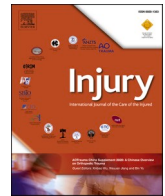




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## What affects implementation of the UK major trauma rehabilitation prescription? A survey informed by the behaviour change wheel

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### ABSTRACT

**Objective:** Major trauma 'Rehabilitation Prescriptions' aim to facilitate continuity of care and describe patient needs following discharge from UK Major Trauma Centre (MTCs), however research suggests rehabilitation prescriptions are not being implemented as intended. We aimed to identify factors influencing completion and use of rehabilitation prescriptions using the Behaviour Change Wheel (BCW) and Theoretical Domains Framework (TDF).

**Design:** Online survey informed by the TDF and BCW.

**Setting:** UK trauma rehabilitation pathway.

**Population:** Rehabilitation and trauma service providers involved in completing and/or using rehabilitation prescriptions ( $n = 78$ ).

**Analysis:** Mean scores were calculated for TDF behavioural domains, identifying facilitators (score  $\geq 5$ ) and barriers ( $\leq 3.5$ ) to rehabilitation prescription implementation. Thematic analysis of free text data informed by the BCW/TDF identified further facilitators and barriers, plus potential behaviour change strategies.

**Results:** Most respondents worked in UK MTCs ( $n = 63$ ) and were physiotherapists ( $n = 34$ ), trauma rehabilitation coordinators ( $n = 16$ ) or occupational therapists ( $n = 15$ ). 'Social/professional role and identity', 'knowledge' and 'emotion' (the highest-scoring TDF domains) were facilitators to implementing rehabilitation prescriptions. Qualitative data identified barriers to rehabilitation prescription completion, including 'seen as tick-box exercise', 'not a priority', lack of resources (IT and workforce), poor inter-service communication, limited knowledge/training. Facilitators included therapist buy-in, standardised training, easy inter-service rehabilitation prescription transfer, usefulness for sharing patient needs.

**Conclusions:** Although rehabilitation prescriptions are valued by some service providers, their effectiveness is hindered by negative attitudes, limited knowledge and poor communication. Uncertainties exist about whether rehabilitation prescriptions achieve their goals, particularly in documenting patient needs, engaging patients in rehabilitation, and informing onward referrals following MTC discharge. Improving IT systems, empowering patients, redirecting funding, and providing training might improve their usage. Further research should explore service provider and patient perspectives, and prospective long-term follow-up on outcomes of rehabilitation prescription recommendations.

### Introduction

Major trauma is a global public health problem that refers to serious and often multiple injuries where there is a strong possibility of death or disability [1]. Traumatic injuries are the leading cause of death amongst

15–29 year olds and the second leading cause of death amongst 30–49 year olds [2]. In 2013, injuries accounted for 247.6 million disability adjusted life years, placing a significant burden on health services worldwide [3].

The opening of 22 National Health Service (NHS) adult Major

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Trauma Centres (MTCs) in England since 2012 has increased survival rates and improved quality of life post-injury [4]. However, as an increasing number of people survive, more live with the long-term effects of injury. Injuries can result in different physical and psychological problems, such as anxiety, depression, post-traumatic stress disorder, pain, muscle weakness, paralysis, and other hidden disabilities [5,6]. The immediate and long-term effects of injury may impact on a person's ability to return to their pre-injury life, including challenges with returning to work, social activities and activities of daily living [7]. Those with substantial disability post-injury are likely to have multiple rehabilitation needs, often requiring long-term support [8–10]. Rehabilitation is an important part of recovery and is often essential for individuals following injury. The World Health Organisation (WHO) defines rehabilitation as 'a set of interventions designed to optimise functioning and reduce disability in individuals with health conditions in interaction with their environment'. Rehabilitation is highly personalised, with interventions tailored to each individual's specific goals and preferences [11].

The concept of the 'Rehabilitation Prescription' (RP) was introduced in 2010 as a comprehensive tool to document patient clinical needs, engage patients in rehabilitation, and establish treatment priorities and goals. The goal was to ensure continuity of care from acute to community settings while collecting valuable data (via TARN: Trauma Audit Research Network, UK) for service evaluation and improvement [12]. Recognising the multifaceted nature of injury, the rehabilitation pathway must remain flexible and adaptable to the individual's evolving needs. MTCs are required to assess a patient's rehabilitation needs within 48–72 h of admission and complete an RP on discharge for all moderate to major trauma patients (i.e. with an Injury Severity Score (ISS) of 9 or more) requiring rehabilitation, for which they receive the 'Best Practice Tariff' (BPT). This refers to national income paid to healthcare providers to incentivise high-quality and cost-effective care within MTCs. However, due to restructuring of NHS services, the intended financial incentive for MTCs to adhere to care guidelines through the BPT is undermined by the current block contract payment system. This may reduce the motivation to complete RPs within MTCs. Ideally RPs should be completed by healthcare professionals specialising in rehabilitation and be signed off by senior members of staff (i.e. NHS Band 7 clinician or major trauma coordinator, consultant or specialist trainee in rehabilitation medicine). The RP is supposed to inform onward care provided by General Practitioners (GPs) and community rehabilitation providers. However, the RP document was not designed to allow for people working in these settings to add or update information. Therefore, no guidelines exist to suggest who should complete the RP beyond the MTC and for which patients.

A 2016 UK National Clinical Audit identified shortcomings in RP utilisation [13], citing inconsistent and incorrect completion across trauma centres. The 2018 'Time for Change' report from the All-Party Parliamentary Group on Acquired Brain Injury highlighted that RPs were not being made available to everyone with an acquired brain injury and general practitioners were unable to help patients access neuro-rehabilitation following hospital discharge as they rarely received a copy of the RP [14]. A second UK National Clinical Audit in 2019 [15] highlighted poor integration of rehabilitation medicine in MTCs (45 % MTCs had fewer than 2–3 visits per week from a consultant in rehabilitation medicine) which had a negative impact on RP implementation. This report found RP completion across MTCs to be roughly the same as the previous report (89 % in 2014–15 vs. 90 % 2016–17), highlighting the need for further development. To improve implementation and completion rates, RPs became mandatory in 2019 for all patients (ISS  $\geq$  9) with rehabilitation needs. These reports are now five or more years out of date, so there is a lack of knowledge about current implementation of RPs for MTC patients. In addition, little is known about the factors influencing RP completion and use by service providers, nor are there any reports on how RPs are being used beyond the acute setting.

To address this gap, we aimed to identify behaviour determinants (i.

e. barriers and facilitators) that influence rehabilitation service providers' implementation of the RP using a Theoretical Domains Framework (TDF) informed survey. The TDF serves as a validated lens for identifying influences on health professional behaviour [16]. Comprising 14 domains, it integrates 33 behaviour change theories [17] as shown in Table 1. The TDF builds on the systems identified in the COM-B model of the Behaviour Change Wheel (BCW), which states that 'Capability, Opportunity and Motivation' (COM-B) are required to bring about behaviour change [18]. Through this exploration, we seek to contribute valuable insights to enhance the implementation of RPs, thereby optimising rehabilitation for individuals recovering from major trauma.

## Methods

This study formed part of a larger mixed-methods study which aims to explore the context for implementation of the RP and co-design a

**Table 1**

Summary of the Theoretical Domains Framework (TDF) mapped to the Behaviour Change Wheel (BCW).

BCW COM-B*	TDF domain	Definition
Motivation	Reinforcement	Increasing the probability of a response by arranging a dependant relationship, or contingency, between the response and a given stimulus
	Emotion	A complex reaction pattern, involving experiential, behavioural, and physiological elements, by which the individual attempts to deal with a personally significant matter or event
	Beliefs about capabilities	Acceptance of the truth, reality, or validity about an ability, talent, or facility that a person can put to constructive use
	Intentions	A conscious decision to perform a behaviour or a resolve to act in a certain way
	Goals	Mental representation of outcomes or end states that an individual wants to achieve
	Beliefs about consequences	Acceptance of the truth, reality, or validity about outcomes of a behaviour in a given situation
	Optimism	The confidence that things will happen for the best, or that desired goals will be attained
Opportunity	Social/professional role and identity	A coherent set of behaviours and displayed personal qualities of an individual in a social or work setting
	Social influences	Those interpersonal processes that can cause an individual to change their thoughts, feelings, or behaviours
Capability	Environmental context and 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
	Knowledge	An awareness of the existence of something
	Behavioural regulation	Anything aimed at managing or changing objectively observed or measured actions
	Memory, attention and decision processes	The ability to retain information, focus selectively on aspects of the environment, and choose between two or more alternatives
	Skills	An ability or proficiency acquired through practice

\* The COM-B model of behaviour change suggests that capability (C), opportunity (O) and motivation (M) are essential for any behaviour (B) to change. The COM-B model forms part of the Behaviour Change Wheel (BCW).

solution to improve communication regarding rehabilitation plans. Ethical approval was obtained from the London Hampstead NHS Research Ethics Committee (Ref: 22/PR/0808).

An online survey was administered using the Jisc platform. The survey, provided in Supplementary File 1 was used as part of a mixed-methods approach to capture data from a large group of healthcare professionals. In-depth interviews and focus groups have also been conducted with service providers and will be reported elsewhere. The survey comprised a series of statements linked to the TDF to explore factors affecting RP implementation. The TDF is a validated framework for assessing implementation problems and professional behaviours as a basis for intervention development [17,19]. Participants were also invited to share further detail about barriers and facilitators (presented as two separate questions) to RP implementation as free text responses at the end of the survey.

Service providers working in trauma rehabilitation were invited to participate in the survey between December 2022 and March 2023 through social media (e.g., X (previously Twitter)), email to existing contacts of the research team across the UK, national trauma rehabilitation meetings ( $n = 2$ ), special interest groups in trauma rehabilitation ( $n = 2$ ) and via snowball sampling (i.e. existing contacts and survey responders were asked to share with colleagues). Individuals were eligible to take part if they were: (1) a service provider (including inpatient, outpatient or community based) with experience of completing, signing off or reviewing trauma rehabilitation prescriptions and (2) aged 18 years and over. Participants were provided with a participant information sheet when they accessed the survey via the webpage link, explaining what the study and their participation involved, and that their responses would remain confidential and be anonymised (see supplementary file 1). Participants were asked to confirm that they consented to take part in the survey prior to accessing the survey questions.

A sample size calculation estimated that at least 65 participants were required to estimate an overall TDF domain mean with 95% confidence and a precision of  $\pm 0.5$ , based on a standard deviation (SD) of 2 [20]. The SD is based on a previous study using a TDF survey of rehabilitation service providers to identify behavioural factors affecting implementation of a vocational rehabilitation intervention [21].

All statements were scored on 7-point Likert scale (7 = strongly agree, 1 = strongly disagree). Mean and standard deviation TDF domain scores were calculated. The possible range for mean domain scores was 1–7. Mean domain scores of  $\leq 3.5$  indicated ‘substantial barriers’ and mean domain scores of  $\geq 5$  indicated ‘facilitators’ to implementing the RP, based on previous research [22]. Descriptive statistics were used to describe domain scores.

Quantitative data was described separately based on location of work (i.e. ‘only working in an MTC’ vs ‘working in a non-MTC setting or non-MTC setting plus MTC’) to explore whether there were any differences in mean domain scores, and therefore differences in barriers and facilitators to RP implementation. We define ‘non-MTC’ as working in any setting other than an MTC, such as trauma units, outpatient clinics, in the community, in patient’s homes. Scores were not compared statistically due to small numbers working in non-MTC settings ( $n = 20$ ).

Free text qualitative data (completed by some participants at the end of the survey to provide additional information about their responses and views) were exported from the survey and coded by author JK (Assistant Professor with extensive experience in qualitative analysis) using NVivo. All identifiable information was removed and replaced with a pseudonym where appropriate. Data were thematically analysed using the framework approach, informed by the TDF. Key themes were identified and discussed with authors (DK, KR, ST) and patient representatives (authors SF, TJ, SW) for agreement.

Qualitative and quantitative data was synthesised, and potential behaviour change strategies (e.g. education, persuasion, incentivisation etc.) were identified to enhance implementation of RPs. The behaviour change strategies were informed by the BCW [18] (formally called

intervention functions; ‘broad categories of things one can do to change behaviour’ [23] and are designed to change the capability, opportunity and/or motivation to engage in the target behaviour (i.e. implementing RPs).

## Results

### Participants

A total of 78 healthcare providers completed the TDF survey. A summary of participant characteristics is shown in Table 2. Most participants were physiotherapists ( $n = 34$ , 44 %), trauma rehabilitation coordinators ( $n = 16$ , 21 %) or occupational therapists ( $n = 15$ , 19 %). No responses were received from general practitioners (GPs), however when GP contacts of the research team were asked, 22 GPs confirmed

**Table 2**  
Summary of survey participant characteristics.

	Number of participants	% total ( $n = 78$ ) <sup>†</sup>
<b>Healthcare/service provider role</b>		
Physiotherapist	34	44
Major trauma rehabilitation coordinator	16	21
Occupational therapist	15	19
Rehabilitation consultant	3	4
Trauma practitioner	3	4
Speech and language therapist	2	3
Therapy assistant	2	3
Major trauma therapy lead	1	1
TARN major trauma data coordinator	1	1
Trauma nurse	1	1
<b>Specialist area*</b>		
Musculoskeletal injuries	39	50
Traumatic brain injuries	39	50
Spinal cord injuries/spinal fractures	34	44
Amputees	18	23
All major trauma	11	14
Orthopaedic injuries	7	9
Paediatric trauma	5	6
Neurosurgery/neuro trauma	5	6
Hand injuries	3	4
Thoracic injuries	3	4
Metabolic bone disease	2	3
Plastics	1	1
<b>Location of work/where treat patients*</b>		
Major trauma centre	62	80
Hospital that isn't a major trauma centre	7	9
Clinic/outpatient practice (not attached to hospital)	2	3
Outpatient clinic (within major trauma centre)	2	3
In the community	2	3
Patient's home or premises	2	3
School	2	3
Don't directly treat patients	1	1
<b>Years' of experience in professional role</b>		
Less than 1 year	6	8
1–5 years	22	28
5–10 years	27	35
10–15 years	8	10
15–20 years	7	9
More than 20 years	8	10
<b>Years' experience completing or signing off RPs</b>		
Less than 1 year	12	15
1–2 years	8	10
2–3 years	13	17
3–4 years	9	12
4–5 years	8	10
More than 5 years	24	31
Completing/signing off not part of role	4	5

\* Participants were able to provide more than one response to this question, therefore total equals more than 78 and greater than 100 %.

<sup>†</sup> percentages rounded to nearest whole number, hence does not sum to 100 %.

they had never seen an RP. The most common areas of expertise were traumatic brain injuries ( $n = 39$ , 50%), musculoskeletal injuries ( $n = 39$ , 50%), or spinal cord injuries/spinal fractures ( $n = 34$ , 43%). Many ( $n = 51$ , 65%) reported multiple specialist areas, suggesting broad rehabilitation expertise across different traumatic injuries. Most participants worked and treated patients in a MTC ( $n = 62$ , 80%) with 7 (9%) working in non-MTC hospitals, and a few working in outpatient ( $n = 4$ , 5%) or community settings ( $n = 2$ , 3%). Over a third of participants ( $n = 27$ , 35%) had 5–10 years' experience in their professional role and 22 participants (28%) had 1–5 years' experience. Less participants had more than 20 years' in role experience ( $n = 8$ , 10%) and only 6 participants (8%) had less than one year experience. Nearly a third of participants had more than five years' experience completing and signing off RPs ( $n = 21$ , 27%). Four (5%) reported that completing and signing off RPs was not part of their role (i.e. they reviewed or used them in practice).

A total of 25 (32.1%) participants reported not receiving any training to complete the RP, with the remainder reporting some informal training. The majority ( $n = 48$ , 61.5%) received in house/in service training often delivered by trauma coordinators or senior colleagues. Two people (2.6%) mentioned attending national MTC and rehabilitation meetings where the RP was discussed and one (1.3%) received training from an RP champion. Only one (1.3%) reported online training.

#### Quantitative TDF questions

A summary of findings is shown in Table 3. None of the TDF domains were identified as substantial barriers (i.e., mean score of 3.5 or less), however ten domains were identified as facilitators (see Fig. 1). The highest scoring facilitators included 'knowledge' (mean = 6.1, SD = 0.07), 'social/professional role and identity' (mean = 6.0, SD = 0.23) and 'emotion' (mean = 5.9, SD = 0.07). The three lowest scoring domains were neither facilitators nor barriers to RP implementation. These were 'reinforcement' (mean = 4.2, SD = 0.23), 'optimism' (mean = 4.7, SD = 0.23) and 'goals' (mean = 4.7, SD = 0.36).

Fig. 2 presents mean TDF domain scores based on the work location; group A ( $n = 58$ , only MTC) and group B ( $n = 20$ , non-MTC or working in both non-MTC and MTC settings). Group B included those working in the community. No substantial barriers were identified for service providers that only worked in an MTC setting (group A,  $n = 58$ ). See Table 4. However, 'memory, attention and decision processes' were identified as a facilitator to RP implementation in this group (mean = 5.2). For those in group B, *not only* working in an MTC (i.e. outside the MTC setting, or working outside the MTC plus in an MTC,  $n = 20$ ) no substantial barriers were identified, however fewer facilitators were found for this group. All mean domain scores except goals were lower for those in group B, although statistical comparisons have not been made due to small numbers in group B. In comparison to those in group A, 'environmental context and resources', 'memory attention and decision processes' and 'intentions' were not identified as facilitators. The lowest scoring domain for group A was 'goals' (mean = 4.2), however the lowest scoring domain for group B was 'reinforcement' (mean = 3.9). Facilitators were also identified for group B, with the highest scoring domains including 'knowledge' (mean = 5.8), 'emotion' (mean = 5.8) and social/professional role and identity (mean = 5.8).

#### Qualitative data

Over two-thirds of participants ( $n = 60$ , 77%) submitted free-text data about barriers to RP implementation and 58 participants (74%) submitted free-text data about facilitators to implementation. Key themes are summarised below and included: (1) culture around RPs, (2) infrastructure and resources, (3) competency and understanding, (4) credibility of purpose, (5) capacity and capability. Links to TDF domains and additional quotes are shown in Table 5.

#### Culture around RPs

Participants suggested that completion of RPs has become a meaningless task that ticks a box to obtain funding for the MTC. Service providers didn't perceive RPs as benefitting patients because they are neither individualised or updated, so don't reflect the patient's needs:

*'A prescription should be reviewed and updated as the patient progresses, [RPs] don't actually reflect what the patient needs. They are difficult to read and other than listing the initial injuries, they are not fit for purpose.'* (043, MTC)

Some participants highlighted that although MTC teams might be invested in completing RPs and understand their value, often when patients are discharged, they are not being used to inform rehabilitation. RPs do not have the same recognition or authority outside the MTC and therefore are not being used further along the pathway:

*'The team are invested in RPs but once RP sent to onward service, anticipate they are not used to inform rehab. Not joined up/integrated services. I don't feel the RP is recognised outside of the MTC.'* (066, MTC)

Others expressed frustration over service providers based in MTCs being the only professionals that seem to complete RPs.

However, some service providers expressed the value of RPs, both for patients and facilitating onward communication, and highlighted that it is an important part of their role:

*'I complete RPs as an integral part of my role and the information I collate in the RP is helpful for the patient journey, onward rehab needs, communicative purposes (with consent) and as a tool to review cases, input and outcomes.'* (045, MTC)

Many participants highlighted that some service providers do not feel RP completion is their responsibility, especially if it is not a routine part of their role or if they are not based within a major trauma team.

Others commented that many barriers exist because therapists won't complete RPs, even though the concept was originally proposed and developed alongside therapists:

*'There is a long-standing history of therapies (more so longer serving members of staff) not wanting to accept responsibility or complete rehab prescriptions. There is a culture it is not up to therapy to lead on this. Therefore, it is very difficult to improve compliance and completion currently because there is a lack of support from senior members of teams and management and a lack of engagement to move forward and find a better solution.'* (011, MTC)

Others suggested that the RPs are not meaningful for patients which leads to poor engagement.

Some major trauma teams encourage goal setting and use this to inform RP content and completion, this has resulted in therapists' buy in. However, others felt that some therapists did not see the importance of RPs and were no longer motivated to complete them:

#### Infrastructure and resources

One barrier to implementing RPs is that not all patients are reviewed in multi-disciplinary team (MDT) follow-up clinics and therefore the RP doesn't get updated. Others stated that services beyond the MTC, like community teams, don't have the necessary resources to implement RPs.

Many participants highlighted IT issues affecting implementation. Electronic patient record (EPR) systems vary between hospitals, hindering transfer of documents between services:

*'There are difficulties because all hospitals within our network are not using the same IT systems. So [Microsoft] Word versions are the most practical but not helpful to encourage intra-hospital documentation.'* (042, MTC)

RPs should be updated as a patient transitions through a pathway, however there is no standardised software available to support RP completion or share them with other sites:

**Table 3**  
Summary of TDF survey data for all participants.

TDF domain	Statements	Strongly Agree % (n) (score:7)	Agree % (n) (score:6)	Somewhat Agree % (n) (score:5)	Neither agree nor disagree % (n) (score:4)	Somewhat Disagree % (n) (score:3)	Disagree % (n) (score:2)	Strongly Disagree % (n) (score:1)	Mean Question Score (SD)	Mean Domain Score (SD) (green shading indicates facilitator)
<b>Knowledge</b>	I am aware of the content of an effective rehabilitation prescription	45.5 (35)	35.1 (27)	7.8 (6)	5.2 (4)	2.6 (2)	3.9 (3)	0	6.05 (1.27)	6.12 (0.07)
	I am aware of the objectives of a rehabilitation prescription	44.2 (34)	37.7 (29)	9.1 (7)	1.3 (1)	6.5 (5)	1.3 (1)	0	6.09 (1.18)	
	I know what my responsibilities are, with regards to a rehabilitation prescription	49.4 (38)	33.8 (26)	10.4 (8)	3.9 (3)	1.3 (1)	1.3 (1)	0	6.23 (1.02)	
	I know how to use a rehabilitation prescription	45.5 (35)	33.8 (26)	9.1 (7)	6.5 (5)	2.6 (2)	2.6 (2)	0	6.06 (1.21)	
	I know when to use a rehabilitation prescription	50.6 (39)	26 (20)	11.7 (9)	7.8 (6)	1.3 (1)	2.6 (2)	0	6.10 (1.21)	
<b>Skills</b>	I have received training regarding how to complete a rehabilitation prescription	26 (20)	24.7 (19)	16.9 (13)	5.2 (4)	6.5 (5)	14.3 (11)	6.5 (5)	4.92 (1.99)	5.57 (0.73)
	I have received training regarding how to review a rehabilitation prescription	19.5 (15)	23.4 (18)	18.2 (14)	9.1 (7)	7.8 (6)	13 (10)	9.1 (7)	4.64 (1.98)	
	I have the skills needed to complete a rehabilitation prescription	49.3 (37)	33.3 (25)	6.7 (5)	2.7 (2)	2.7 (2)	4 (3)	1.3 (1)	6.08 (1.37)	
	I have the skills needed to review a rehabilitation prescription	44.2 (34)	32.5 (25)	13 (10)	5.2 (4)	1.3 (1)	3.9 (3)	0	6.03 (1.24)	
	I have been able to practice completing/reviewing a rehabilitation prescription	54.5 (42)	31.2 (24)	5.2 (4)	2.6 (2)	1.3 (1)	2.6 (2)	2.6 (2)	6.18 (1.37)	
	Completing/reviewing a rehabilitation prescription is part of my role	62.3 (48)	16.9 (13)	10.4 (8)	5.2 (4)	2.6 (2)	1.3 (1)	1.3 (1)	6.23 (1.29)	5.97 (1.29)
	It is my responsibility to complete/review a rehabilitation prescription using specific protocols/guidelines	48.1 (37)	24.7 (19)	6.5 (5)	7.8 (6)	5.2 (4)	6.5 (5)	1.3 (1)	5.79 (1.63)	
<b>Social/professional role and identity</b>	Completing/reviewing a rehabilitation prescription is consistent with other aspects of my job	50.6 (39)	15.6 (12)	16.9 (13)	7.8 (6)	3.9 (3)	5.2 (4)	0	5.87 (1.47)	
	I am confident that I can complete/review a rehabilitation prescription for my patients using specific protocols/guidelines	37.7 (29)	29.9 (23)	19.5 (15)	6.5 (5)	1.3 (1)	3.9 (3)	1.3 (1)	5.79 (1.36)	5.52 (0.27)
	I am capable of completing/reviewing a rehabilitation prescription even	26 (20)	15.6 (12)	28.6 (22)	13 (10)	10.4 (8)	3.9 (3)	2.6 (2)	5.13 (1.58)	

(continued on next page)

Table 3 (continued)

TDF domain	Statements	Strongly Agree % (n) (score:7)	Agree % (n) (score:6)	Somewhat Agree % (n) (score:5)	Neither agree nor disagree % (n) (score:4)	Somewhat Disagree % (n) (score:3)	Disagree % (n) (score:2)	Strongly Disagree % (n) (score:1)	Mean Question Score (SD)	Mean Domain Score (SD) (green shading indicates facilitator)
	when little time is available									
	I have the confidence to complete/review a rehabilitation prescription, even when other service providers I work with are not doing this	27.3 (21)	40.3 (31)	14.3 (11)	9.1 (7)	2.6 (2)	6.5 (5)	0	5.62 (1.38)	
	I have the confidence to complete/review a rehabilitation prescription even when my patients are not receptive	33.8 (26)	32.5 (25)	18.2 (14)	5.2 (4)	3.9 (3)	5.2 (4)	1.3 (1)	5.67 (1.46)	
	I have personal control over completing/reviewing a rehabilitation prescription	33.8 (26)	29.9 (23)	16.9 (13)	13 (10)	2.6 (2)	3.9 (3)	0	5.69 (1.34)	
	For me, completing/reviewing a rehabilitation prescription is easy	19.5 (15)	32.5 (25)	23.4 (18)	11.7 (9)	5.2 (4)	5.2 (4)	2.6 (2)	5.24 (1.50)	
<b>Optimism</b>	In uncertain times, when I complete/review a rehabilitation prescription I usually expect that things will work out okay	15.6 (12)	24.7 (19)	19.5 (15)	27.3 (21)	9.1 (7)	1.3 (1)	2.6 (2)	4.97 (1.43)	4.66 (0.29)
	When I complete/review a rehabilitation prescription, I feel optimistic about my job in the future	13 (10)	11.7 (9)	13 (10)	49.4 (38)	7.8 (6)	3.9 (3)	1.3 (1)	4.59 (1.37)	
	I do not expect anything will prevent me from completing/reviewing a rehabilitation prescription	13 (10)	14.3 (11)	14.3 (11)	28.6 (22)	16.9 (13)	11.7 (9)	1.3 (1)	4.41 (1.61)	
<b>Beliefs about consequences</b>	I believe completing/reviewing a rehabilitation prescription will lead to benefits for my patients	35.1 (27)	15.6 (12)	22.1 (17)	11.7 (9)	9.1 (7)	3.9 (3)	2.6 (2)	5.36 (1.65)	5.19 (0.28)
	I believe completing/reviewing rehabilitation prescriptions will benefit public health (i.e. health of the whole population)	27.3 (21)	9.1 (7)	14.3 (11)	23.4 (18)	15.6 (12)	7.8 (6)	2.6 (2)	4.77 (1.76)	
	In my view, completing/reviewing rehabilitation prescriptions is useful	31.2 (24)	15.6 (12)	27.3 (21)	10.4 (8)	7.8 (6)	7.8 (6)	0	5.31 (1.57)	
	In my view, completing/reviewing rehabilitation prescriptions is worthwhile	31.2 (24)	16.9 (13)	24.7 (19)	11.7 (9)	7.8 (6)	7.8 (6)	0	5.31 (1.58)	
<b>Reinforcement</b>	I get recognition from management at the organisation where I work when I complete/review rehabilitation prescriptions	16.9 (13)	13 (10)	18.2 (14)	22.1 (17)	10.4 (8)	10.4 (8)	9.1 (7)	4.37 (1.85)	4.21 (0.29)
	When I complete/review rehabilitation	11.7 (9)	19.5 (15)	14.3 (11)	23.4 (18)	10.4 (8)	14.3 (11)	6.5 (5)	4.31 (1.78)	

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Table 3 (continued)

TDF domain	Statements	Strongly Agree % (n) (score:7)	Agree % (n) (score:6)	Somewhat Agree % (n) (score:5)	Neither agree nor disagree % (n) (score:4)	Somewhat Disagree % (n) (score:3)	Disagree % (n) (score:2)	Strongly Disagree % (n) (score:1)	Mean Question Score (SD)	Mean Domain Score (SD) (green shading indicates facilitator)
<b>Intentions</b>	prescriptions, I get recognition from my colleagues									
	When I complete/review a rehabilitation prescription, I get recognition from those who it impacts	7.9 (6)	9.2 (7)	22.4 (17)	22.4 (17)	15.8 (12)	11.8 (9)	10.5 (8)	3.95 (1.70)	
	I intend to complete/review a rehabilitation prescription for each/every one of my patients	30.3 (23)	30.3 (23)	9.2 (7)	13.2 (10)	6.6 (5)	6.6 (5)	2.6 (2)	5.32 (1.73)	5.22 (0.24)
	I will definitely complete/review a rehabilitation prescription for each/every one of my patients	23.7 (18)	17.1 (13)	23.7 (18)	14.5 (11)	9.2 (7)	7.9 (6)	3.9 (3)	4.95 (1.74)	
<b>Goals</b>	I have a strong intention to complete/review a rehabilitation prescription for each/every one of my patients	39 (30)	19.5 (15)	10.4 (8)	15.6 (12)	5.2 (4)	6.5 (5)	3.9 (3)	5.38 (1.80)	
	Compared to my other tasks, completing/reviewing rehabilitation prescriptions is a higher priority on my agenda	6.5 (5)	22.1 (17)	28.6 (22)	15.6 (12)	13 (10)	13 (10)	1.3 (1)	4.53 (1.54)	4.66 (0.36)
	Compared to my other tasks, completing/reviewing rehabilitation prescriptions is an urgent item on my agenda	6.5 (5)	18.2 (14)	31.2 (24)	13 (10)	14.3 (11)	14.3 (11)	2.6 (2)	4.38 (1.57)	
	I have clear goals related to completing/reviewing rehabilitation prescriptions for each of my patients	14.5 (11)	30.3 (23)	25 (19)	13.2 (10)	11.8 (9)	3.9 (3)	1.3 (1)	5.06 (1.44)	
<b>Memory, attention and decision processes</b>	Completing/reviewing rehabilitation prescriptions is something I do automatically.	26 (20)	15.6 (12)	23.4 (18)	11.7 (9)	11.7 (9)	7.8 (6)	3.9 (3)	4.96 (1.78)	4.96 (0)
<b>Emotion</b>	I am able to complete/review rehabilitation prescriptions without feeling anxious	36.4 (28)	37.7 (29)	11.7 (9)	11.7 (9)	1.3 (1)	1.3 (1)	0	5.92 (1.13)	5.93 (0.07)
	I am able to complete/review rehabilitation prescriptions without feeling distressed or upset	41.6 (32)	33.8 (26)	11.7 (9)	10.4 (8)	1.3 (1)	1.3 (1)	0	6.00 (1.13)	
	I am able to complete/review rehabilitation prescriptions, even when I feel stressed	36.4 (28)	35.1 (27)	14.3 (11)	9.1 (7)	2.6 (2)	2.6 (2)	0	5.86 (1.22)	
<b>Environmental context and resources</b>	In the organisation I work, all necessary resources are available to allow me to complete/review rehabilitation prescriptions	20.8 (16)	16.9 (13)	23.4 (18)	19.5 (15)	11.7 (9)	2.6 (2)	5.2 (4)	4.89 (1.65)	5.05 (0.35)

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Table 3 (continued)

TDF domain	Statements	Strongly Agree % (n) (score:7)	Agree % (n) (score:6)	Somewhat Agree % (n) (score:5)	Neither agree nor disagree % (n) (score:4)	Somewhat Disagree % (n) (score:3)	Disagree % (n) (score:2)	Strongly Disagree % (n) (score:1)	Mean Question Score (SD)	Mean Domain Score (SD) (green shading indicates facilitator)
Social influences	I have support from the management of the organisation to complete/review rehabilitation prescriptions	32.5 (25)	24.7 (19)	16.9 (13)	15.6 (12)	5.2 (4)	3.9 (3)	1.3 (1)	5.46 (1.50)	
	The management of the organisation I work for are willing to listen to any problems I have relating to completing/reviewing rehabilitation prescriptions	26 (20)	27.3 (21)	20.8 (16)	15.6 (12)	6.5 (5)	2.6 (2)	1.3 (1)	5.37 (1.42)	
	The organisation I work for provides the opportunity for training to complete/review rehabilitation prescriptions	15.6 (12)	28.6 (22)	14.3 (11)	24.7 (19)	5.2 (4)	9.1 (7)	2.6 (2)	4.87 (1.61)	
	The organisation I work for provides sufficient time for me to complete/review rehabilitation prescriptions	9.1 (7)	23.4 (18)	27.3 (21)	18.2 (14)	11.7 (9)	6.5 (5)	3.9 (3)	4.67 (1.53)	
	People who are important to me think that I should complete/review rehabilitation prescriptions	18.2 (14)	24.7 (19)	16.9 (13)	33.8 (26)	2.6 (2)	2.6 (2)	1.3 (1)	5.10 (1.36)	5.57 (0.34)
	People whose opinion I value would approve of me completing/reviewing rehabilitation prescriptions	28.9 (22)	27.6 (21)	19.7 (15)	19.7 (15)	0	2.6 (2)	1.3 (1)	5.53 (1.34)	
	I can count on support from colleagues whom I work with when things get tough when completing/reviewing rehabilitation prescriptions	36.4 (28)	29.9 (23)	16.9 (13)	13 (10)	1.3 (1)	2.6 (2)	0	5.81 (1.25)	
	Colleagues whom I work with are willing to listen to my problems with regards to completing/reviewing rehabilitation prescriptions	36.4 (28)	35.1 (27)	9.1 (7)	15.6 (12)	1.3 (1)	2.6 (2)	0	5.83 (1.26)	
	I have a detailed plan of how I will complete/review a rehabilitation prescription	22.1 (17)	40.3 (31)	13 (10)	10.4 (8)	5.2 (4)	7.8 (6)	1.3 (1)	5.36 (1.55)	5.26 (0.18)
	I have a detailed plan of how complete/review rehabilitation prescriptions when	18.2 (14)	29.9 (23)	18.2 (14)	20.8 (16)	2.6 (2)	9.1 (7)	1.3 (1)	5.09 (1.54)	

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Table 3 (continued)

TDF domain	Statements	Strongly Agree % (n) (score:7)	Agree % (n) (score:6)	Somewhat Agree % (n) (score:5)	Neither agree nor disagree % (n) (score:4)	Somewhat Disagree % (n) (score:3)	Disagree % (n) (score:2)	Strongly Disagree % (n) (score:1)	Mean Question Score (SD)	Mean Domain Score (SD) (green shading indicates facilitator)
	patients who are in hospital/attend the service are not receptive									
	I have a detailed plan of how I will complete/review rehabilitation prescriptions when there is little time	18.2 (14)	24.7 (19)	28.6 (22)	13 (10)	7.8 (6)	6.5 (5)	1.3 (1)	5.09 (1.49)	
	It is possible to adapt how I complete/review rehabilitation prescriptions to meet my needs as a healthcare provider	22.1 (17)	26 (20)	23.4 (18)	18.2 (14)	5.2 (4)	2.6 (2)	2.6 (2)	5.24 (1.46)	
	Completing/reviewing rehabilitation prescriptions is compatible with other aspects of my job	28.9 (22)	28.9 (22)	15.8 (12)	18.4 (14)	6.6 (5)	0	1.3 (1)	5.51 (1.36)	

*‘They [RPs] are completed during an inpatient stay and not updated, therefore once they are completed, they are out of date. A prescription should be reviewed and updated as the patient progresses...they [RPs] don’t actually reflect what the patient needs.’ (043, MTC)*

Some participants highlighted IT facilitators for RP completion such as their NHS Trust adopting a new EPR system, which has improved efficiency. They also suggested that making the document ‘live’ would make it easier to complete across NHS Trusts, especially when IT systems

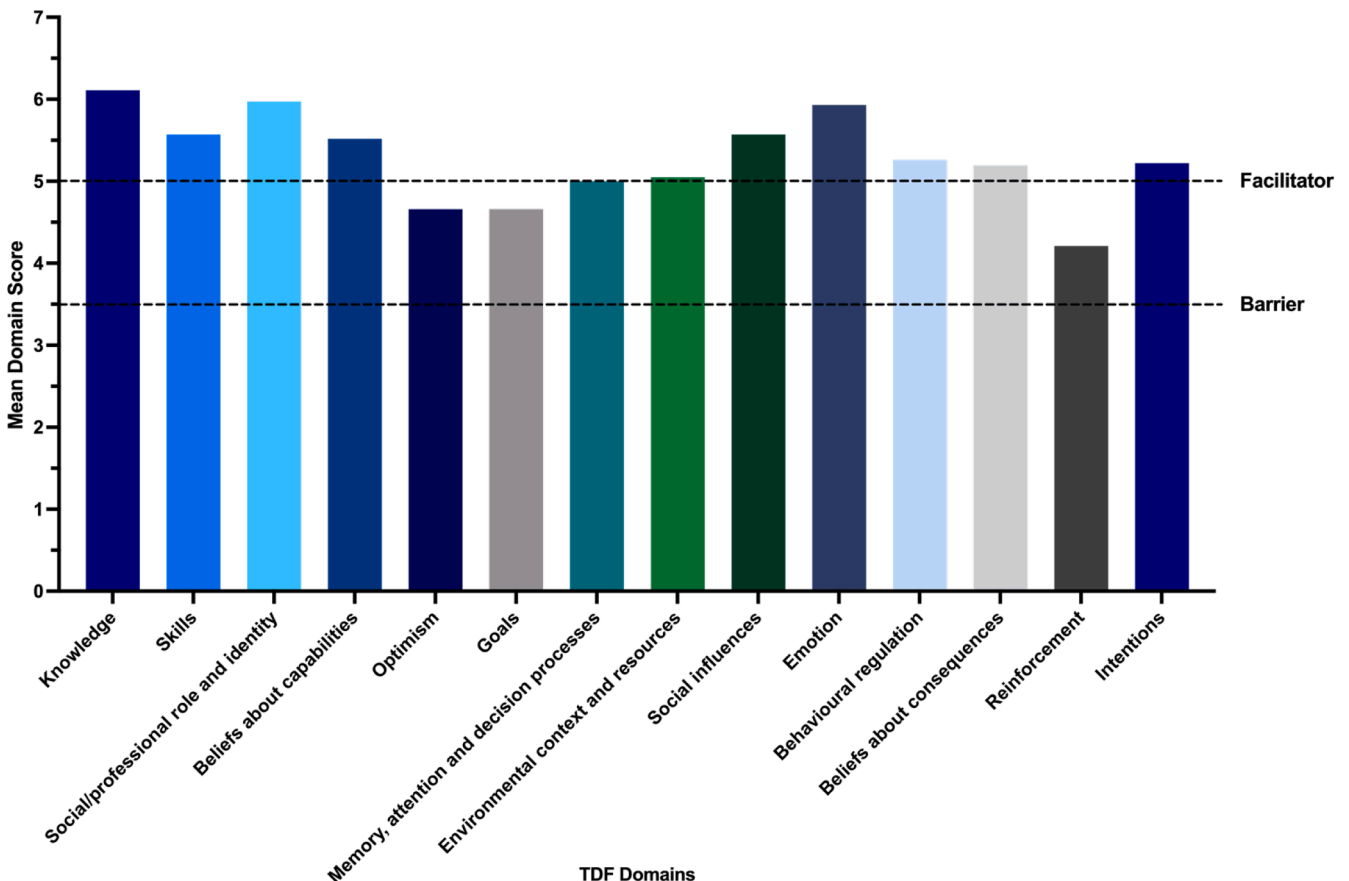


Fig. 1. Summary of TDF domains scores across all participants (n = 78). Dotted lines indicate threshold for facilitators (≥5) and barriers (≤3.5).

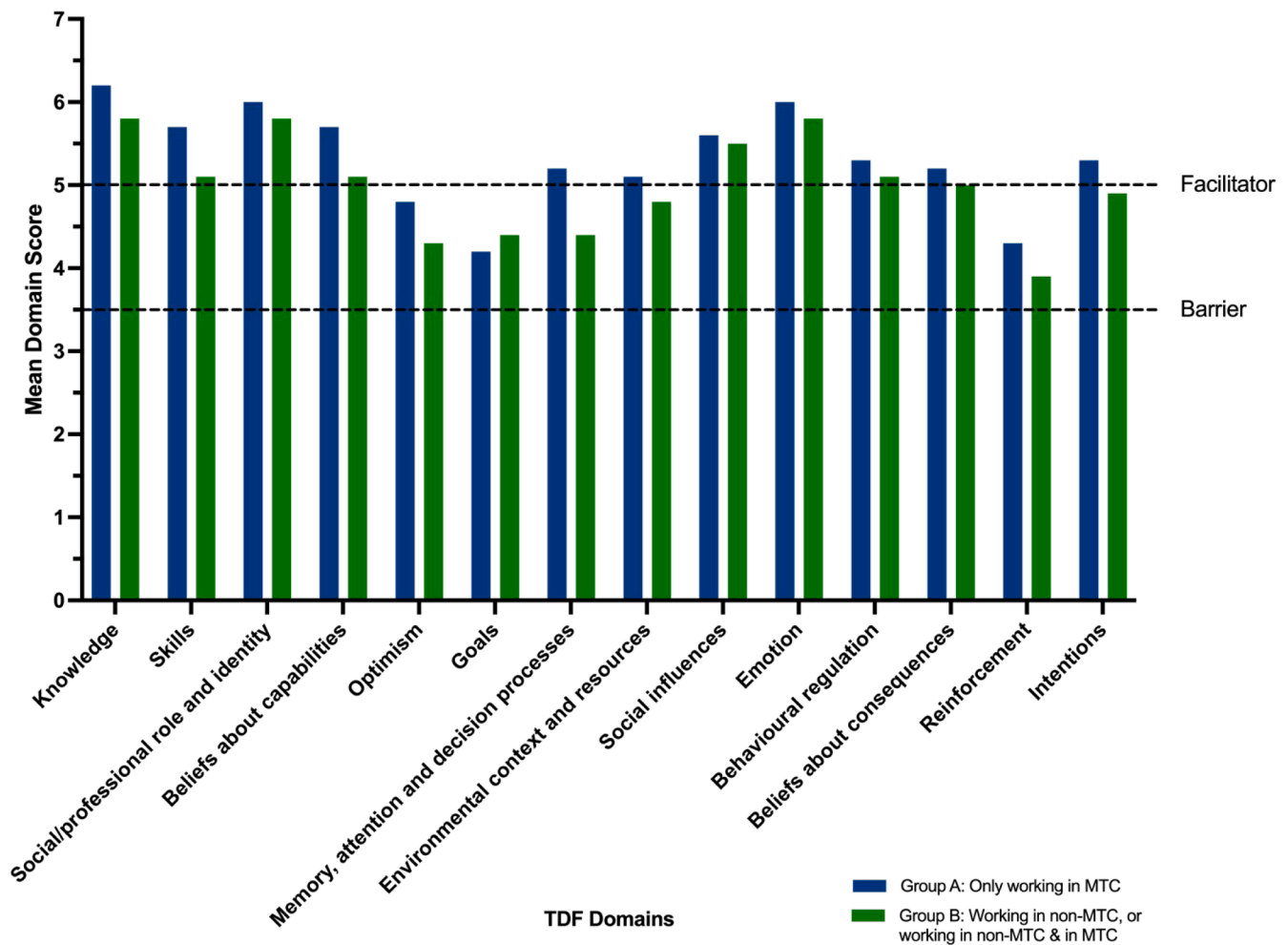


Fig. 2. Summary of TDF domains scores separated based on location of work. Group A (blue) indicates participants only working in an MTC ( $n = 58$ ), Group B (green) indicates participants working in a non-MTC or working in a non-MTC plus an MTC ( $n = 20$ ). Dotted lines indicate threshold for facilitators ( $\geq 5$ ) and barriers ( $< 3.5$ ). (For interpretation of the references to colour in this figure legend, the reader is referred to the web version of this article.)

Table 4

Summary of TDF survey data based on location of work.

TDF domain	Mean domain score (SD) (green shading indicates facilitator $\geq 5$ )	
	Group A: Only working in MTC setting ( $n = 58$ )	Group B: Only working outside MTC, or working outside MTC plus inside MTC ( $n = 20$ )
Knowledge	6.2	5.8
Skills	5.7	5.1
Social/professional role and identity	6.0	5.8
Beliefs about capabilities	5.7	5.1
Optimism	4.8	4.3
Goals	4.2	4.4
Memory, attention and decision processes	5.2	4.4
Environmental context and resources	5.1	4.8
Social influences	5.6	5.5
Emotion	6.0	5.8
Behavioural regulation	5.3	5.1
Beliefs about consequences	5.2	5.0
Reinforcement	4.3	3.9
Intentions	5.3	4.9

are incompatible between different hospitals:

*'An electronic format that makes the document live e.g. app/web based so not reliant on different Trust IT systems that do not communicate.'* (O48, MTC)

Not only would this improve communication across the pathway but would enable better identification of service provision gaps.

#### Understanding of RPs and competency

There appears to be a lack of knowledge about the RP outside of the MTC setting as there is no formal training to ensure rehabilitation service providers understand its purpose and value for patients. This poses an issue for use of a patient's RP along the rehabilitation pathway:

*'...have had feedback from community services that they don't have much knowledge about the rehab prescriptions, despite them being emailed/posted out - no formal training in how to complete rehab prescription, only in house.'* (O20, MTC)

In addition to service providers' lack of knowledge leading to poor RP completion, some participants highlighted that patients also have limited understanding of RPs and what their purpose is. As patients receive a lot of information when they are discharged from the MTC, often the RP is not flagged as an important document.

Some felt that upskilling other members of the MDT would facilitate RP completion, especially if they were trained to complete some of the

**Table 5**  
Summary of qualitative themes and links to TDF domains.

Qualitative theme	Link to TDF domains	Additional free text quotes
Culture around RPs	Beliefs about capabilities Optimism Reinforcement Social influences Social/professional role & identity	'A lack of perceived benefit to the patient - from experience most patients do not ever recall receiving their RP or use it as a useful document.' (070, MTC) 'Joint ownership over RPs, improved BPT achievement, improved job satisfaction. Treating therapist will complete weekly updates and rehab assistants will complete basic baseline info so whole team involvement.' (066, MTC) 'Not sure that Rehabilitation prescriptions are used in the community once patients are discharged home.' (013, MTC and community) 'This [RP completion] ticks the box for Best Practice Tariff, but is not a meaningful document for the patient.' (003, MTC) '[RPs] don't get updated by all professionals. It's only MTCs who fill these [RPs] in which is frustrating.' (051, MTC) 'Staff who are not exposed to rehab prescriptions often do not think to complete them as part of their standard care/rehab for a patient, i.e. outlying wards such as medical wards, elderly care wards, stroke wards etc.' (015, MTC) '[RPs were] designed by therapists who now refuse to complete them.' (006, MTC, non-MTC hospital and outpatient) 'We facilitate completion of goal setting by the treating therapist and have wide buy in.' (077, MTC) 'There is a real RP fatigue amongst therapists.' (021, MTC)
Infrastructure and resources	Environmental context & resources Reinforcement	'Follow-up: patients are not reviewed in an MDT clinic, so the rehab prescription is not revisited and updated.' (048, MTC) 'Other providers in the community do not have resources to implement RP.' (004, MTC) 'Good communication. Working within a team and offering appropriate support.' (076, non-MTC hospital) 'Link the rehab prescription to other resources e.g. self-management, time2talk, peer support. A simple national document based on patient need and not that of specialist rehabilitation services.' (048, MTC) 'No standard prescription software - have to use free software or pay for it ourselves.' (071, community) 'Implementation of HIVE (EPR) in our Trust had huge impact on RPs and process of completing RPs. New processes now established but has taken time plus trial and error. Patient notes accessible at all times so has made completing RPs much more efficient.' (066, MTC)
Understanding of RPs and competency	Knowledge Skills Social/professional role & identity	'Lack of understanding for patients. Patients get a lot of paperwork and this is not seen as a priority.' (025, MTC) 'Other teams lack of education regarding Rehab prescriptions, including GPs, community services and inpatient teams.' (025, MTC) 'Training to make sure everyone is completing them in a similar way as I feel our team all complete them differently. A clear plan/guideline would be better.' (012, MTC) 'Upskilling members of staff including therapy technicians to fill out core information.' (011, MTC) 'More training could be helpful for all therapy staff who have to complete rehab prescriptions as not everyone knows how to complete them.' (008, MTC) 'Twice yearly training open to all therapy staff so they are aware of who to do RPs for and how to do them as outliers [patients on wards other than trauma wards] are frequently missed.' (063, MTC)
Credibility of purpose	Beliefs about capabilities Beliefs about consequences Intentions Goals	RPs for minor traumas (e.g. clinic referrals) are overkill and a real waste of resources. The threshold to needing an RP is really too low. I think specialist RPs need to stay... the others are up for debate.' (021, MTC) 'I think we still need to get feedback from patients on what would make it more meaningful to them. Most patients don't engage much with its current format despite our site having tried hard to adapt it to be as meaningful as possible.' (077, MTC) 'Never know if recommendations are followed when patient discharged or transferred' (009, MTC) 'The discrepancies in quality of RPs (e.g. some facilities just copy and paste 3 months of clinical notes onto the document) make the whole exercise pointless too. If they are not quality documents but purely tick box exercises, what is the purpose of the box ticking?' (021, MTC)
Capacity and capability to complete RPs	Environmental context & resources Skills Reinforcement Intentions	'Caseload pressures really impact upon completion of rehab prescriptions.' (015, MTC) 'The process [completing RPs] is part of our daily tasks for all patients and is therefore factored into our workload (016, MTC) 'Time is a factor...Always try to be equally comprehensive with each one.' (030, MTC) 'Patients can be repatriated prior to RPs being completed and signed off. Waiting for decisions on injury management can lead to delays in completion.' (037, MTC) 'Time is the major factor in my job role and don't get much support from my line manager.' (058, non-MTC hospital) 'Encouraging all staff to complete in a timely manner and to allow band 6 [NHS] staff to sign off. Band 7 [senior NHS] clinicians are not always available if the prescriptions need to be signed swiftly before repatriation.' (037, MTC) 'I have a lack of time to complete and provide to the patient before discharge including availability of computers to do so.' (073, non-MTC hospital) 'Worried that I will miss RPs for some patients as it is not factored into my day.' (023, non-MTC hospital)

core information that doesn't require specialist rehabilitation knowledge or experience. Others suggested that training or clear guidelines would be useful to ensure everyone is completing RPs in a similar way so there is consistency across the team.

It was pointed out that training to complete RPs needs to be more practical as professionals can become out of practice if they are not completing them regularly:

*'[RP completion] Doesn't happen often enough and then out of practice. Training needs to be more practical.'* (023, non-MTC hospital)

Some participants suggested additional training to overcome some of the barriers to RP completion and use. Others felt that refresher training might be useful for those with roles that intermittently involve RP completion:

*'I think a refresher on best practice rehab prescriptions would help- for staff that just cover major trauma on the weekends.'* (072, MTC)

#### Credibility of purpose

A key theme that arose was whether the RP was fulfilling its intended purpose. One key issue highlighted by participants is that the real value of RPs for patients is currently unclear:

*'Patients definitely need written information on their journey, care needs, rehab needs etc. Whatever this is called (RP, report, rehab referral that can be given to patient). I wonder how many patients in reality (proportion) have managed to use their RP prescription to change their rehab journey/outcome.'* (021, MTC)

Another stated that feedback from patients is required to ensure RPs are a valuable document and something they find useful.

Some professionals stated that they didn't know what happens to their patients once they were discharged or referred onto other services, nor did they know if RPs were used in community services:

*'Not sure that Rehabilitation prescriptions are used in the community once patients are discharged home. Not reviewed within clinics.'* (013, MTC & community)

Others felt that if RPs aren't completed consistently (i.e. quality documents) then they are a pointless exercise. Participants also highlighted that RPs are not being used as intended; their goal of informing service provision is not being achieved:

*'There hasn't been any widely shared change in the NHS based on the gap analysis that was at the basis of the RP purpose (e.g. to establish gap in services between what is recommended and what is offered). Is the exercise fit for the intended purpose? Are the resources required to deliver reasonable in the current climate if this is not fit for purpose.'* (021, MTC)

However, others believed that when completed properly, RPs can be a valuable and useful tool for staff:

*'Huge help in understanding complex family situations, important for information gathering to facilitate safe discharge, useful for sharing information with community colleagues.'* (030, MTC)

#### Capacity and capability to complete RPs

Service providers in MTCs expressed frustrations over delays in being able to complete RPs if the person was discharged rapidly or waiting for decisions from members of the MDT. Similarly, others stated that it is time consuming to complete an RP if it has not been started when the patient is admitted to the MTC. If the healthcare professional does not know the patient, they must look through their notes to understand their injuries:

*'Time is the main barrier, especially if you have picked up a patient whose RP has not been started and you have to go through all the notes to get a good idea of injuries, management, progression, etc.'* (062, MTC)

Some professionals felt that they did not receive support from their manager and team to allow time to complete RPs.

Many professionals highlighted that completing RPs for all patients is impossible for an already overstretched and under-resourced team, particularly in those MTCs that receive a large number of patients:

*'There can be over 60 patients at one time that trigger for an RP. More than a third of these can sit outside of Major Trauma. This therefore makes it impossible for the Major Trauma team to coordinate/complete.'* (003, MTC)

Others suggested that less senior members of the team could take on the role of completing RPs, especially when there is limited time and some members of staff are not available. Some stated that a lack of time also impacts on their ability to complete RPs.

Often professionals need to complete RPs on behalf of other therapists due to staff absences, which makes it difficult if they have only known the patient for a short period of time:

*'Difficult completing rehab prescriptions on behalf of other therapists or when you've only known the patient for short duration of their admission.'* (018, MTC)

Although participants intend to complete RPs for their patients, some working outside of the MTC expressed concern over missing RPs when the work is not factored into their clinical day.

Although many participants expressed the intention to complete RPs, for some they were lower on their priority list when other tasks are more important or urgent:

*'It [RP completion] is also lower on my list of priorities when working on a busy orthopaedic ward vs the pressure to discharge patients from the hospital.'* (073, non-MTC hospital)

#### Potential behaviour change strategies

Table 6 presents potential behaviour change strategies informed by the BCW, which address the barriers and facilitators identified by the survey. Education, enablement and environmental restructuring (e.g. educating all service providers (MTC and beyond) and trauma patients about the purpose of RPs; enabling easy RP sharing across NHS services; RP champions empowering patients with the authority to use their RP), should be the focus of a solution to improve the 'motivation', 'psychological capability' and 'opportunity' of service providers to complete RPs and support patients in their use. Incentivisation and persuasion (e.g. BPT offered to trauma units and other non-MTC services, evidence and case studies of RP success) should be the focus of a solution to improve the 'opportunity' and 'motivation' for service providers to complete or implement RPs. Training (e.g. standardised national training,) should be the focus of a solution to improve the 'psychological capability', 'automatic motivation' and 'physical opportunity' of professionals completing or using RPs. Modelling (e.g. employing RP champions to model 'good practice' and encourage completion) should be the focus of a solution to improve 'motivation' and 'social opportunity'.

#### Discussion

To our knowledge, this is the first study to report on barriers to, and facilitators for the implementation of RPs. The quantitative findings were generally positive with ten facilitators, four factors which were neither facilitators nor barriers and no barriers identified. However, the qualitative findings revealed more barriers than facilitators illustrating what is currently working well, and what needs to be addressed to improve the process. Our quantitative and qualitative data contradicted each other, which may have been linked to the different way the questions were asked (i.e., the quantitative part of the survey asked closed questions) or because there was possible social desirability bias in the quantitative part of the survey. Other mixed-methods studies have reported differences in barriers and facilitators identified in each data set [24–26], suggesting that the quantitative cut-off scores may need redefining. Future studies should consider how TDF survey questions are structured and how the scores are interpreted, along with using mixed methods to add context to the findings.

Overall, findings suggest there are uncertainties about whether RPs achieve their intended goals (i.e. to describe patient clinical and rehabilitation needs, prioritise and set patient goals, engage patients in rehabilitation, enhance continuity of care between acute and community settings, inform service improvement). In particular, there is doubt that RPs adequately document patient clinical needs, engage patients in rehabilitation, and establish treatment priorities and goals. These are the main aims of the RP, yet our qualitative findings suggest that service providers do not think RPs are achieving them. There is a lack of confidence that RPs inform onward referrals for rehabilitation following discharge from MTCs. In addition, there is scepticism that RPs can identify gaps between what the patient needs and what is offered in order to inform service improvement. This raises the question of whether there is any value in completing RPs. However, some healthcare professionals firmly believed that RPs serve a purpose in terms of documenting the patient's journey, providing a comprehensive overview of their care, and facilitating team communication around identifying the patient's ongoing needs.

Many service providers felt demotivated due to inadequate resources (e.g. poor IT systems, lack of staff) in hospital and community teams, and for some, RPs were not considered a priority. Healthcare professionals also highlighted concerns about insufficient time to complete RPs, especially in overstretched teams. Challenges associated with workload and competing clinical priorities, such as delivering rehabilitation and discharging patients, present significant obstacles to RP completion. Along with poor 'buy-in' and engagement within teams and negative attitudes towards RPs as a 'tick box exercise'. The identified

**Table 6**  
Summary of quantitative and qualitative findings and identified behaviour change strategies.

COM-B	TDF Domain	Quantitative survey data (n = 78)	Qualitative free text data (n = 60)	Examples from qualitative data	Intervention functions as defined by the BCW (21)						Potential behaviour change strategies (linked to BCW intervention functions)	
					Education	Enablement	Environmental restructuring	Incentivisation	Modelling	Persuasion		Training
<b>Psychological Capability</b>	Knowledge	✓	X ✓	Lack of knowledge of RPs outside MTC, patients don't know what they are								Educate all service providers involved in delivering rehabilitation or referring to rehabilitation services about the purpose of the RP and benefit for patients to improve implementation across pathway (A). Providing national training for healthcare providers, offering CPD points (G). Educate patients about how useful of RP can be as they move along the rehabilitation pathway to give to service providers (A). Offering 'Best Practice Tariff' to incentivise trauma units completing RPs and recognition of achievements beyond MTC (D). Financial persuasion for community services and GPs to act on the prescription (D, F). Providing information to patients about the purpose of their RP (A, E). Empowering the patient with the authority or knowledge to take the RP to a community or primary care provider to request support to meet identified needs on their RP or self-refer (e.g. to psychological support services) (B, E). Educating and empowering patient to self-manage or (A, B, E). Transfer of the best practice tariff to the community as an incentive to address the specified rehab needs (C, D).
	Behavioural regulation	✓	Not mentioned									
	Memory, attention and decision processes	O	Not mentioned									
	Skills	✓	X ✓	Staff feel confident completing RPs, but skills are limited outside trauma team								
<b>Reflective Motivation</b>	Beliefs about capabilities	✓	X ✓	Case load pressures mean RPs aren't always completed in detail								
	Intentions	✓	✓	MTC staff intend to complete RPs for all patients, but difficult when patients discharged quickly								
	Goals	O	X	Tick box exercise for BPT, not meaningful for patients								
	Beliefs about consequences	✓	X	RPs don't inform onward rehabilitation or identify service gaps								
	Optimism	O	X	Never know if recommendations are followed post-discharge, poor engagement								
	Social/professional role and identity	✓	X ✓	Therapists outside MTC don't think it is part of their role								

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Table 6 (continued)

COM-B	TDF Domain	Quantitative survey data (n = 78)	Qualitative free text data (n = 60)	Examples from qualitative data	Intervention functions as defined by the BCW (21)						Potential behaviour change strategies (linked to BCW intervention functions)
					Education	Enablement	Environmental restructuring	Incentivisation	Modelling	Persuasion	
<b>Automatic Motivation</b>	Reinforcement	O	X ✓	Other more urgent tasks taking priority over completing RPs							Using example case studies and evidence to demonstrate the value of RPs for patients to persuade all service providers (including those outside the MTC) to complete them for all patients with ongoing rehabilitation needs (E, F). Providing user friendly IT system to facilitate RP completion, enabling transfer of RPs across different NHS sites and Trusts (B, C). Enabling and training less senior staff to complete RPs for less severe/complex injuries with minimal rehabilitation needs (B, G). Employing RP champions within MTCs to encourage service providers to take the time to complete RPs through modelling of good practice (E).
	Emotion	✓	Not mentioned								
<b>Physical Opportunity</b>	Environmental context and resources	✓	X ✓	IT systems different across all sites, not easy to share RPs, online systems are slow							
<b>Social Opportunity</b>	Social influences	✓	X ✓	Good communication across team is key to completing RPs, therapist 'buy in'							

X = barrier, ✓ = facilitator, X✓ = barrier and facilitator, O = neither barrier nor facilitator. Blue shading indicates which intervention function the TDF domains correspond to as defined by BCW.

Definitions: A. Education: Increasing knowledge or understanding; B. Enablement: Increasing means/reducing barriers to increase capability or opportunity; C. Environmental restructuring: Changing the physical or social context; D. Incentivisation: Creating an expectation of reward; E. Modelling: Providing an example for people to aspire to or imitate; F. Persuasion: Using communication to induce positive or negative feelings or stimulate action; G. Training- Imparting skills.

challenges align with other studies exploring the implementation of multidisciplinary practice guidelines or recommendations, suggesting the main barriers to successful implementation are limited time, high workload, resource constraints, staff resistance to change and lack of leadership [24–30]. Although our quantitative survey data suggests the environmental context of the major trauma centre was a facilitator as opposed to a barrier to RP completion, the qualitative data highlighted the importance of targeting this domain within the healthcare system to enable the successful implementation of RPs. This is corroborated by other studies concluding that environmental constraints can directly influence healthcare providers' motivation to implement an intervention or policy [31,32].

Different IT systems across rehabilitation services hinder communication between acute and community settings and disable easy transfer of RPs. The communication and transfer between different NHS sites and IT systems of needs to be improved to ensure continuous onward referral and access to necessary services for patients. Poor communication across the rehabilitation pathway has been recognised by previous research as a key issue to ensure continuity of patient care [33,34]. Other studies in the older adult population have highlighted the importance of effective communication between multidisciplinary healthcare providers when transitioning from the acute setting to home [35–37] and the benefit of using standardised processes to improve transition [35]. Studies outside the UK support the use of a standardised communication system or electronic individual care plans (e-ICPs) to share patient information across different organisations and services [34,38,39]. A trial in the Netherlands found that the use of a secure email system and standard referral forms across trauma care pathways (as part of the Transmural Trauma Care Model) was more efficient and an important improvement compared with usual care [40]. A potential solution to improve RP implementation may be to standardise the electronic system used to complete RPs across all NHS sites.

The lack of reinforcement and motivation amongst certain professionals highlights the importance of educating service providers about the purpose of RPs and potential use for patients, particularly those working in community settings. The perception of RPs as a mere box ticking exercise for funding purposes rather than a meaningful tool for patient care is another important barrier identified by this study. This raises questions about the alignment of current practices with the intended purpose of RPs. Addressing this requires consideration of the value of RPs, both in terms of clinical significance and their role in achieving desired patient outcomes. Furthermore, the absence of formal training and limited knowledge about RPs beyond the MTCs indicates a need for educational interventions. Standardised (and perhaps mandatory) training on RP completion and use across the UK, both initial and refresher, could bridge the knowledge gap and ensure that all relevant healthcare providers understand the intended purpose and potential value of RPs for patients. Most evidence in the trauma rehabilitation setting focuses on simulation-based and technical skills training, and less so on general team training or non-technical training [41]. However, evidence from the USA suggests that multidisciplinary training and interprofessional education (e.g. workshops, multi-day training programmes) can improve knowledge, promote team building, improve safety culture and change practice across different rehabilitation and long-term care settings [42,43]. Studies in other populations suggest that poor implementation of policies or documents, like the RP, is often linked to incorrect interpretation rather than the content of the 'intervention' [44–47]. Education and creating a positive organisational culture were identified as useful strategies to improve adherence to clinical guidelines in a recent systematic review [46].

Barriers relating to healthcare providers role and their perceived responsibility for RP completion highlights potential disconnect within the healthcare team and wider system. Social/professional role and identity has also been identified as a key barrier to implementation in other studies, with professionals being reluctant to take on tasks 'outside' of their speciality or role [48–50]. Solutions might involve

developing a shared sense of responsibility amongst MTC teams, clarifying roles and who is the most appropriate person to complete RPs, and emphasising the value of RPs beyond the MTC and acute setting (i.e., as a useful tool to plan long-term rehabilitation). A well-known effective implementation strategy is the use of 'champions' [51], which in the context of our study, would involve an individual promoting the completion of RPs in MTCs, providing a model of 'good practice' and encouraging healthcare provider 'buy-in'. This could also be implemented beyond the acute setting, introducing RP champions in community teams to improve use of RPs to inform rehabilitation.

This study had several strengths, providing new evidence to support the implementation of RPs in the UK major trauma rehabilitation pathway. We recruited a diverse sample of healthcare providers from across the UK working in different settings, thus presenting a broad perspective on the factors affecting implementation. Our findings synthesise both quantitative and qualitative data from the survey which provides a more detailed insight into the barriers and facilitators to RP completion and the context for implementation. As the quantitative and qualitative data contradicted each other, it further highlights the importance of using mixed methods. Another strength is that data collection and analysis was theoretically informed by the TDF and BCW.

While the study offers valuable insights, there were also some limitations. We found it difficult to recruit participants working outside the MTC, possibly related to our finding that RPs do not appear to be being used outside of MTCs. The small numbers from some settings in particular (e.g. community) and the lack of responses from primary care limits our understanding of implementation issues across these settings. The small proportion of respondents from outside of MTCs also precluded us from making statistical comparisons between those working within and outside MTCs. Common to all surveys, respondents are likely to represent those most interested in, or knowledgeable about the topic area. This would suggest our findings might be more positive than findings from the wider population completing or using RPs. As the survey was conducted using social media and snowball sampling, it is not possible to calculate a response rate and no information is available about non-responders. Also, the qualitative data was only coded by one author, which may reduce the reliability of our findings. Finally, the use of the 7-point Likert scale for the quantitative part of the survey was informed by previous research which successfully used and validated this TDF scoring system [19,21,22,52]. However, the choice of this scale may have led to response bias and central tendency bias, potentially explaining why no substantial barriers were identified across participant scores. Perhaps a smaller Likert scale (i.e. 5-point) would have been more suitable for this topic and population [53].

Our findings have implications for clinical practice, healthcare policy and research, not only in the UK, but worldwide. Improvements to the RP process should address the identified barriers, with a focus on education, enablement, incentivisation and training. This may involve improving culture within MTCs and trauma units, fostering a shared sense of responsibility within rehabilitation teams, providing standardised training across the UK, and reassessing the perceived value and efficacy of RPs (in particular the value for patients). The original recommendation to implement RPs showed promise, which our findings show is recognised by MTC staff. However, the term 'prescription' can imply an obligation for other healthcare providers, often leading to recommendations not reaching services due to funding or communication gaps. Ultimately this leaves patients feeling disempowered. Perhaps the solution lies in transferring the information directly to patients, empowering them to hold their own 'prescription', while redirecting funding towards community providers. Standardised RP templates might be a further solution, but would need to be co-designed with potential users (e.g. those working in MTCs, trauma units, primary care, community settings, plus patients and carers), ensuring they are in a useful format for both service providers and patients. Technological solutions, such as standardised electronic systems to enable 'live' updates of RPs along the rehabilitation pathway, could streamline RP

completion and facilitate information transfer between healthcare settings. Policy-level changes, such as financial incentivisation for trauma units and community teams, may play a role in motivating healthcare teams outside of the MTC to prioritise RP completion. However, one of the major issues to consider is the fact that in many areas of the UK, there are limited rehabilitation services to refer patients to and long waiting lists where they do exist, which raises the question of whether RPs have any value in informing onward care.

To conclude, further qualitative research needs to explore service provider views of implementation of RPs in more depth than was possible in our survey. Research is also needed to understand patient perspectives of the impact of RPs on their rehabilitation and how RPs can be improved. Future studies exploring the use of RPs over time and their impact on patient care would also be useful, along with cost-benefit evaluations. Finally, studies exploring optimal methods of information transfer across rehabilitation pathways (e.g. via case coordination, trauma survivor networks) should be considered.

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## CRediT authorship contribution statement

**Jade Kettlewell:** Writing – review & editing, Writing – original draft, Visualization, Validation, Project administration, Methodology, Investigation, Funding acquisition, Formal analysis, Data curation, Conceptualization. **Kate Radford:** Writing – review & editing, Validation, Supervision, Methodology, Funding acquisition, Conceptualization. **Stephen Timmons:** Writing – review & editing, Validation, Supervision, Methodology, Funding acquisition, Conceptualization. **Trevor Jones:** Writing – review & editing, Validation, Methodology, Funding acquisition, Conceptualization. **Stephen Fallon:** Writing – review & editing, Validation, Methodology, Funding acquisition, Conceptualization. **Ryan Westley:** Writing – review & editing, Validation, Formal analysis. **Susan White:** Writing – review & editing, Validation, Methodology, Funding acquisition, Conceptualization. **Denise Kendrick:** Writing – review & editing, Validation, Supervision, Methodology, Funding acquisition, Conceptualization.

## Declaration of competing interest

None declared.

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