Home programmes based on evidence of best practice for children with unilateral cerebral palsy: Occupational therapists' perceptions

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Abstract

Introduction: Evidence-based occupational therapy home programmes for children with unilateral cerebral palsy have demonstrated efficacy, however uptake into routine practice is varied. The aim of this study was to gain a deeper understanding of the therapist-perceived supports and barriers to using occupational therapy home programmes for children with unilateral cerebral palsy, based on evidence of best practice in the United Kingdom.

Method: Fourteen occupational therapists completed semi-structured telephone interviews. Using a qualitative, framework analysis approach, support and barrier factors were indexed against the Theoretical Domains Framework, before being categorised more broadly using the Capability, Opportunity, Motivation and Behaviour Model.

Findings: Common supports included: (a) strong leadership within the team to facilitate the translation of occupational therapy home programmes and evidence-based interventions into service-specific protocols; (b) knowledge exchange within professional networks; and (c) mentorship. Common barriers included: (a) lack of resources; (b) restricted opportunities to review OTHPs; and (c) difficulties keeping up-to-date with the evidence in this area.

Conclusion: To be effective, occupational therapy home programmes need to be based on evidence of best practice; analysis indicated an urgent need to capture outcomes, record parental practice, further integrate 'occupation' within goal-setting, and develop use of conceptual models of practice to both enhance family-centred care and articulate the profession's unique contribution.

Keywords: Cerebral palsy, children, home programmes, knowledge translation, theoretical models, occupational therapy

Introduction

Home programmes are advocated as being a 'good' method of service delivery in neuro-rehabilitation paediatric literature (Novak et al., 2013). In the current context of high demands on health services, this method of service is being increasingly used to achieve desired health outcomes in children with unilateral cerebral palsy (UCP) (Tinderholt Myrhaug et al., 2014). Occupational therapy home programmes (OTHPs) are intended to be carried out by parents to supplement and reinforce interventions occurring in direct therapy sessions. They involve 'individualized multimodal interventions that target body structure, activities and participation' (Novak et al., 2009: 607). Home programmes typically consist of a range of different components. To ensure optimum results, this

mode of therapy design must be occupation-centred and founded upon a combination of: (a) family-centred care (Rosenbaum et al., 1998), (b) best-evidenced interventions, methods and measurements, (Novak et al., 2013), and (c) occupational therapy professional theories, ethics and reasoning (World Federation of Occupational Therapists, 2008).

In the case of children with UCP, home programmes are important because they can increase the amount of therapy provided, leading to better motor and self-care outcomes (Novak et al., 2013). Children with UCP frequently have reduced upper-extremity (UE) function affecting everyday occupational performance (Carnahan et al., 2007). Supported by strong evidence, contemporary rehabilitation approaches, such as the UE interventions bimanual training (BT) and modified constraint induced movement therapy (m-CIMT) can be adapted by occupational therapists for use in OTHPs, to maximize the function of a child's more affected arm and hand in meaningful bimanual activities (Klingels et al., 2013). To achieve maximum benefit, both interventions need to be implemented intensely for at least 30 hours (Sakzewski et al., 2014). Hence, a feature of using OTHPs with this client group is that a significant amount of input from families is required to be worthwhile (Novak, 2011).

Every parent has the right to have a home programme based on evidence of best practice. Therefore, in order that parents receive the best care possible, occupational therapists are obliged to deliver interventions that, whilst sustaining resources and being cost-effective and efficient, are based upon both best practice and the most recent evidence available (College of Occupational Therapists [COT], 2015). However, a recent OTHP survey indicated that uptake of evidence-based interventions, methods and measurements for this mode of service delivery is inconsistent (Milton et al., 2019). This issue reflects the problem of translating appropriate research evidence into clinical practice and one that requires urgent attention (COT, 2015).

Investigating contextual supports and barriers to the routine implementation of evidence-based OTHPs, is an essential first step to identifying beneficial strategies to make changes in clinical practice (Michie et al., 2014). The Capability, Opportunity, Motivation and Behaviour' (COM-B) model and the Theoretical Domains Framework (TDF), are tools, both originating from behavioural science, that can help gain an understanding of behaviours relating to implementation, and to support knowledge translation (Michie et al., 2014). According to the COM-B model, in order to change behaviour in clinical practice, practitioners must have the capability, opportunity and motivation to do it (Michie et al., 2014). The COM-B model can be used by researchers to explore the main drivers of behaviour and behaviour change. The TDF in turn can be used to break these components down further thus enabling a more fine-grained and deeper understanding of the behaviour. Given the difficulties with translating research evidence into practice and absence of any UK minimum standards, strategy for children with CP or parity in national occupational therapy service operation

(Action Cerebral Palsy, 2015), the need to support practitioners choosing to use OTHPs is clear. Therefore, this study uses theoretical tools to identify practitioner-perceived facilitators which could build further capacity to deliver OTHPs based on best evidence.

Literature review

Evidence-based practice is an essential standard of proficiency for occupational therapists (COT, 2015). Implementing evidence-based OTHPs entails the translation of knowledge derived from research findings that involves the optimal selection of OTHP content, namely those approaches, interventions and measures that will deliver quality OTHP outcomes (Milton et al., 2019). Additionally, practitioners will need to adapt the research knowledge to the individual child and family context. Best-evidenced OTHP practice for children with UCP includes family-centred care (Rosenbaum et al., 1998), structured and goal-directed intensive implementation of motor learning based approaches, collaborative goal-setting using client-centred and child-specific goal-setting tools (Milton and Roe, 2017), interventions organised around every-day routines (McConnell et al., 2012), and regular parental support and review (Novak, 2011).

Knowledge translation, which is defined by the Canadian Institutes of Health Research as "a dynamic and iterative process that includes synthesis, dissemination, exchange and ethically sound application of knowledge" (Canadian Institutes of Health Research, 2015), is a well-known issue in paediatric neuro-rehabilitation (McConnell et al., 2012; Novak et al., 2013). In regard to OTHPs for children with UCP, despite the efficacy of this mode of therapy provision being demonstrated from evidence to practice (Novak et al., 2013, p.899) and their capacity to increase therapy dose evidenced, the uptake of effective interventions within them is varied and clinicians have indicated a need for further training in their use (Milton et al., 2019; Novak et al., 2013; Sakzewski et al., 2014). Together, these reports reflect the complexity of knowledge translation in this area, compounded by the need for change in both clinical practice and the service delivery systems (Grol et al., 2013).

The TDF and COM-B model are particularly valuable as tools for enhancing knowledge translation, due to the recognition that evidence-based practice depends on changing behaviour; furthermore, theories of behaviour change can help to develop implementation strategies (Michie et al., 2014). To facilitate translation of the evidence of best practice into home programmes for children with UCP, it is important to fully understand barriers, with potential for removal or modification that could lead to positive changes in clinical practice. In addition, it is necessary to identify the supports that have potential for building further capacity. Therefore, the aim of this study was to use the TDF and COM-B model to gain a deeper understanding of the supports and barriers of using OTHPs for children with UCP, based on evidence of best practice.

Methods

Design Our study utilised a qualitative, descriptive design using semi-structured interviews. It was conducted as a follow-up to a previous study the usage, content and that investigated the use of OTHPs for children with CP in the UK.

Participants

The participants were a purposive sample of 14 occupational therapists who had volunteered to be interviewed after taking part in a national survey of UK paediatric practice (Milton et al., 2019).. From the 74 participants who had taken part in the survey, 16 (13%) expressed interest in being interviewed, 2 (3%) were excluded as they did not provide OTHPs for UCP, and 14 (11%) ultimately participated. Prior to conducting the interviews, researchers obtained written informed consent from each participant.

Measures and Procedure

Ethical approval for our study was granted by Coventry University Ethics Committee in 2017. Prior to the interview, participants received information on the types of questions they would answer prior to the interview. All telephone interviews were conducted, recorded, transcribed and checked for accuracy by the first author. Interviews lasted approximately 60 minutes. An adapted version of the semi-structured interview schedule by Sakzewski and colleagues (2014), which had been developed based on the TDF, (Michie et al., 2014), was used with permission from the authors (Appendix 3- An example of the questions included in the schedule of interview questions). The TDF is conventionally used in the behavioural sciences in the early part of analysis to identify needs for behaviour change. The TDF in this study was used to elicit details of barriers to OTHP delivery. The COM-B model was applied following the TDF analysis, as a way to group the findings to obtain a broader view and understanding of the data (Michie et al., 2014). To enhance trustworthiness and reliability of data collected, notes were taken during interviews and a reflective journal was completed. Confirmability was promoted through the use of member-checking, as all transcripts were returned to participants to validate and check their responses.

Data Analysis

The data were analysed using a deductive version of Framework Analysis (Sakzewski et al., 2014). Framework analysis began after the first interview and involved a number of stages including familiarization, mapping support and barrier statements to the TDF and COM-B, and interpretation (Michie et al., 2014; Sakzewski et al., 2014). Initially, transcripts were read several times by the first author in order to become familiar with the data and to list ideas and repeated themes. After this initial coding had been completed, the TDF was applied. The participants' statements were then colour coded and indexed against one or more of the TDF domains. At this point, to enhance trustworthiness

and credibility, the coding was reviewed by the second author (SR). Subsequently, any discrepancies, in addition to a small number of new codes identified, were discussed and agreed. The coded TDF data with illustrative quotes generated subthemes that were then linked by the first author more broadly into COM-B components (Michie et al., 2014). Finally, all statements were compared across participants, COM-B components, subthemes and TDF domains. This permitted researchers (YM, SR) to obtain an overview and deeper understanding of the data set, in order to critically appraise potential barriers that were changeable and could potentially be targeted by implementation strategies. Researchers met frequently to further consider their interpretations of the coded text and rationale for the selected domains. This process stopped due to pragmatic reasons, rather than at the point when saturation had been achieved. Despite this, although nuances within sub-themes were still emerging toward the end of data analysis, the themes and related TDF domains themselves were being replicated, indicating a level of completeness.

Results

Participant demographics are presented in Table 1. Participants were all female and had between 4 to 33 years' experience (mean =17 years). Work-settings spanned England, Wales and Scotland. They were largely representative of the original group as illustrated in Table 1. After indexing the participants' statements against one or more of the TDF domains and linking subthemes more broadly into COM-B components, three main themes were developed (Michie et al., 2014). Figure 1 visually represents the themes, related TDF domains with illustrative support and barrier statements. The themes mirrored the COM-B components capability, opportunity and motivation. Subthemes were identified within each of the three main themes (Table 2). Eight of the domains of the TDF were relevant to the context of using OTHPs for children with UCP based on evidence of best practice. Results are reported under each of the three major themes. Where direct quotes are cited, respondents have been given pseudonyms which provide employment category and interview number.

Capability

Two subthemes relating to knowledge and skills were identified: (a) research access, and (b) application. Most therapists commented on the benefits of repeated practice of UE activities for children with UCP (2 cited specific papers) and that the development of guidance from service-specific OTHP protocols for UCP would be advantageous. However, very few therapists identified specific home programme research evidence and those that did identify the research did not always find it easy to implement. Few therapists used logbooks to record parental practice or conceptual-models to enhance professional reasoning for OTHP design and delivery:

> There is not one specific evidence to support how to present a programme; the evidence is not clear so therapists turn to word of mouth, parental and school reports. (NHS, 1)

Table 1. Participant demographics, employment category and interview number

Participant No	Years qualified	Employment Category	Type of Service
1	33	NHS	Community Service
2	11	P.O	Integrated Service, physiotherapy led
3	18	NHS	Community Service
4	10	SE	Independent Practice
5	17	CO	Integrated Service, physiotherapy led
6	27	NHS	Early Years' Service
7	11	C.O	Integrated Service, physiotherapy led
8	15	NHS	Early Years' Service
9	28	S.E	Independent Practice
10	22	NHS	Early Years' Service
11	10	N.S	Nationwide, Private Organization
12	6	NHS	Community Service
13	31	NHS	Early Years' Service
14	4	D.C	Community Service

Note: (1) Charity organization (C.O); dual commissioned service city council and National Health Service (D.C); National Health Service (NHS: UK state provider); nationwide service (N.S); private organisation (P.O); self-employed (S.E); Social Services (S.S).

Note: (2) The participants presented in the table 1 are a subset of a larger group who took part in a national study investigating the usage, content and professional reasoning supporting OTHPs. The larger group comprised 123 participants of which 74(60%) used OTHPs. The range of clinical experience varied between 6 to over 15 years' experience. As in the subset, the majority of respondents in the larger sample had over 15 years' experience (34; 45%). A range of employment categories were represented in the larger group including: NHS, S.E, C.O and P.O. The subset represents most employment categories except SS and health service Ireland.

Therapist-Perceived Supports and Barriers to Occupational Therapy Home Programmes showing links between Themes and Theoretical Domains Framework

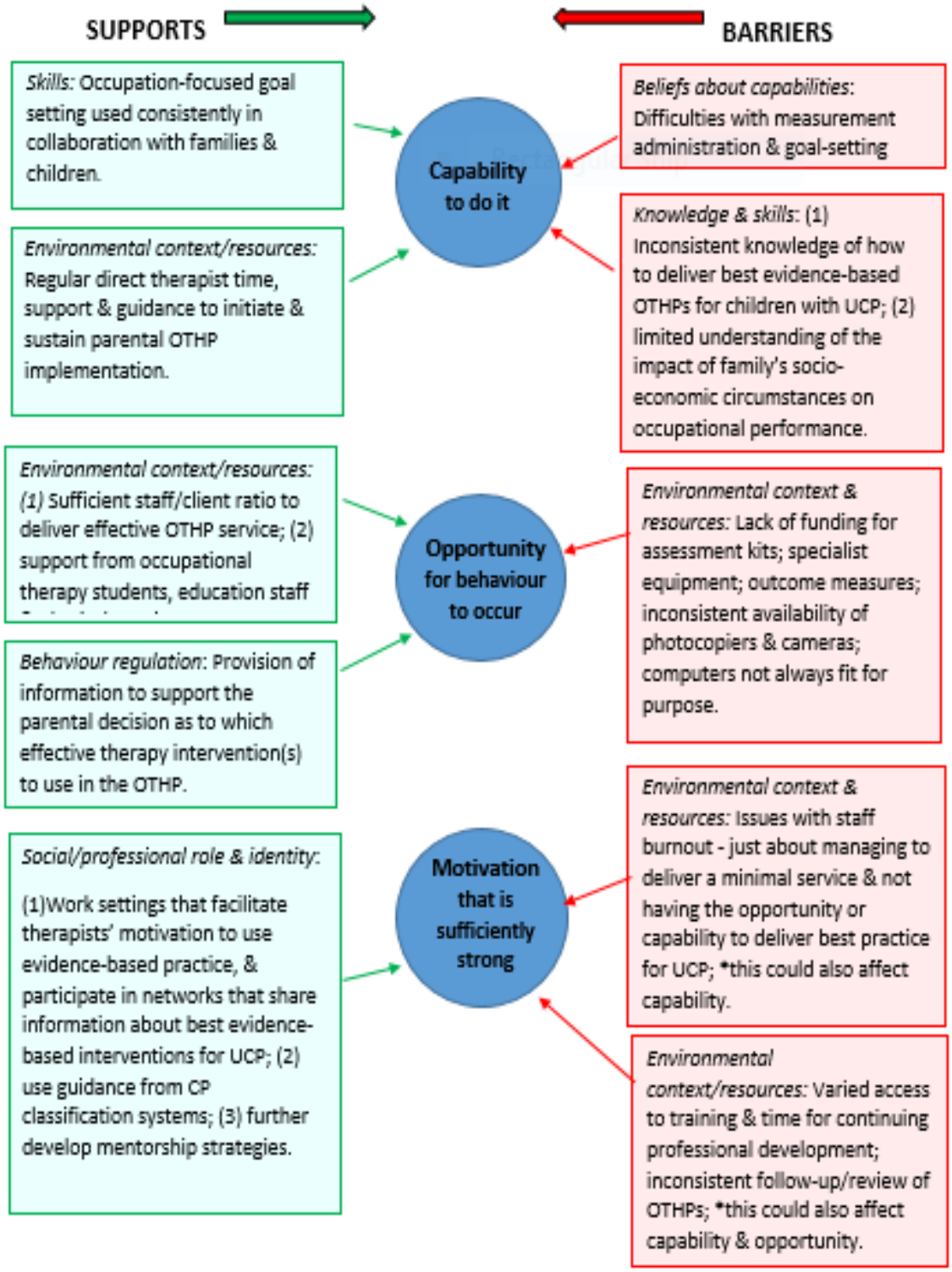

Figure 1. Therapist-perceived supports and barriers to OTHPs showing links between themes and the TDF.

Note: Capability to do it, Opportunity for behaviour to occur, Motivation that is sufficiently strong (Mitchie et al., 2014).

Table 2. Themes, Subthemes and Related Domain on the Theoretical Domains Framework

Themes	**ubthemes**	**TDF Domain**
Capability (e.g psychological or physical ability to do it)	**What we know about the evidence and use as guidance** **Evaluation concerns**	Knowledge: an awareness of the existence of something Skills: an ability or proficiency acquired through practice Social influences: those interpersonal process that can cause individuals to change their thoughts, feelings, or behaviours Beliefs about capabilities: acceptance of the truth, reality, or validity about an ability, talent, or facility that a person can put to constructive use
Themes	**Subthemes**	**TDF Domain**
Opportunity (for the behaviour to occur in terms of a conducive physical and social environment)	**We need more of us** **Environmental influences**	Environmental context/resources: any circumstance of a person's situation or environment that discourages or encourages the development of skills and abilities, independence, social competence, and adaptive behaviour
Motivation *(*sufficiently strong; reflective and auto-social environment that supports a behaviour)	**Attitudes** **We are not showing our worth**	Behavioural regulation: elements aimed at managing or changing objectively observed or measured action Social/professional role and identity: a coherence set of behaviours and displayed personal qualities of an individual in a social or work setting Beliefs about consequences: acceptance of the truth, reality, or validity about outcome of a behaviour in a given situation

Note: TDF & COM-B model, Michie et al, 2014: 59.

> Where is the evidence-base that parents carry them out and make effective change? (SE, 9)

BT was prescribed more often than m-CIMT, as respondents reflected this was easier to use. However respondents commonly did not have an in-depth knowledge of m-CIMT, nor inclination to practice it: 'I don't think parents like to be harsh and to restrain even if it's just the upper-limb, I think people don't like constraint' (NHS, 8). The majority of therapists reported that the services they worked in did not have the resources, such as the time to provide the regular parental support to use intensive UE

interventions such as m-CIMT within OTHPs. They reflected that in order to create novelty ideas to sustain the child's engagement and motivation to carry out m-CIMT within OTHPs, a high degree of therapist monitoring is required:

> There is a massive issue with m-CIMT and how you do it […] I think it's difficult because it takes a lot of input in terms of the therapists in terms of preparing it and then they need on-going support to keep going. I don't think casting is right, for lots of reasons, for frustration, for muscle wasting […]. (NHS, 2)

As expected the value of goal setting was unanimous, however the majority of therapists reported improvements were needed: 'In terms of goal-setting I think it is quite essential that more is done in university about that, students do struggle with it, to be honest qualified staff struggle with it' (NHS, 11). A related observation was that goals should be occupationally-focused: 'the manager reviews all the programmes, and just despairs, I think because so many times it's things (goals) like, to sit in a chair for half an hour a day' (NHS, 10). Alongside the challenges of setting goals, most therapists reported limited or absent administration of assessments pre/post OTHPs: 'We don't use any standardised assessments for children with hemiplegia here in the community' (NHS, 12). A commonly reported evaluation related issue is illustrated below:

> I don't find any of the standardised assessments very helpful and even with the Assisting Hand Assessment (Krumlinde-Sundolm et al., 2007, inserted by authors) on a child with hemiplegia can be very difficult to engage the child in a formal way. It's very easy to get the child to play with the things, but to video the child and analyse it in a meaningful way is very challenging. (NHS, 1)

Opportunity

A majority of therapists reflected that due to low team numbers and mixed caseloads it was difficult to maintain an up-to-date knowledge of research evidence:

> We just need a lot more OTs […] we'd have to spend our whole lives looking at best practice[…]Not just children with hemiplegia. We get about 50 referrals a month and 3 of us to deal with it […] (NHS, 12).

Further barriers concerning the adoption of m-CIMT within OTHPs generated the most discussion amongst respondents:

> It wouldn't occur to anybody to try and do it [m-CIMT] because they just haven't got the head-space to get it in place and get going with a family, because of the intensity and the time it would take and that it means that you can't see the other 18 children for their monthly essential sessions […] They're just about coping to meet with the 18 week wait and provide a very minimal service and to keep safe never mind excellent practice. (NHS, 10)

Therapists' identified the following supports:(1) engagement in opportunities to nurture professional efficacy –'I think it's being in an environment that encourages and supports evidence-based practice or a network that shares information*' (SE, 11)*; (2) the contribution from occupational therapy students and/or school staff and/or physiotherapists; (3) good access to resources; (4) guidance from CP classification systems; and (4) mentorship:

> If you've got someone in the team who has knowledge, actually seeing it in practice would help therapists explore how they might deliver those sorts of interventions and guides therapists to develop protocols…You can read all the articles in the world [...] but until you work through it as a therapist and try to deliver it and work with the support of therapist with experience in it I think that makes you more of an effective therapist. (SE, 11)

Motivation

The majority of therapists perceived limited enthusiasm among occupational therapy colleagues to appraise new research evidence and/or actively seek out information to keep up-to-date: 'Having sat on national committees, the information is out there and people are willing to share it, but at the same time people have got to want to go and get that knowledge […]'. (NS 11)

The majority of therapists agreed that OTHPs were not a replacement for direct hands-on therapy by therapists but a necessary adjunct and vital part of service delivery. Therapists disagreed with the across-the-board approach to OTHP prescription, because not all families sought this style of service delivery. Respondents reflected that a family's socio-economic situation may affect whether or not OTHPs are carried out and this warrants further investigation:

> Socio-economic circumstances tend to effect whether it [OTHP] is done or not, […] I suppose the motivation to improve is not always there. […] whether it is more guilt or an understanding that a service comes in and fixes rather than the reality that it is our responsibility as well, […] I tend to find that sort of attitude. (NHS, 12)

Respondents reported that due to a lack of money and staffing many services did not provide information to parents about the types of best-evidenced interventions to use in OTHPs, as they were unable to deliver them. Consequently, therapists believed that service constraints affected both their own and parents' motivation and skills (capability and capacity). Additionally, therapists reflected that not being able to exchange information about the types of interventions available or deliver OTHPs based on evidence of best practice reduced their sense of professional efficacy and contribution value:

> I think we need to be offering them [the parents] what the choices are. […] give them that informed choice. But I don't think a lot of parents are being given that […] we don't tell them because it's a can of worms because we can't provide it […] it makes me horrified to be honest. (NHS 10)

Similarly, therapists reflected that it was common practice for families to be provided with programmes, then discharged without a review, leaving them with no evidence of outcomes for their child. This lack of data created a clash of ideology and tension within teams: 'how do you prove your outcomes and make a concrete change in that child if you've discharged them from your service?' (N.S, 11*)*

Discussion

The analysis helped to gain a deeper understanding of therapist-perceived supports and barriers to delivering evidence-based OTHPs for children with UCP, especially those with potential to change or grow further capacity. Common supports included: (a) strong leadership within the team; (b) mentorship to develop the knowledge and skills necessary to translate OTHP evidence into practice; and (c) regular meetings to share examples of best home programme practice and outcomes. Common barriers included: (a) low staffing and/or time for parental support; (b) lack of opportunity within the service to review programme outcomes; and (c) limited access to resources that would support best practice such as logbooks to record parental practice, colour printers and cameras. These findings indicate that to optimise the use of OTHPs for children with UCP, some services may be in need of substantial investment. The discussion that follows focuses on leadership, goal setting, UE interventions, recording parental practice and outcomes, as these emerged as the most critical to advancing practitioner capacity to deliver best-evidenced OTHPs.

Practitioners emphasised the value of occupational therapy leaders with current knowledge of the evidence for children with UCP, to advocate and facilitate knowledge translation. In the literature, good leadership has been proposed as essential for the uptake of evidence into practice (McCluskey and Cusick, 2002). Similarly, leadership styles that promote a 'can do' approach to integrating

research evidence into practice, have been associated with greater positive beliefs and attitudes towards the implementation of evidence-based practice (Aarons, 2006). Within our study, practitioners with strong leadership, as a team had integrated information from OTHP research into clinical practice, and were proud to be part of a department that they perceived as proactive in delivering effective OTHPs. This supports the value of having leadership focused on evidence-based practice to improve the confidence, as well as sense of responsibility and accountability of clinicians (Bennett at al., 2016).

Practitioners in this study emphasized that occupations needed to be more integrated within home programme children's goals. In order to help practitioners to further develop goal-setting, and deepen their understanding of family perceived occupational perspectives and expectations, evidence supports the adoption of a conceptual model of practice, such as the Person-Environment-Occupation model (Law et al., 2005; Milton and Roe, 2017). Similarly, the use of a client-centred goal-setting measure, such as the Canadian Occupational Performance Measure, would enhance an occupational focus within a family-centred framework, and support a practitioners' sense of professional efficacy (Fearing et al., 1997; Foster et al., 2013; Milton and Roe, 2017).

In regard to the use of evidence-based UE interventions, practitioners perceived that BT had greater appeal and was easier to integrate into a programme than m-CIMT, which is consistent with findings in the study by Sakzewski et al (2014). Most practitioners in our study had not used the evidence-based intervention m-CIMT as part of a home programme. This reflects commonly reported factors such as: not having m-CIMT research evidence summaries readily available to provide to families; no access to a toy library; insufficient time to develop a protocol for how to use m-CIMT within a programme, as well as limited capacity to support the parents were often reported. In order to help increase the uptake of m-CIMT within OTHPs, practitioners highlighted the importance of having adequate technological support, as well as sufficient resources.

The practitioners in our study who used outcome measures to assess specific OTHP outcomes, described the benefits it made to their clinical reasoning, such as the sense of purpose and direction to the programme. However, the majority of practitioners did not use outcome measures as part of their home programme service. This limited use of valid and reliable outcome measurement, is consistent with previous research in other areas, including adult and paediatric rehabilitation (Hanna et al, 2007; Jette et al., 2009; King et al., 2011). Furthermore, the number of factors practitioners reported affected their use of outcome measures, including time restrictions, limited value placed on formal measurement by both clinicians and managers, ease of use, and training, add to the body of evidence (Jett et al., 2009; King et al., 2011).

The professional body states that: “You should evaluate the effectiveness and efficiency of the services you provide” (COT, 2015, Section 6.1.2). However, if specific OTHP outcomes are not captured, then the motivation to use this mode of therapy provision becomes unclear, as it will not be possible to evaluate its worth and efficacy. Furthermore, the profession’s efficacy, derived from evidence of meaningful changes in health outcomes, is not visible to the individual practitioners, families or employers. This places the occupational therapy workforce at risk of further staff shortages. Our results suggest that the use of measures to evaluate specific OTHP outcomes should be emphasized more.

Implications for Practice

The TDF and COM-B analysis provide valuable insights into the importance of creating workplace opportunities to facilitate knowledge translation and professional growth. In our study, logbooks to record the dosage were rarely used, however it is important that parental practice is recorded so that the dosage of OTHPs can be monitored and adjusted if necessary. To be effective, OTHPs need to be carried out 17.5 times per month for average of 16.5 minutes per session for eight weeks (Novak et al., 2009); for OTHPs using interventions such as BT and/or m-CIMT, these need to be implemented intensely (>30 hours) to achieve an adequate dose (Sakzewski et al., 2014). Unless a sufficient dosage is achieved, OTHPs are unlikely to be effective. Table 3 outlines the key recommendations to further develop OTHPs based on evidence of best practice arising from the study, which were informed by linking the TDF to behaviour change techniques (Michie et al., 2014).

With regard to enhancing the development of home programmes and occupation-focused goals within a family-centred framework, our findings suggest that the explicit use of professional theory such as practice-models could potentially deepen the therapist’s understanding of occupational perspectives perceived by a family, and promote a family-centred care approach to programme design (Fearing et al., 1997; Foster et al., 2013; Law et al., 2014). Conceptual occupational therapy models have also been found to enhance parental feelings of competency and partnership with the therapist, which may help with managing parental expectations for using home programmes (Oien et al., 2009). These include, for example, models of occupational empowerment (Fisher and Hotchkiss, 2007) and participation-based therapy (Palisano et al, 2011), both of which provide direction, and illustrate how family-centred care can look in practice. Other strategies include: involving all collaborators who

Target	Suggestions to further develop OTHP practice skills
1. Family-centred care, occupation-centred practice, professional reasoning skills	• Ensure that the adoption of conceptual models of practice is explicit to articulate the profession's unique contribution, enhance professional reasoning skills, family-centred care and goal setting. • Formulate occupation-focused goals with parents/child & illustrate in a format that meets the parents' preferred learning style. • Consistently use and review occupation-focused goals pre/post OTHP with families. • Develop documentation systems that makes it easy to record, track and refer back to current and previous goals (goals can be often hidden in the body of notes/reports/programmes). • Create a library of functional goals that could be edited and personalised. • Place greater emphasis on student placement education and skills for goal setting.
2. Review of OTHP outcomes	• Create training workshops for providing examples of positive OTHP outcomes led by clinical leads. • Provide guidance on the selection of assessments that would work effectively within the local context and provide regular opportunities for feedback and review. • Advocate for provision of training and resources for best practice specific OTHP outcome measurement
3. Knowledge translation of OTHP evidence into practice	• Implement a team approach for creating synthesised research summaries of the evidence, and development of context-specific OTHP research evidence protocols. • If the service can only offer three appointments use 2 for programme development and one for review. Ensure to emphasise the importance of dosage to parents, if not enough time then not worth doing. • Develop a database of OTHP activities/pre-written/examples/templates that can be adapted and tailored to an individual child and share these resources for use in OTHPs within teams. • Create case studies of evidence-based OTHP delivery, written for publication by local teams to disseminate examples of best practice. • Develop the use of digital platforms to enhance communication with families, including recording home programme practice and reviewing specific outcomes to evaluate OTHP effectiveness.

Table 3: Identified targets for change and suggestions to further develop OTHP practice skills

influence service design and delivery (Erikson et al., 2013); multifaceted implementation programmes (Grol et al., 2013); outcome measures' toolboxes (Wright et al., 2014); clinical practice champions (Shikako-Thomas et al., 2018); research summaries (Karlsson and Tornquist, 2007); and increasing employer-level support for mentorship in the workplace (McGrath and O'Callaghan, 2014).

Limitations and future research

There are a number of limitations of this study. Firstly, it is recognised that not all best practice will be the same for all people in all settings. However, this study has provided insight into the supports and barriers experienced by practitioners working in different work-settings to inform possible strategies to change practice. For future studies, teams could conduct their own practice analysis, to devise plans for potential strategies that would work in their own setting; the TDF and COM-B will be helpful for this. Secondly, the study was specifically geared to therapists using OTHPs for children with UCP, therefore, the generalisation of findings to children with other types of neuro-disability may be limited. However, despite this, the process of using the TDF and COM-B identified potentially modifiable barriers, which could inform occupational therapists of areas to examine further, such as occupation-focused goal setting and digital platforms to enhance communication with families. Similarly, the effective use of e-Health technology, such as apps and telerehabilitation services, warrants future research for its potential to help obtain the desired intensity of home programme evidence-based interventions, provide additional parental support, and minimise demand on resources (Vloothuis et al., 2018). The interview schedule could be adapted and applied to the exploration of other discipline specific programmes and also to interdisciplinary home-based programmes. Given the growing interest in inter-professional education and care, the latter is an important direction for future research. Thirdly, because a deductive version of framework analysis was used this did not allow for new coding, categories or emerging concepts which may have added more breadth. However, the TDF has an established extensive consideration of domains to verify and capture a full range of findings, therefore the authors considered that it fully addressed all aspects of this study. Lastly, in light of the findings of this study, families' socio-economic situation and the influence on occupational performance within the home context warrants further investigation.

Conclusion

The use of theory-based tools helped to facilitate an analysis of the factors that influence the uptake, and implementation of home programmes based on evidence of best practice for children with UCP in the UK. Also, the study's findings contribute to the limited published body of knowledge pertaining to this method of service delivery. Occupational therapists have a professional responsibility to ensure that OTHPs are going to be effective, for their children and families. However, our findings revealed that programmes are not consistently reviewed, yielding any impact unknown. A delay in implementing evidence-based OTHPs can ultimately have a negative impact on children's outcomes. The findings from this study will be important to inform future OTHP practice for children with UCP.

Key findings

There is an urgent need to review occupational therapy home programmes (OTHPs), record dosage and enhance occupation-focused goal-setting.

Behaviour change theories facilitated deeper understanding of behaviours relating to OTHP delivery.

What the study has added

This is the first study to identify influences on the uptake and use of OTHPs based on evidence of best practice for children with unilateral cerebral palsy (UCP) in the UK.

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Research ethics

Ethical approval was obtained from Coventry University Ethics Committee, reference number P49948, in 2017

Consent

All participants provided written informed consent to be interviewed for the study.

Declaration of conflicting interests

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Contributorship

Yvonne Milton conceived the study paper and design, research the literature, applied for ethical approval, collected and transcribed the interview data, and led on manuscript preparation. All authors contributed with data analysis and critical review, and edited the manuscript. All authors approved the final version of the manuscript.

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Appendix. An example of the interview schedule questions

Domains	Primary question	Prompts
Knowledge	Can you describe your understanding of the current evidence for occupational therapy home programmes (OTHPs) for children with unilateral cerebral palsy (UCP)? Can you describe your understanding of the current evidence for intensive upper-extremity (UE) interventions for children with UCP?	• What are some of the important components/ingredients of OTHPs? • What is your impression of the optimum dose for a home program? • What guides your clinical reasoning in the design and use of home programmes for children with UCP? Other prompts: • What are some of the important components of UE interventions? • What would be the benefits of using intensive UE therapy interventions such as (CIMT, bimanual therapy) in your home programmes?
Skills	Can you describe your experience of using OTHPs and intensive UE interventions such as Constraint Induced Movement Therapy (CIMT), bimanual training or other approaches in your OTHPs? Can you describe any professional development you have received to support your use of evidence based methods, interventions and assessments within your OTHPs?	• Which methods used and why? How did you use the intervention in a home programme? How long does it take to develop an OTHP? If not used: • What are the main reasons for not using these interventions in your OTHPs? If no: • What type and content of professional development/educational solutions do you believe would be necessary to allow you to use evidence based methods and interventions as part of OTHPs in clinical practice? • How could undergraduate training programmes prepare student occupational therapists to use OTHPs based on the best evidence?
Social/ professional role and identity	What do you think about the strength of the evidence/credibility of the evidence to support the use of OTHPs? What do you think of the evidence for the use of intensive UE interventions such as CIMT, intensive bimanual therapy, goal-directed or combined approaches within OTHPs?	• Do you think that the use of intensive UE interventions within OTHPs are compatible with core competencies of the occupational therapy profession? • If no: what profession would be better able to provide these sorts of programmes?
Beliefs about consequences	What do you think will happen if you and your service use best-evidence OTHPs with your clients? What do you think will happen if you and your services don't adopt best-evidenced OTHPs with your clients?	• Prompt: regarding themselves, children and families, colleagues, students • Cost and consequence of not doing versus doing •
Beliefs about capabilities	How easy or difficult do you think it is to use interventions such as goal directed training/ CIMT/intensive goal-directed bimanual therapy models in OTHPs as part of your clinical practice? How easy or difficult do you think it is to use goal setting and outcome measures as part of OTHPs?	• If have used: What are the facilitators and barriers? • How confident do you feel in using best-evidenced OTHPs for children with UCP? • If no: what do you think you and your service would need to enable you to implement using UE interventions as part of OTHPs in your clinical practice? • What is your experience of setting goals and outcome measures for your OTHPs?