentage (high to low). Colour-coding is used to indicate any Level-1 (strategies endorsed by at least 50% of the experts) or Level-2 strategies (strategies endorsed by 20%–49.9% of the experts) (Waltz et al., 2019). When a single barrier is entered into the tool, the output consists of one column with endorsement percentages. When multiple barriers are entered, an additional column with cumulative endorsement percentages appears next to the columns of the individual constructs/subconstructs. This way, the CFIR-ERIC tool provides a prioritised list of implementation strategies to consider in the planning phase of an implementation effort.

2.3 | Application of the CFIR-ERIC tool

The application of the CFIR-ERIC tool in this study consisted of three steps. In the first step, the previously identified factors in the aforementioned needs assessment were mapped onto the corresponding CFIR construct/subconstruct. It was assessed to which CFIR construct/subconstruct each of the 32 factors could be linked. This process was independently performed by two authors (SB and DS), with any disagreements being resolved in a consensus meeting. In the second step, all CFIR-based barriers relevant for the total study population were entered into the tool simultaneously. Implementation strategies were selected from the output for this query in two ways: (1) the ten strategies with the highest cumulative percentage and (2) any strategies outside this top-10 that were marked as Level-1 strategy for an individual CFIR construct/subconstruct. In the third step, the CFIR-based barriers specific to one or more subgroups of HCPs were entered into the tool separately. For each query, any Level-1 strategies that were not already part of the top-

10 of the total study population were added to the selection of implementation strategies. We chose to combine the 'cumulative output' with the 'individual output' in this way to ensure that the final selection of implementation strategies consisted of both the strategies that are most recommended in the context of our specific combination of CFIR constructs/subconstructs and those strategies that seem less relevant in the overall picture but could still contribute importantly to targeting an individual construct/subconstruct.

3 | RESULTS

A flowchart illustrating the study process is presented in Figure 1, showing how the data collected as part of the needs assessment led to the final selection of implementation strategies. The results of the different steps are explained in more detail below.

3.1 | Step 1: Mapping of previously identified factors onto CFIR constructs/subconstructs

Table 1 shows the results of the mapping process. The 32 factors identified in the needs assessment were linked to a specific CFIR construct/subconstruct and classified according to the responses of the total study population of primary and secondary HCPs ('barrier', 'no agreement', 'facilitator'). Most factors were mapped onto the domain 'outer setting' ($n = 11$), followed by 'intervention characteristics' ($n = 9$), 'inner setting' ($n = 6$), 'characteristics of individuals' ($n = 5$), and 'process' ($n = 1$). Some factors were mapped onto the same construct/subconstruct, resulting in 17 different CFIR constructs/subconstructs being selected for the 32 factors. Initially, there were some disagreements between the two authors in the mapping process (six 'major' disagreements [i.e. different CFIR domain] and 8 'minor' disagreements [i.e. same CFIR domain, but different construct/subconstruct]), but these were all resolved in the consensus meeting.

3.2 | Steps 2 and 3: Entry of CFIR-based barriers into the CFIR-ERIC tool

To retrieve a prioritised list of implementation strategies relevant for the total study population, five CFIR constructs/subconstructs related to the previously identified barriers were entered into the tool: (1) patient needs and resources; (2) cosmopolitanism; (3) external policies and incentives; (4) goals and feedback; and (5) available resources. Supplemental File S1 shows the complete output of the CFIR-ERIC tool for this query. The ten implementation strategies with the highest cumulative percentage appear at the top of Table 2. Three additional implementation strategies were selected, as they were marked as Level-1 strategies for one of the individual constructs/subconstructs (middle of Table 2, 'Additional barrier-specific strategies'). Thereafter, two CFIR constructs/subconstructs
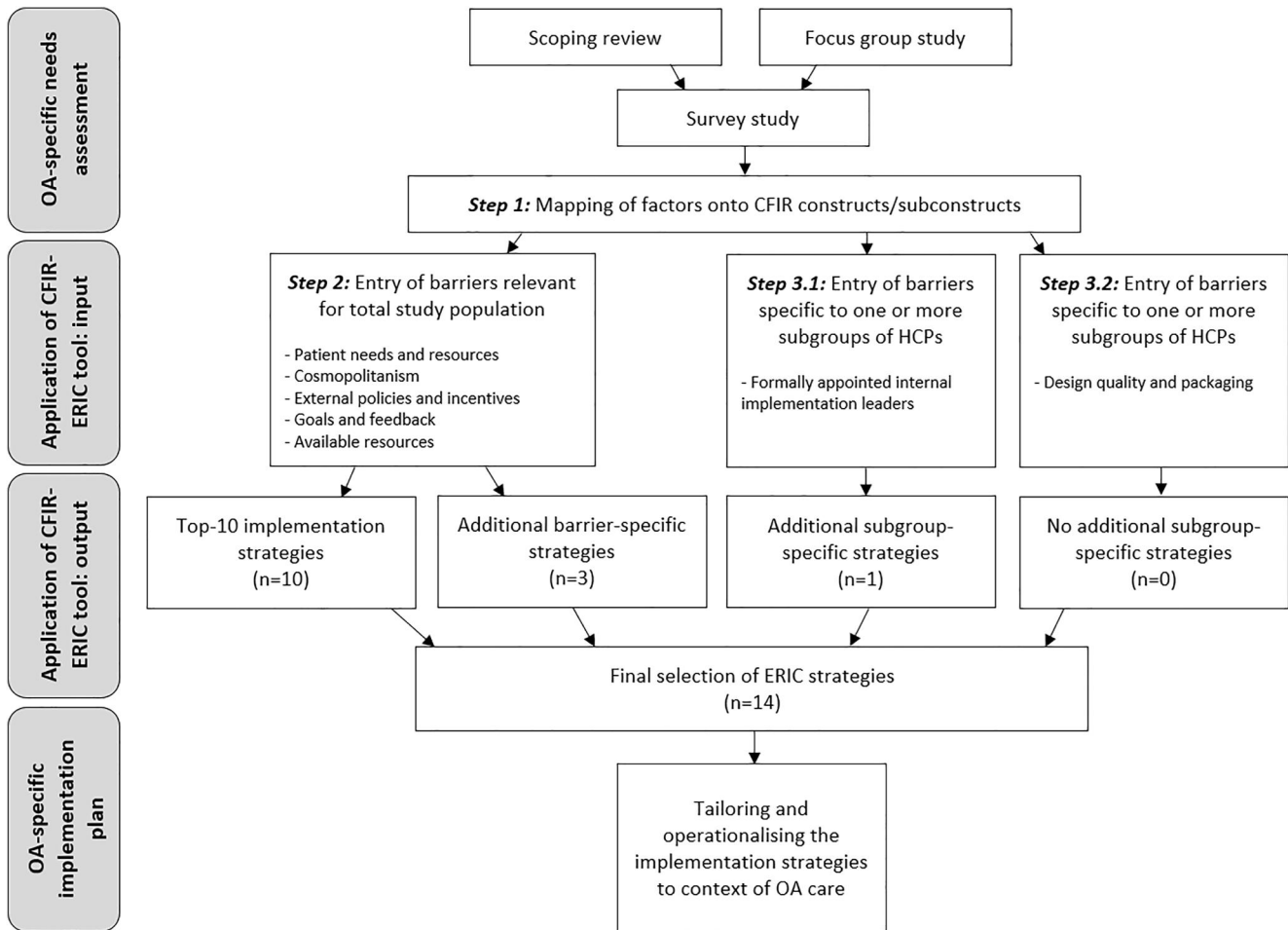
FIGURE 1 Flowchart of the study process. CFIR, Consolidated Framework for Implementation Research; ERIC, Expert Recommendations for Implementing Change; HCP, healthcare professional; OA, osteoarthritis.

specific to one or more subgroups of HCPs were entered into the tool separately. Entering the subconstruct 'formally appointed internal implementation leaders' showed one Level-1 strategy that was not in the top-10 of the total study population (lower part of Table 2, 'Additional subgroup-specific strategies'). Entering the construct 'design quality and packaging' did not identify any Level-1 strategies and therefore did not lead to selecting any additional implementation strategies. The complete output for these two subgroup-specific queries is presented in Supplemental Files S2 and S3.

Thus, the final selection consists of fourteen implementation strategies that can be categorised based on the nine clusters within the ERIC compilation (Waltz et al., 2015). Eight of the identified implementation strategies belonged to the cluster 'develop stakeholder interrelationships': (1) build a coalition; (2) use advisory boards and workgroups; (3) capture and share local knowledge; (4) involve executive boards; (5) conduct local consensus discussions; (6) promote network weaving; (7) develop academic partnerships; and (8) identify and prepare champions. Three implementation strategies were part of the cluster 'use evaluative and iterative strategies': (1) obtain and use patients/consumers and family feedback; (2) conduct local needs assessment; and (3) audit and provide feedback. Two

implementation strategies belonged to the cluster 'utilise financial strategies': (1) access new funding and (2) alter incentive/allowance structures. One implementation strategy was part of the cluster 'engage consumers'—involve patients/consumers and family members. None of the implementation strategies belonged to any of the remaining five clusters (adapt and tailor to context; change infrastructure; provide interactive assistance; support clinicians; train and educate stakeholders).

4 | DISCUSSION

4.1 | Main findings

To bridge the evidence-practice gap regarding underutilisation of LRTMs in the conservative treatment of patients with hip and/or knee OA, this study aimed to identify implementation strategies to improve the uptake of LRTMs in OA care. By using the CFIR-ERIC tool, fourteen implementation strategies were identified that match previously identified barriers for implementing LRTMs among primary and secondary HCPs. Eight of these fourteen strategies

TABLE 1 Results of mapping the factors related to implementing lifestyle-related treatment modalities in the conservative treatment of hip and/or knee osteoarthritis that were identified in the needs assessment among healthcare professionals onto the corresponding CFIR constructs/subconstructs.[a]

CFIR			Classification of factors in survey study for the total study population[b]		
Domain	Construct	Subconstruct	'Barrier'	'No agreement'	'Facilitator'
Intervention characteristics	Intervention source				
	Evidence strength and quality				• Health effects on patients • Influence on therapeutic alliance • Safety of increasing physical activity
	Relative advantage				• Image of OA
	Adaptability				• Patients' health condition • Possibilities to customise
	Trialability				
	Complexity				• Diversity in causes and clinical presentations of OA
	Design quality and packaging[d]			• Content and structure of lifestyle programs	• Role of e-health methods[e]
	Cost				
Outer setting	Patient needs and resources[c]		• Patients' health skills • Patients' possibilities	• Patients' motivation[f]	• Patients' role during treatment
	Cosmopolitanism[c]		• Communication between HCPs in work region	• Collaboration between HCPs in work region[f]	• Professional network in work region
	Peer pressure				
	External policies and incentives[c]		• Lifestyle climate in Dutch society • Organisation of Dutch healthcare system	• Role of media	• Possibilities in work region
Inner setting	Structural characteristics				
	Networks and communications				
	Culture				
	Implementation climate	Tension for change			
		Compatibility			
		Relative priority			
		Organisational incentives and rewards			
		Goals and feedback[c]	• Audits within organisation		
		Learning climate			

(Continues)

TABLE 1 (Continued)

CFIR			Classification of factors in survey study for the total study population[b]		
Domain	Construct	Subconstruct	'Barrier'	'No agreement'	'Facilitator'
	Readiness for implementation	Leadership engagement			• Attitude of organisation's management
		Available resources[c]	• Budget within organisation		• Facilities within organisation[e] • Time[e]
		Access to information and knowledge			• Access to information
Characteristics of individuals	Knowledge and beliefs about the intervention				• Personal attitude • Personal responsibility as HCP
	Self-efficacy				• Personal knowledge and skills as HCP
	Individual stage of change				
	Individual identification with organisation				• Professional profile
	Other personal attributes				• Weight loss as conversation topic
Process	Planning				
	Engaging	Opinion leaders			
		Formally appointed internal implementation leaders[d]		• Person who is 'driving force' within organisation[f]	
		Champions			
		External change agents			
	Executing				
	Reflecting and evaluating				

[a]CFIR: Consolidated Framework for Implementation Research; HCP: healthcare professional; OA: osteoarthritis.

[b]A detailed description of the results of this survey study can be found in a separate publication (Bouma et al., 2023).

[c]These five constructs/subconstructs were entered into the tool simultaneously in Step 2 (CFIR-based barriers relevant for the total study population).

[d]These two constructs/subconstructs were entered into the tool separately in Step 3 (CFIR-based barriers specific to one or more subgroups of HCPs).

[e]Factor identified as 'barrier' in one subgroup of HCPs.

[f]Factor identified as 'barrier' in several subgroups of HCPs.

belonged to the ERIC cluster 'develop stakeholder interrelationships,' showing the importance of an interdisciplinary approach in addressing this implementation problem. The results of this study form the basis for an implementation plan to improve the uptake of LRTMs in OA care that could be further developed and tailored within a specific setting.

4.2 | Practical implications

The final selection of fourteen implementation strategies has several implications for future practice in the conservative treatment of OA. Again, the majority of strategies belonged to the ERIC cluster

'develop stakeholder interrelationships,' including the (by far) highest-endorsed strategy '*build a coalition*' (implementation strategies from Table 2 are italicised). In the context of OA care, many stakeholders beyond primary and secondary HCPs themselves should be involved in these partnerships, such as managers of healthcare organisations, professional associations, patient associations, knowledge and research institutes, health insurers, policymakers, and other local parties (municipalities, community organisations, sports clubs). Other selected strategies from the same ERIC cluster can be applied while building a coalition ('*involve executive boards*', '*develop academic partnerships*') or afterwards ('*use advisory boards and workgroups*', '*identify and prepare champions*'), so we recommend that HCPs expand their professional network and

TABLE 2 Final selection of implementation strategies to improve the uptake of lifestyle-related treatment modalities in the conservative treatment of hip and/or knee osteoarthritis, including the cumulative and individual endorsement percentages for each CFIR construct/subconstruct and the corresponding ERIC clusters and core definitions.[a]

ERIC strategy	Rank	Cumulative percentage	CFIR constructs/subconstructs[b]					ERIC cluster	Core definition of strategy[c]
			Patient needs and resources	Cosmopolitanism	External policies and incentives	Goals and feedback	Available resources		
Top-10 implementation strategies for total study population									
Build a coalition	1	142%	14%	62%	33%	15%	17%	Develop stakeholder interrelationships	Recruit and cultivate relationships with partners in the implementation effort
Involve patients/consumers and family members	2	95%	71%	4%	11%	9%	0%	Engage consumers	Engage or include patients/consumers and families in the implementation effort
Use advisory boards and workgroups	3	94%	29%	35%	15%	12%	4%	Develop stakeholder interrelationships	Create and engage a formal group of multiple kinds of stakeholders to provide input and advice on implementation efforts and to elicit recommendations for improvements
Access new funding	4	93%	0%	4%	7%	3%	78%	Utilise financial strategies	Access new or existing money to facilitate the implementation
Capture and share local knowledge	5	92%	10%	23%	26%	12%	22%	Develop stakeholder interrelationships	Capture local knowledge from implementation sites on how implementers and clinicians made something work in their setting and then share it with other sites
Involve executive boards	6	86%	5%	23%	41%	0%	17%	Develop stakeholder interrelationships	Involve existing governing structures (e.g., boards of directors, medical staff boards of governance) in the implementation effort, including the review of data on implementation processes
Obtain and use patients/consumers and family feedback	7	85%	76%	0%	0%	9%	0%	Use evaluative and iterative strategies	Develop strategies to increase patient/consumer and family feedback on the implementation effort
Conduct local consensus discussions	8	84%	29%	15%	22%	18%	0%	Develop stakeholder interrelationships	Include local providers and other stakeholders in discussions that address whether the chosen problem is important and whether the clinical innovation to address it is appropriate
Alter incentive/allowance structures	9	83%	10%	0%	41%	15%	17%	Utilise financial strategies	Work to incentivise the adoption and implementation of the clinical innovation
Conduct local needs assessment	10	82%	57%	12%	7%	6%	0%	Use evaluative and iterative strategies	Collect and analyse data related to the need for the innovation
Additional barrier-specific strategies									
Promote network weaving	11	76%	0%	50%	11%	6%	9%	Develop stakeholder interrelationships	Identify and build on existing high-quality working relationships and networks within and outside the organisation, organisational units, teams, etc. to promote information-sharing, collaborative problem-solving, and a shared vision/goal related to implementing the innovation
Develop academic partnerships	12	73%	5%	50%	11%	3%	4%	Develop stakeholder interrelationships	Partner with a university or academic unit for purposes of shared training and bringing research skills to an implementation project
Audit and provide feedback	15	65%	5%	0%	0%	61%	0%	Use evaluative and iterative strategies	Collect and summarise clinical performance data over a specified time period and give it to clinicians and administrators to monitor, evaluate, and modify provider behaviour
Additional subgroup-specific strategies									
Identify and prepare champions[d]	18	59%	5%	15%	22%	12%	4%	Develop stakeholder interrelationships	Identify and prepare individuals who dedicate themselves to supporting, marketing, and driving through an implementation, overcoming indifference or resistance that the intervention may provoke in an organisation

[a]CFIR: Consolidated Framework for Implementation Research; ERIC: Expert Recommendations for Implementing Change.

[b]The colour-coding of the percentages indicates whether there were Level-1 strategies (shown in dark grey; endorsed by at least 50% of the experts) or Level-2 strategies (shown in light grey; endorsed by 20%–49.9% of the experts) for the constructs/subconstructs entered into the tool.

[c]The core definitions of the implementation strategies are taken from Additional File 6 of the publication by Powell et al. (Powell et al., 2015).

[d]This implementation strategy was selected as it was marked as Level-1 strategy for the subconstruct 'Formally appointed internal implementation leaders,' which was entered into the tool in Step 3 (endorsement percentage: 64%).

look for potential partners in the implementation effort, both within their organisation (peers, managers) and beyond.

Another practical implication relates to the strategy *involve patients/consumers and family members*. Patients with hip and/or knee OA are ultimately the 'end users' of the LRTMs to be implemented, making it important to involve them early on in the process. Besides specific health conditions, patients' functioning is also influenced by internal personal factors (age, education, profession) and external environmental factors (physical, social, attitudinal environment) (World Health Organisation [WHO], 2001). This interplay of factors was also found in our focus group study among HCPs involved in OA care, where participants perceived patients' lifestyle-changing capability to be related to several factors that may in turn be influenced by socioeconomic status (health literacy, social environment, financial resources, access) (Bouma, van Beek, Alma, et al., 2022). To gain more insight into patients' circumstances, HCPs should discuss this topic during consultations and help find solutions or further assistance for any issues that are conditional for patients to be open to LRTMs.

Two strategies that seem to be largely outside the scope of HCPs are those from the ERIC cluster 'utilise financial strategies': *access new funding* and *alter incentive/allowance structures*. To improve the uptake of LRTMs in Dutch OA care, financial strategies must be deployed on a national level by the government and health insurers. The redistribution of financial resources can be used for various purposes, such as broader reimbursement of LRTMs for patients, more manpower and time for healthcare organisations to integrate LRTMs into their daily practice routines, and for promoting a healthy lifestyle on a societal level (e.g. adjusting food prices and making sports more accessible).

The selected strategies from the ERIC cluster 'use evaluative and iterative strategies' can be applied during several phases of the process. In the pre-implementation phase, *conduct local needs assessment* might be helpful to objectify the current utilisation of LRTMs and to collect opinions from stakeholders other than primary and secondary HCPs. The other two strategies, *obtain and use patients/consumers and family feedback* and *audit and provide feedback*, can also be used in the implementation and post-implementation phases.

4.3 | Tailoring and operationalising implementation strategies

To further develop the selected implementation strategies into a tailored implementation plan for a specific setting, several steps should be taken. First, an interdisciplinary stakeholder group must be composed to jointly take further decisions. Second, the specific implementation object and setting within OA care should be defined. In our previous research, implementing LRTMs was broadly defined as all the ways HCPs can stimulate patients to increase their physical activity level and lose weight. For an implementation plan, it would be useful to reformulate this in terms of a particular lifestyle intervention or professional practice and to determine the setting within

which the implementation effort should take place (e.g. regional vs. national). Finally, in collaboration with all stakeholders involved, the selection of implementation strategies should be evaluated, further specifying those strategies included in the final implementation plan. Operationalisation of strategies could be reported in terms of the seven dimensions as recommended by Proctor et al. (actor, action, action targets, temporality, dose, implementation outcomes addressed, theoretical justification) (Proctor et al., 2013).

4.4 | Strengths and limitations

To the best of our knowledge, this is the first study in the context of OA care to apply the CFIR-ERIC tool to identify implementation strategies towards improving the uptake of LRTMs (Waltz et al., 2019). The use of this tool can be considered as a reproducible, structured, and transparent method enabling researchers to clearly demonstrate how a selection of implementation strategies is achieved. The mapping previously identified factors onto the corresponding CFIR constructs/subconstructs was performed by two researchers independently to increase the validity of this mapping process, thereby increasing the applicability of the output of the CFIR-ERIC tool.

Importantly, the input for the CFIR-ERIC tool was based on the perceptions of HCPs working in the Dutch context. The CFIR-based barriers entered into the tool (e.g. 'external policies and incentives', which was related to the factors 'lifestyle climate in Dutch society' and 'organisation of Dutch healthcare system' from the survey study) might not be perceived as impeding factors for implementing LRTMs in other countries, so the output of the CFIR-ERIC tool applies to the Dutch context and cannot be directly generalised to other countries or healthcare systems. It should also be considered that the CFIR-ERIC tool was developed using expert-based rankings, but that the precise causal mechanisms and the effectiveness of the different implementation strategies remain unknown (Waltz et al., 2019). Still, we believe that the output of the tool provides a useful starting point for further implementation planning.

4.5 | Future research

After tailoring and operationalising the implementation strategies, future research should focus on evaluating the developed implementation plan in terms of effectiveness (i.e. implementation outcomes) and on adapting the plan if necessary. An example of a detailed elaboration of these steps can be found in the recently published protocol of the IMPACT project (Toomey et al., 2022). This implementation science project will use a participatory health research approach to co-design, tailor, pilot, evaluate, and adapt implementation strategies aiming to implement an evidence-based exercise and education programme for hip and knee OA across public and private healthcare settings in Ireland. Because reporting the process as planned in the IMPACT project is likely to benefit

meta-analysis, reproducibility, and transfer of findings to implementation science projects in other conditions, countries, and healthcare settings (Proctor et al., 2013; Toomey et al., 2022), we recommend a similar approach to optimising OA care within the Dutch context.

4.6 | Conclusion

We used the CFIR-ERIC tool to identify implementation strategies to improve the uptake of LRTMs in OA care. The final selection consisted of fourteen strategies, eight belonging to the ERIC cluster 'develop stakeholder interrelationships'. Interdisciplinary partnerships, including stakeholders both within and outside healthcare organisations, are essential to further develop the selected implementation strategies into a tailored implementation plan.

CONFLICT OF INTEREST STATEMENT
The authors report no potential conflicts of interest.

DATA AVAILABILITY STATEMENT
The data that support the findings of this study are available from the corresponding author upon reasonable request.

ETHICS STATEMENT
Data from previous studies of the research team were used as input for the current study. The Medical Ethics Review Board of University Medical Center Groningen (METc UMCG) decided that these previous studies were not under jurisdiction of the Medical Research Involving Human Subjects Acts (WMO) (METc no.: 2018/665).

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SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.