Musculoskeletal physiotherapists' use of psychological interventions: A systematic review of therapists' perceptions and practice.

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Abstract

Background: Research has demonstrated that incorporating psychological interventions within physiotherapy practice has numerous potential benefits. Despite this physiotherapists have reported feeling inadequately trained to confidently use such interventions in their day-to-day practice.

Objective: To systematically review musculoskeletal physiotherapists' perceptions regarding the use of psychological interventions within physiotherapy practice.

Data sources: Eligible studies were identified through a rigorous search of AMED, CINAHL, EMBASE, MEDLINE and PsychINFO from January 2002 until August 2013.

Study eligibility criteria: Full text qualitative, quantitative and mixed methodology studies published in English language investigating musculoskeletal physiotherapists' perceptions regarding their use of psychological interventions within physiotherapy practice.

Study synthesis and appraisal: Included studies were appraised for risk of bias using the Critical Appraisal Skills Programme qualitative checklist. Meta-analysis was not possible due to study heterogeneity.

Results Six studies, all with a low risk of bias, met the inclusion criteria. These studies highlighted that physiotherapists appreciate the importance of using psychological interventions within their practice, but report inadequate understanding and consequent underutilisation of these interventions.

Limitations These results should be noted with some degree of caution due to various limitations associated with the included studies and with this review, including the use of a qualitative appraisal tool for mixed methodology/quantitative studies.

Conclusion

These findings suggest that musculoskeletal physiotherapists are aware of the potential benefits of incorporating psychological interventions within their practice but feel insufficiently trained to optimise their use of such interventions; hence highlighting a need for further research in this area and a review of physiotherapist training.

Keywords: Rehabilitation, Psychological Interventions, Qualitative design, Physiotherapy Education, Sports.

Introduction

Research has demonstrated that individuals undergoing rehabilitation following an injury or surgery experience not only physical but also psychological disturbances (1). Diverse symptoms such as anger, depression and low self-esteem have been observed (2) and are reported to occur in both the general population (3) and in sports people (4). The importance of recognising such psychological disturbances is widely recognised amongst physiotherapists, with the Chartered Society of Physiotherapy (CSP) describing physiotherapy as a profession which "takes a 'whole person' approach to health and wellbeing" (5). This is reflected in a broad range of documents which guide physiotherapy practice.

For example the post outlines of physiotherapists working within the National Health Service are based on the Knowledge and Skills Framework. Dimensions HWB6 and HWB7 of this framework emphasise the importance of considering both physiological and psychological factors throughout assessment and treatment planning and implementation (6). Furthermore all physiotherapists are legally obliged to adhere to the Health and Care Professions Council's standards of proficiency for physiotherapists (7), with standard 13.9 indicating that physiotherapists must understand how psychological aspects influence individuals' responses to their health status and physiotherapy interventions

Correspondingly physiotherapy degrees must now incorporate training on psychology included topics such as self-efficacy in order to achieve CSP accreditation (8). Despite this a recent mixed methods study of 17 United Kingdom universities demonstrated that although some psychology training is included in physiotherapy programmes significant disparities exist in the extent of training provided and how it is delivered (9). Additionally this study highlighted the vast array of different topic areas that are considered under the umbrella term

87 "psychology", including communication skills, personality theories, effective team working
88 and the psychological impact of terminal illness.

89 One area of psychology of particular importance to physiotherapists is the use of
90 psychological interventions such as relaxation, imagery, positive self-talk and goal setting, as
91 all these techniques are used by physiotherapists in clinical practice (2), (10). Furthermore the
92 use of psychological interventions appears to be growing in certain disciplines of
93 physiotherapy; namely chronic pain (11), anterior cruciate ligament rehabilitation (10)
94 neurology (12, 13) and sport (2). Techniques such as cognitive behavioural therapy (CBT),
95 neuro-linguistic programming (NLP) are also other psychological techniques widely being
96 used by physiotherapists within these areas (14, 15). Despite this, undergraduate
97 physiotherapy degree programmes are not specifically required to include training on
98 psychological interventions in order to achieve CSP accreditation (8) and evidence suggests
99 that physiotherapists frequently show a lack of insight into the psychological tools that are
100 within the scope of physiotherapy practice (16). Investigating physiotherapists' perceptions
101 and use of psychological interventions could therefore provide valuable information about the
102 training needs of qualified physiotherapists and inform the development of future
103 physiotherapy programme curricula.

104 Musculoskeletal disorders are the commonest presenting complaint encountered by
105 physiotherapists and promoting self-management techniques is recognised as a vital
106 component of the physiotherapy management of these disorders (17). Self-management
107 techniques may include both physical interventions, such as exercise, and psychological
108 interventions, such as mindfulness based stress reduction (18). Investigating the use of
109 psychological interventions in musculoskeletal physiotherapy is therefore an important area
110 for research and will be the focus of this review.

The aim of this review was to investigate musculoskeletal physiotherapists' perceptions and use of psychological interventions, including whether they feel sufficiently equipped to use such interventions effectively within their daily practice.

Methods

This systematic review was conducted using a predetermined protocol in accordance with the PRISMA statement (19).

Protocol and registration

No prior protocol was published.

Data sources and search strategy

Comprehensive electronic searches were undertaken of the following electronic databases: AMED, CINAHL, EMBASE, MEDLINE and PsychINFO. A record of the number of articles that were retrieved from each database is displayed in table 1. In addition, hand searches of journals and citation tracking of reference lists related to the research title were performed. The search terms used for the databases are displayed in table 2. All the above searches were performed by one investigator (JA).

Trial selection

All articles identified by the searches were assessed for eligibility using the criteria described below. Full text copies of any potentially relevant articles were obtained to confirm eligibility. The trial selection was performed by one investigator (JA).

Study selection

The electronic search results were considered for inclusion if they were empirical qualitative, quantitative or mixed methodology studies focussing on Chartered physiotherapists' perceptions regarding their use psychological interventions within musculoskeletal outpatients physiotherapy departments. Only full text papers published in English language dated from 2002 to 2013 were considered. Abstracts alone and systematic reviews were excluded; however the reference lists of any relevant systematic reviews were screened for potentially relevant studies. Sifting was performed using a recommended three stage process (20). Papers were first reviewed by title, then by abstract and finally by full text, excluding those at each stage that did not fit the inclusion and exclusion criteria (20).

Data extraction

Data regarding the characteristics, participants, interventions, outcome measures and results of each study selected for inclusion were extracted using a standardised form (table 3). This form was completed by one reviewer (JA) and verified by two independent reviewers (AA/SH).

Study appraisal and synthesis methods

The included studies were appraised using the Critical Appraisal Skills Programme (CASP) Qualitative Research checklist (21). This checklist comprises a series of 10 questions whose completion provides a systematic and comprehensive way of appraising qualitative studies to determine whether their findings are valid and/or meaningful at a local level. The included studies were appraised by three independent reviewers (JA/AA/SH). Any discrepancies between the reviewers' completed checklists were resolved by discussion, with a fourth independent reviewer being available to help resolve any disagreements if necessary.

Results

The PRISMA flow chart demonstrates the study selection process (figure 1). The electronic searches retrieved a total of 178 articles and one further article was retrieved through hand searching. Removal of duplicates left a total of 178 articles. Screening of the titles and abstracts of these articles resulted in 10 studies being identified as appropriate for full text review. After obtaining full text copies of each of these articles a total of 6 were accepted for inclusion in this systematic review (22-27).

Risk of bias assessment

The results of the risk of bias assessments are presented in table 4. All studies were found to present a low risk of bias in accordance with the CASP guidelines (21). All reviewers (JA/AA/SH) used the same method to review the selected articles and were satisfied that the overall risk of bias was low. There was only a single disagreement between

the reviewers' completed risk of bias checklists. This was settled by discussion without requiring input from the fourth independent reviewer.

Study characteristics

The results of the included studies, along with the characteristics of each study are presented in table 5. All studies involved exploration of musculoskeletal physiotherapists' perceptions regarding the use of psychological interventions in physiotherapy practice (22-27). Three studies focused on physiotherapists working predominately in a sports environment (22, 23, 25). The other three studies focused on physiotherapists working in general musculoskeletal outpatient settings (24, 26, 27). Three studies used qualitative semi-structured interviews (22, 26, 27), two studies used quantitative surveys (24, 25) and one study used a mixed methodology (23). Five studies sought to gain an insight into physiotherapists' perceived learning needs regarding psychological training (22-26). All the studies investigated common psychological symptoms that physiotherapists encounter within clinical practice (22-27).

Interventions

No interventions were used.

Findings

According to the physiotherapists in the included studies, stress and anxiety were the most frequently encountered psychological symptoms amongst individuals undergoing rehabilitation (23-25). Additional reported psychological symptoms included exercise addiction (24) and fear of re-injury (26). The findings of the included studies suggest that physiotherapists commonly use a number of psychological interventions in clinical practice. In particular goal setting, positive self-talk, effective communication and variation in rehabilitation exercises all appear to be relatively widely used (22-27). From a learning needs perspective, the included studies suggest that physiotherapists would like to improve their ability to implement realistic goal setting (24, 25). Furthermore physiotherapists from four of the included studies reported feeling that they received insufficient psychological training during their undergraduate physiotherapy degree programmes (22, 23, 26, 27). For example in the study of Arvinen-Barrow et al. (2010) it was reported that one respondent had only "a couple of lectures of psychology as part of his physiotherapy degree", while another respondent reported having "no training in psychological interventions at all".

Discussion

This systematic review evaluated six studies that investigated musculoskeletal physiotherapists' perceptions regarding the use of psychological interventions within physiotherapy practice. The results present some interesting but concerning findings. It was reported that physiotherapists working in a musculoskeletal environment commonly encounter psychological symptoms when working with individuals undergoing rehabilitation. A wide variety of psychological symptoms were identified amongst individuals undergoing rehabilitation, with stress and anxiety appearing to be particularly common (23-25). This

latter finding is supported by a number of additional studies (28-30). Furthermore a prospective cohort study reported that patients who suffer psychological symptoms following surgery/ injuries appear to experience an increase in non-specific musculoskeletal complaints, such as increased muscular tension, development of trigger points and reduced function (31). The above findings suggest that the occurrence of psychological symptoms following injury/surgery is a frequent and significant issue. One potentially valuable approach in tackling this issue is to integrate psychological interventions within physiotherapy practice.

The results of this systematic review imply that a number of psychological interventions are widely used by musculoskeletal physiotherapists. These interventions include: goal setting, positive self-talk and effective communication, with goal setting being identified as the most common psychological intervention used by the physiotherapists in the included studies (22-27). This is a particularly encouraging finding given that the use of goal setting during rehabilitation appears to improve patients' confidence, self-esteem and self-efficacy (32).

Correspondingly goal setting was also highlighted as an intervention that physiotherapists would like to learn more about (23, 24). The study of Schoeb (2009) provides a particularly detailed insight into physiotherapists' use of goal setting in clinical practice (33). This study indicated that although this intervention is frequently employed by physiotherapists the approaches used for setting goals are rarely standardised. This study also highlighted that the effectiveness of the goal setting process appears to vary significantly between different physiotherapists (33). In addition another study, involving various different healthcare professionals, indicated that goal setting within healthcare is associated with numerous difficulties, such as poor patient involvement throughout the goal setting process (34).

Arvinen-Barrow et al.'s (2010) study implied that goal setting is rarely athlete-focussed, instead being largely physiotherapist-mandated with minimal consideration being given to its psychological implications (22). This finding is particularly significant given that patient participation appears to be of paramount importance in the success of the goal setting process, largely due to the numerous beneficial effects associated with such patient participation (35). These include increasing patient participation during rehabilitation, empowering of patients to take responsibility for their recovery and making the rehabilitation process more meaningful to patients (35). Overall the articles included in this systematic review indicate a disparity between physiotherapists' reported use of goal setting and the training provided in this area during undergraduate physiotherapy programmes. Future research using observational methods to investigate physiotherapists' implementation of goal setting in clinical practice would provide further insight into this area and be of value in identifying physiotherapists' training needs.

The results of this systematic review imply that at least some physiotherapy degree programmes do not provide a sufficient level of formal training in the use of psychological interventions. Until the 1980's minimal training in psychology was provided within physiotherapy curricula (36). In the early 1980's the Scientific Affairs Board of the British Psychological Society (BPS) set up a working party aiming to teach different aspects of psychology, including basic theory and the implementation of psychological principles to individuals from other professions, physiotherapy being one of the named professions. Despite this recent studies indicate that the psychology content of UK physiotherapy degree programmes remains inconsistent, with many universities failing to have integrated psychology training within their physiotherapy curricula (37). In support of this a number of studies have indicated that physiotherapists report feeling inadequately trained to deliver psychological interventions and would welcome further training in this field (22, 24, 38). In

light of the high prevalence of psychological issues amongst individuals undergoing rehabilitation and the apparent value of incorporating psychological interventions within rehabilitation, these findings highlight a clear need to review the design of physiotherapy degree programmes to ensure that appropriate training in the use of psychological interventions becomes an integral part of physiotherapy curricula.

Limitations of the included studies

The included studies had a number of limitations. Firstly some of the included studies were largely focused on independent physiotherapists working in sport (22, 23, 25); the results cannot therefore be extrapolated to National Health Service physiotherapists working in hospital-based settings. This is especially relevant given that physiotherapists working in sports settings may have completed a sports psychology module as part of their training (39). Sample sizes ranged from 7 to 90 participants (22-27). Whilst the small sample sizes of the qualitative studies do not limit the utility of their findings, it could be argued that the sample sizes of the quantitative studies were inadequate; hence not providing a true representation of chartered physiotherapists currently practising in the UK.

Another limitation of the included studies is that they did not investigate whether respondents' answers varied according to how long they had been qualified as a physiotherapist. This is significant given that the time since qualification is likely to have affected the extent to which the physiotherapists relied on formal psychological training as opposed to experiential learning. This in turn may have directly influenced the physiotherapists' use and perceptions of psychological interventions. Furthermore the actual content of the physiotherapists' formal training in psychological interventions was not verified with the organisations providing the training; hence the results does not account for

possible disparities between the physiotherapists' perceived past training and the physiotherapists' actual past training. Finally, minimal information was provided on where the respondents completed their physiotherapy training; which again is likely to have had a profound influence on their responses.

Implications for practice

Despite the aforementioned paucity of training in psychological interventions within physiotherapy degree programmes, the use of psychological interventions does appear be an integral part of musculoskeletal physiotherapy practice [10]. It should therefore be recognised that there is a need to provide physiotherapists with the skills to effectively incorporate psychological interventions within rehabilitation. This would help physiotherapists to maximise the potential of each individual patient, for example by ensuring that when goals are set they are both patient-led and not just therapist led. This therefore indicates a need to review the curricula of physiotherapy undergraduate/pre-registration degrees to ensure that training in the use of psychological interventions is standardised.

Implications for future research

This systematic review highlights that research into musculoskeletal physiotherapists' perceptions of using psychology interventions during rehabilitation and into their practical use of such interventions are both limited. Given the frequent occurrence of psychological disturbances post-injury/surgery and the powerful influence an individual's psychological state appears to have on the rehabilitation process further research in this area is clearly warranted. Possible aims of such research could include identifying how physiotherapists

316 actually implement goal setting strategies and investigating physiotherapists understanding of
317 the theory behind the psychological interventions they use in practice.

318 Future research should include both qualitative studies and quantitative studies. For
319 example randomised controlled trials investigating the effectiveness of a range of
320 psychological interventions could provide highly valuable information about the worth and
321 relative effectiveness of such interventions. It is also essential that studies are conducted in
322 both sporting and non-sporting populations given that their psychological responses to injury/
323 surgery and to physiotherapy interventions are likely to differ. Furthermore a particularly
324 useful area for future research would be to investigate which psychological theories and
325 interventions should be prioritised for inclusion in physiotherapy undergraduate/pre-
326 registration degrees and which would be better suited for inclusion in post-graduate training
327 courses.

328

329 *Limitations of this review*

330 This study did not accept any unpublished papers; therefore potentially relevant
331 information from studies which have been conducted but not published may have been
332 missed. Furthermore this review only included articles published between 2002 and 2013;
333 hence relevant information from papers published before 2002 may have been omitted.
334 However papers published before 2002 are unlikely to provide representative information
335 about the current perspectives of physiotherapists given people's perspectives are fluid and
336 are likely to be influenced by the current society in which they live. Additionally
337 physiotherapy degree curricula and training methods are also very likely to have changed
338 since 2002.

This systematic review did not exclude studies which investigated the perceptions of other rehabilitation professionals in addition to Chartered physiotherapists. This limits the validity of the findings given that the conclusions drawn may have been significantly influenced by the views of respondents who were not physiotherapists. This systematic review is also limited by its use of a critical appraisal tool which was designed for use in qualitative studies, despite this systematic review including qualitative, quantitative and mixed methodology studies. In addition the CASP qualitative checklist used appears to be inferior to other qualitative appraisal tools in terms of its sensitivity to certain aspects of validity (40). Finally this review was specifically focused on physiotherapists working in musculoskeletal outpatient setting; hence the results cannot be applied to physiotherapists working in alternative disciplines.

Conclusion

The results of this systematic review highlight that musculoskeletal physiotherapists recognise the potential value of incorporating psychological interventions into their rehabilitation programmes for individuals following injury/surgery. Furthermore evidence suggests that physiotherapists currently use various psychological interventions such as goal setting in clinical practice. Despite this physiotherapists do not feely adequately trained to effectively utilise either the psychological interventions that they are currently using, or additional psychological interventions that they do not use at present, but which are likely improve rehabilitation outcomes. These findings indicate a clear need for further research in this area and imply that a review of the inclusion of training in psychological interventions within physiotherapy degree programmes is certainly warranted.

Ethical approval

Not applicable

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Conflict of interest

None

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Table 1

Tracking of articles

MEDLINE	CINHAL	EMBASE	PyschINFO	AMED
34	22	27	47	48

Table 2

Database search strategy

MEDLINE	CINAL	EMBASE	PsychINFO	AMED
rehabilitation$ or Musculoskeletal Physiotherapay$ or injuries$ psychology$ or intervention$ or symptoms$ or physiotherapist/ education$ or perception$	(MH"rehabilitation/ surgery") OR (MH"musculoskeletal physiotherapy") OR (MH"injuries") OR (MH"psychology") OR (MH"symptoms") OR (MH"physiotherapist") OR (MH"education") OR (MH"perception") OR	'rehabilitation'/ surgery OR 'musculoskeletal physiotherapy'/exp OR'injuries'/exp OR 'psychological symptoms'/exp OR'physiotherapist education'/exp OR'perception'	rehabilitation/ surgery or musculoskeletal physiotherapy/ injuries/ psychology/ or symptoms/ or physiotherapist education/ or perception	rehabilitation AND injuries AND musculoskeletal physiotherapy AND psychology AND symptoms AND physiotherapist AND education AND perception

539 Table 3

540 Data extraction form

541 Study characteristics	Participant characteristics	Intervention & setting	Outcome data/ results
Arvinen-Barrow (2010) (22)			
Heaney (2006) (23)			
Hemmings, Povey (2002)			
Lafferty, Kenyon & Wright (2008) (25)			
Tracey (2008) (26)			
Jevon & Johnson (2003) (27)			

Table 4

Completed qualitative risk of bias checklist tool (CASP)

	Was there a clear statement of the research aim?	Is a qualitative methodology appropriate for the research?	Was the research design appropriate to address the aims of the research?	Was the recruitment strategy appropriate to the aims of the research?	Was the data collected in a way that addressed the research issue?	Has the relationship between the researcher and participants been adequately considered?	Have ethical issues been taken in to consideration?	Was the data analysis sufficiently rigorous?	Is there a clear statement of findings?	How valuable is the research?
Arvinen-Barrow et al. (2010) (22)	Y	Y	Y	N	Y	Y	Y	Y	Y	Very
Heaney (2006) (23)	Y	Y	Y	Y	Y	Y	N	N	Y	Moderately
Hemmings (2002) (24)	Y	Y	Y	N	Y	Y	N	N	Y	Moderately
Lafferty, Kenyon, Wright (2008) (25)	Y	N	Y	Can't tell	Y	Y	Y	Y	Y	Moderately
Tracey (2008) (26)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Moderately
Jevon, Johnson (2003) (27)	Y	Y	Y	Can't tell	Y	Can't tell	N	Y	Y	Very

Table 5

Characteristics of included studies

Study characteristics	Participant characteristics	Intervention & setting	Outcome data/ results
Arvinen-Barrow (2010) (22) Qualitative semi structured interviews using interpretative phenomenological analysis. Aim of study was to investigate the views of physiotherapists using psychological interventions during rehabilitation of injured individuals	7 full time Chartered physiotherapists working in sport medicine. (4 females, 3 males).	Sport/clinic setting. Semi structured interview questions investigating physiotherapists' experiences using psychological techniques in rehabilitation, process of psychological rehabilitation of the injured athlete.	Goal setting, imagery and positive-self talk were the most common psychological interventions used in this study. However goal setting was only physiotherapist-mandated and not athlete focused or psychologically focused. Lack of formal training was highlighted as a barrier to physiotherapists fully understanding psychological interventions.
Heaney (2006) (23) Mixed methods questionnaires using the physiotherapist and sport psychology questionnaire (PSPQ). The participants then underwent semi structured interviews based on the questionnaire. Aim of study was to investigate perceptions of physiotherapists using psychology in professional soccer.	39 head physiotherapists working in sport (2 females, 37 males).	Sport/clinic setting. Semi structured interview questions investigating the psychology content of physiotherapy practice, sport psychology referrals and delivery of sports psychology.	Stress and anxiety were the most common psychological symptoms reported amongst injured athletes. Goal setting, positive self-talk and ensuring variety in the rehabilitation programme were the most common psychological techniques used by physiotherapists. Realistic goal setting was highlighted as one of the most important skills respondents believed physiotherapists should learn.
Hemmings, Povey (2002) (24) Quantitative survey using the physiotherapist and sports psychology questionnaire (PSPQ). Aim of study was to investigate physiotherapists' views of using psychology as part of their practice.	90 musculoskeletal (MSK) physiotherapists working in a clinical environment. (67 females, 23 males).	Clinic setting, survey investigated psychological responses encountered by physiotherapists, psychological techniques used by physiotherapists, psychological techniques that physiotherapists would like to learn more about.	Stress, anxiety, exercise addiction and depression and were common problems encountered by physiotherapists. Most common intervention techniques used by physiotherapists were goal setting, positive self-talk, and variation in rehabilitation and communication skills. Techniques physiotherapists would like to improve their understanding of were: setting realistic goals and motivation techniques.

551 Table 5 continued

552 Study characteristics	Participant characteristics	Intervention & setting	Outcome data/ results
Lafferty, Kenyon & Wright (2008) (25) Quantitative surveys using the athletic training and sport psychology questionnaire (ATSPQ). Aim of the study was to investigate whether there were any differences in the psychological content of physiotherapy practice between non-club and club based physiotherapists.	87 physiotherapists (42 non club and 45 club contracted).	Sport/clinic setting. Survey investigated psychological techniques used, psychological techniques physiotherapists would like to learn and common psychological symptoms physiotherapists encounter.	Stress and anxiety were common symptoms among both non club and club physiotherapists. Common techniques used by both groups were creating variation in rehabilitation, goal setting, positive self-talk, increasing confidence. Both groups felt that goal setting was the most important psychological intervention to use with patients.
Tracey (2008) (26) Qualitative semi structured interviews using interpretational analyses. Aim of the study was to investigate therapists' views on their roles in the psychological recovery of injured athletes.	18 participants (1 athletic trainer and 17 physical therapists) (12 females, 6 males).	Clinic and sports environment. Semi structured interviews investigating: perceptions of the roles and strategies they use regarding patient recovery, perceptions regarding influences on patient recovery during rehabilitation.	Common symptoms to address were fear of re-injury, reduced confidence. The main psychological techniques that respondents reported focussing on were building a rapport with clients, educating clients appropriately and communicating with clients effectively. The study concluded that providing health professionals with more specific psychological training would enable them to be more effective when rehabilitating clients
Jevon & Johnson (2003) (27) Qualitative semi structured interviews. Aim of the study was to investigate the perceived attitudes of physiotherapists regarding their use of psychological interventions in rehabilitation, their need for further training in this area and their access to appropriate psychologists.	19 physiotherapists working in MSK.	Out patients setting. Semi-structured interviews included questions regarding common psychological responses to injury, factors affecting rehabilitation, role of physiotherapists in the psychological rehabilitation of individuals following injury/surgery	Stress and anxiety were reported to be problems that physiotherapists felt they needed to address during rehabilitation. Common techniques used were goal setting, effective communication and relaxation. Most physiotherapists felt they lacked any theoretical understanding of psychology due to not being provided with this at undergraduate level.

553 Figure 1. PRISMA flow diagram of search strategy

554 (Adapted from Moher D, Liberati A, Tetzlaff J, Douglas, Altman D. Preferred Reporting Items for Systematic
555 Reviews and Meta Analyses: The PRISMA Statement. Physical Therapy 2009;89(9):873-80)

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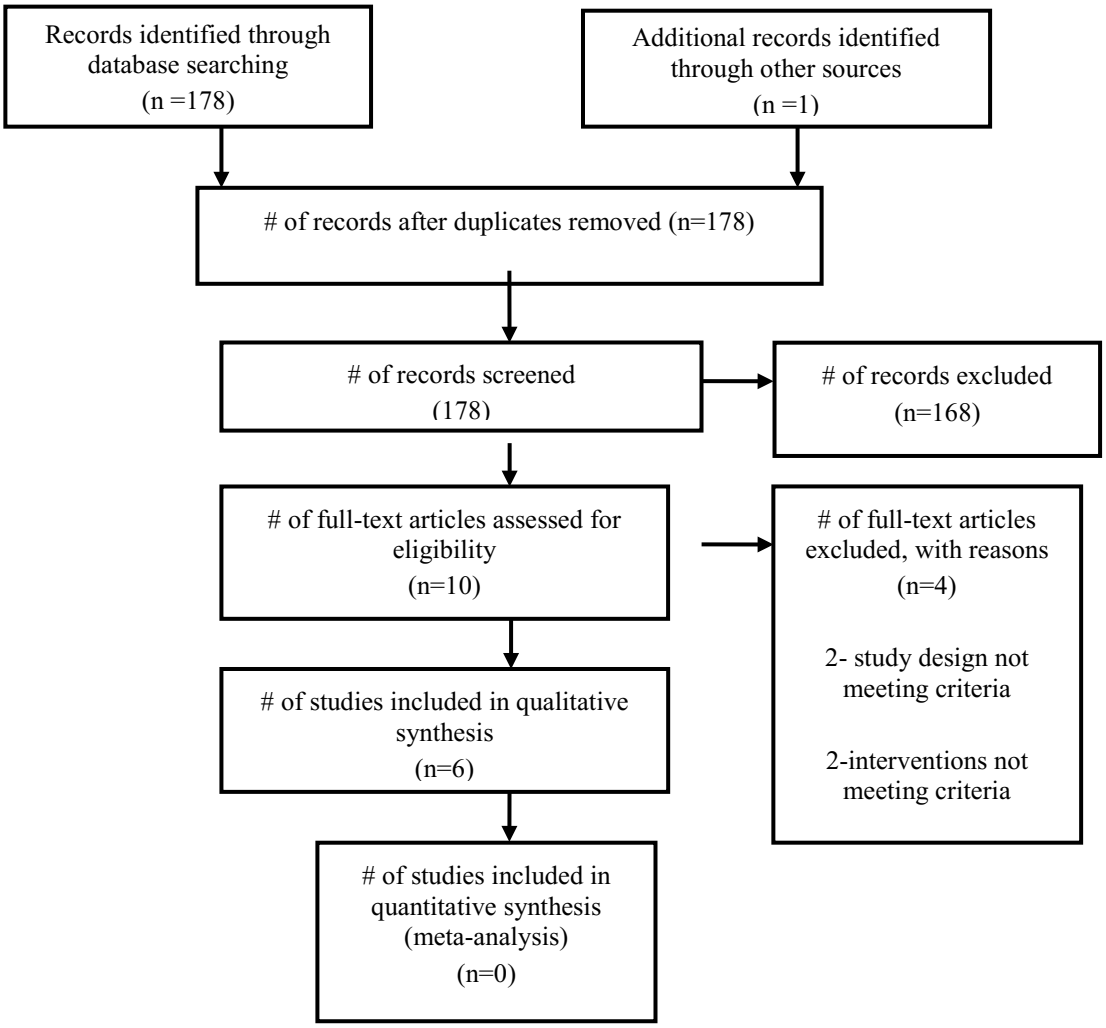

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