

Cognitive-behavioral Interventions in Occupational Therapy for Chronic Upper Limb Pain - A Qualitative Study

Alina Aschbacher^{1*} and Martin Schusser²

Abstract

Aim: Within the framework of the Perezoso research group at the Carinthian University of Applied Sciences, which deals with the interdisciplinary treatment of patients with osteoarthritis, it was necessary to focus on the topic of pain. Therefore, the present research work was conducted. But beyond that, it's also essential for the increasing knowledge and awareness in the field of (chronic) pain especially in occupational therapy but also in other health professions.

Background: In the treatment of chronic pain, occupational therapists use cognitive-behavioral therapy interventions (CBT) among other methods. The aim is to learn new behaviors and to question and change negative interpretations and constructions. Possible effects of CBT in chronic pain can be a reduction of pain, anxiety, disease activity, psychological effects and disability on the one hand and an increase in self-efficacy, pain control and quality of life on the other hand.

Methods: To find out how occupational therapists apply CBT when treating clients with chronic upper limb pain, a systematic literature search was conducted in various databases. Within the framework of a qualitative research approach, five experts were interviewed using semi-structured guided interviews. The transcription was done according to Dresing and Pehl, supplemented by Rädiker and Kuckartz and was analyzed using the deductive-inductive approach by means of qualitative content analysis according to Elo and Kyngäs.

Results: The approach is highly individualized, but aims to incorporate both the biological, social and psychological aspects of chronic pain. Everything from individual or group sessions, inpatient or outpatient stays and different emphases are involved. Pain education, awareness and coping measures are applied.

¹BSc, Occupational Therapist, Carinthia University of Applied Sciences, Primoschgasse 8-10, 9020 Klagenfurt, Austria

²MSc, MEd, PhD, Carinthia University of Applied Sciences, Primoschgasse 8-10, 9020 Klagenfurt, Austria

*Corresponding Author: Alina Aschbacher, BSc, Occupational Therapist, Carinthia University of Applied Sciences, Primoschgasse 8-10, 9020 Klagenfurt, Austria.

Received Date: 11-04-2023

Accepted Date: 11-06-2023

Published Date: 11-25-2023

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Through the orientation to everyday life, a distinction is made between occupational therapy and other professions. The involvement of relatives is sometimes considered useful, but the final decision should be made by the clients.

Discussion and Conclusion: Different pain patterns as well as hardly any current studies, especially in which occupational therapists explicitly apply CBT, only lead to a limited comparability. There is a need for more psychological and interdisciplinary interventions in order to be able to optimally treat clients with persistent pain. An advanced knowledge of pain, conversation management or CBT is considered essential.

Keywords: Chronic pain; Occupational therapy; Cognitive behavioral therapy; Upper extremity/Upper limb; Hand therapy; Orthopedics.

Abbreviations

AEM Avoidance-Endurance Model; CBT Cognitive Behavioral Therapy; FAM Fear-Avoidance Model; IASP International Association for the Study of Pain.

Introduction

In one out of every three households in Europe, a person experiences pain [1]. Worldwide, around 20% of people suffer from chronic pain [2]. The International Association for the Study of Pain (IASP) provides a definition for pain as an unpleasant sensory and emotional experience associated with actual or potential tissue damage [3]. Sensory experience refers to the different perceptions of pain, such as burning, stabbing, drilling or tearing sensations. Furthermore, pain intensity is measured on a scale from 0 (no pain) to 10 (most severe pain). The term "affective experience" denotes the emotional aspects of pain. Thus, it could be described, for example, as tormenting, excruciating, or exhausting [4]. There are various classifications of pain, one of them is based on duration: acute or chronic. Acute pain arises promptly after a damaging event or as part of inflammation [5] and lasts at most three months [6]. It is an important sign of possible or actual injuries [7]. Chronic pain does not have the vital

warning function mentioned earlier and can develop into a separate medical condition [8]. Chronic pain is defined as lasting for a minimum of three months (persistent or recurrent) [6]. Furthermore, pain can be classified into somatic-superficial or somatic-deep, neuropathic and visceral forms [9]. Anyway, these classifications will not be discussed in detail in this research article.

However, it is important to understand how pain is caused. Pain is a component of the sensory system that allows individuals to perceive their surroundings and themselves objectively [4]. It arises in response to mechanical, chemical or thermal external stimuli [10]. The receptors that sense pain is known as nociceptors and are located primarily in the skin but also exist in almost all other tissues [9]. Nociceptors detect stimuli and transmit information to the spinal cord [10]. After the transmission of a pain stimulus through afferent nerve fibers [9] via the spinal cord and eventually into the brain, it is evaluated in the limbic system (emotional center) [11]. The awareness, comparison with

previous experiences and evaluation of the situation take place in the cerebral cortex [10].

The sensation of pain is jointly determined by biological, psychological and social factors alongside the nerve signal generated by the activation of different pain centers in the brain. Consequently, everyone experiences pain differently [4]. The network of diverse brain regions responsible for pain is referred to as the pain matrix [13]. Stronger and more prolonged pain stimuli can increase the sensitivity of the relay neurons in the spinal cord and brain to subsequent stimuli [14]. This results in functional and structural changes, especially in the neuronal networks involved in pain processing. In cases of chronic pain, the brain regions associated with the pain matrix exhibit altered activity. This is the result of neural plasticity due to repeated experiences of pain [13]. A hypersensitivity to pain is the consequence. Although the causes have been eliminated, a heightened sensitivity to pain persists [14].

To better comprehend the complexity of pain generation and maintenance, several models will be presented below. As previously mentioned, factors beyond the injury itself contribute to clients' perception of pain. Therefore, consideration should be given to bio-psycho-social aspects as depicted in the Bio-Psycho-Social Model [15], as well as various areas of life and experience addressed by the Onion-Skin Model [16,17]. Additionally, pain intensity is influenced by the interplay between a client's life and pain history, as highlighted by the Mature Organism Model [18,19]. The Fear-Avoidance Model (FAM) demonstrates how individuals with pain can become trapped in a cycle of

pain catastrophizing and avoidance behavior [24,21]. The 2016 revised FAM, based on new scientific evidence, indicates that fear-related protective behaviors are inhibited when the value of another life goal exceeds the value of pain. Negative affect and perceptions of harm can enhance engagement in pain control, while positive affect and optimism can promote the priority of valued life goals [22]. In this context, it is important to note that endurance-related pain reactions occur just as frequently, if not more often, than fear avoidance [23]. Therefore, the Avoidance-Endurance Model (AEM) proposed by Hasenbring suggests that excessive endurance reactions in spite of pain are responsible for the increase and perpetuation of pain and disability [24]. Furthermore, in 1994, Hasenbring and her research team discovered that communicating with good friends or family members is very important for those suffering from pain to prevent it from becoming chronic. Nonverbal expressions (such as facial expressions, gestures and posture) also pose a risk factor for the development of chronic pain [25]. On average, it takes two and a half years from the onset of symptoms to receive a diagnosis of chronic pain. Almost a third of people consult five doctors during this process. Nonetheless, around 40% of patients remain dissatisfied with their treatment [26]. Consequently, those affected constantly seek new therapies and are often misunderstood by people around them. This can lead to a significantly reduced quality of life, depression and ultimately result in a completely social isolation [26]. According to Elliott and colleagues, the prevalence of major depressive disorder in people with chronic

pain is 52% [27]. Another study found out that 45% of those concerned also experience anxiety disorders [29]. Catastrophic thoughts, impairments and de-creased vitality and general health were found by a research group from the Netherlands. It is interesting to note that social competence, vitality, mental health and overall health status are significantly associated with catastrophizing pain [30]. A significantly diminished quality of life compared to the general population was also observed in a study by Hadi and colleagues in 2019. The participants reported impairment in physical function, relationships, family, work and social life as well as sleep and mood disturbances [31]. A study, conducted on adolescents and their families, revealed impacts on psychological

aspects, physical health (including increased occurrences of other somatic complaints) and functional status. Above all, restrictions in daily activities and leisure time were mentioned. Additionally, effects were observed on family life. Mothers concluded that there are social impairments and it is difficult for the family to cope with the stress caused by pain [32]. In a large-scale international study conducted by Breivik and his research team across 15 European countries and Israel, the effects of chronic pain on daily activities were identified. These are presented in Figure 1. The graph depicts the percentage of respondents who reported difficulty or inability to perform tasks read out by the interviewers. The study surveyed a total of 4839 individuals [33-35].

Correlation between chronic pain and daily activities

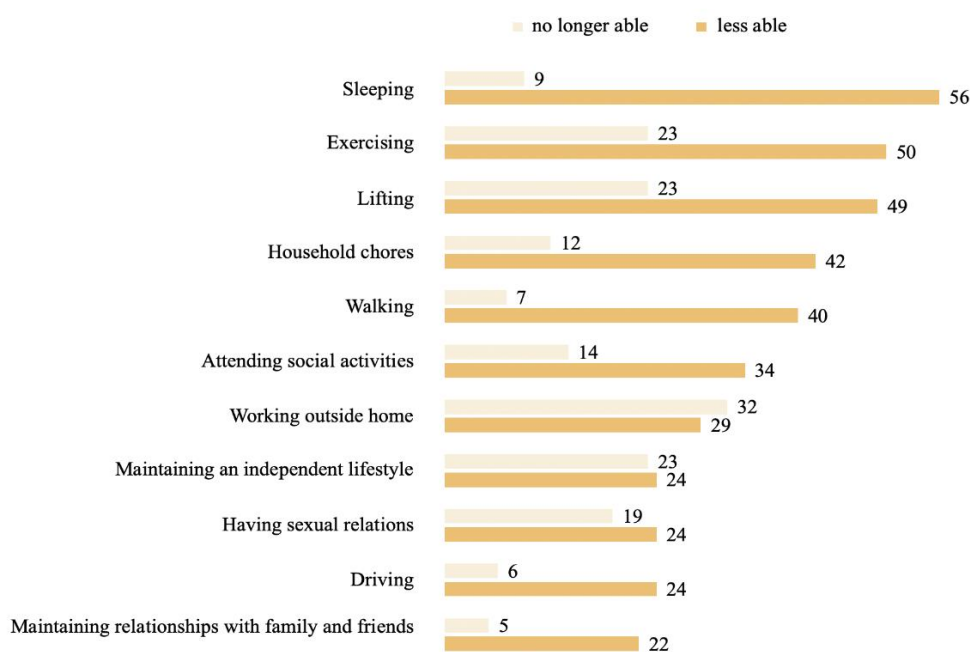


Figure 1: Correlation between chronic pain and daily activities based on Breivik et al. (Author, 2023).

The described effects of chronic pain make it even more important to begin with an optimal therapy program as early as possible. The IASP recommends the inclusion of occupational therapists in multidisciplinary health teams as part of pain programs [3]. The aim of occupational therapy is to empower individuals to perform meaningful activities in the areas of self-care, productivity and leisure within their environment [34]. Occupational therapists use a variety of psychological approaches when treating this condition.

The most commonly used approach is CBT [35]. Numerous psychological factors, including the beliefs, cognitions and emotions of clients with pain, alter the pain experience and may impact treatment outcomes [36]. In order to enable an active and self-determined lifestyle despite persistent pain, occupational therapists collaborate with their clients to identify, discuss and address contributing factors, levels of stress and resilience in the personal context of affected individuals.

The focus is on aspects of perception, movement, cognition, as well as mental abilities and daily activities that restrict the ability of those affected [37]. Individuals with chronic pain should identify their behavioral patterns in dealing with stress and pain and make gradual changes to prevent them from exacerbating pain. The aim is to facilitate a more active and fulfilling life [38].

Thus, the focus is on regaining control over pain through active coping strategies

employing cognitive approaches to behavior modification [39]. Consequently, the intention of occupational therapists is to make life enjoyable despite pain and allow for everyday activities and active participation [37]. It should be added, consideration to psychological and psychosocial factors that interact with a person's pain is crucial.

This consideration can help to moderate the experience and severity of pain and maximize the benefit of all treatments [20]. It follows that when treating clients with chronic pain, occupational therapists rely on psychological approaches among other methods.

As previously mentioned, the most commonly used approach is CBT. However, there is a limited amount of evidence available regarding the use of CBT and its effectiveness specifically in occupational therapy for chronic pain [35]. CBT is a psychotherapeutic approach that integrates cognitive and behavioral therapy [42]. It is frequently employed as an additional intervention for patients or clients suffering from chronic pain, in conjunction with medical treatment [38].

Furthermore, it is also applied in treating comorbid disorders [39], as well as depression, anxiety, obsessive-compulsive disorders and addiction [42]. The following figure demonstrates the evidence of CBT for chronic upper limb pain. The studies were selected using the methodology outlined in the methods section.

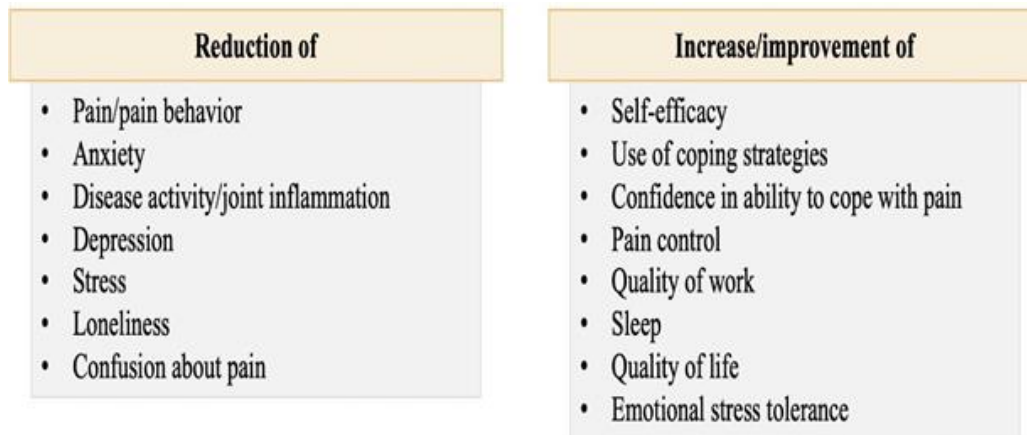


Figure 2: Overview of the effects of CBT based on Bradley, et al., 1987; Kalmanti, et al., 2022; O'Leary, et al., 1988; Parker, et al., 1988; Richardson, et al., 1994; van Huet, et al., 2013; Zahid, et al., 2023 (Author, 2023).

Methods

The aim of this research work is to demonstrate the use of CBT in occupational therapy in upper extremity rehabilitation and to raise awareness of this topic. Additionally, it shows how these interventions can be integrated into the occupational therapy process. Therefore, occupational therapists but also other professionals should benefit of this research work. Ultimately, it is the author's intention that individuals experiencing (persistent) pain will benefit from this work. The following research question formed the focus of the study.

How do occupational therapists approach the implementation of cognitive-behavioral interventions for clients suffering from chronic upper limb pain?

To answer the research question, a systematic literature review was carried out to investigate the evidence of using CBT for chronic pain in the upper limb and to outline

the procedure. In the course of the empirical research process, semi-structured guided interviews were conducted with five occupational therapists.

Literature research

Between February and March 2023, various databases were searched for suitable literature sources to address the topic and answer the research question. Firstly, a systematic literature review was conducted on the databases PubMed, OT-Seeker, APA PsycINFO and Google Scholar.

Additionally, scientific literature was searched for in the Cochrane Library and on EBSCO host (CINAHL Plus with Full Text, PSYINDEX). Additionally, to broaden understanding and locate appropriate examples, academic literature and diverse online sources have been consulted. In order to conduct a targeted literature review, a list of keywords (Table 1) was previously formulated.

Main terms	Variations
Cognitive behavioural therapy	Cognitive behavioural therapy, CBT
Chronic pain	Long term pain, persistent pain
Occupational therapy	Occupational therapist, OT
Hand therapy	Upper extremity rehabilitation
Upper extremity	Upper limb

Table 1: Keywords (Author, 2023).

The terms shown in Table 1 were linked together using Boolean operators, and truncations were employed to search for word

stems and all their accompanying words. The following inclusion and exclusion criteria were considered in the search (Table 2).

Inclusion criteria	Exclusion criteria
Relation to occupational therapy	Disease patterns in other disciplines
Chronic pain	Chronic pain not related to the upper limb
CBT	Occupational therapists definitely excluded as users of CBT interventions
Disease patterns of upper extremity in the field of orthopedics and/or hand therapy	Only use of biofeedback training
Studies in which the upper limb was at least a component	Systematic reviews
Use of CBT by different health professionals including occupational therapists or occupational therapists as sole practitioners	Publications in languages beyond German and English
Studies in English and German	

Table 2: Inclusion and exclusion criteria (Author, 2023).

After reviewing the titles, abstracts, relevance to the research question and removing duplicates through a full-text search, the studies were reduced from a total of 572 to eight publications that were used to explain the evidence and procedures through CBT in the context of occupational therapy.

Empirical

In order to conduct the expert interviews, it was necessary to create an interview guideline beforehand. Subsequently, five experts were contacted and the interviews were conducted, transcribed and analyzed using MAXQDA. The individual steps will now be explained in more detail.

Creating a guided interview

To answer the research question, a qualitative, semi-structured expert interview was conducted in the empirical part. The guide was developed according to the SPSS principle by Helfferich [42], incorporating existing literature and research gaps highlighted in the preceding literature review.

Recruiting the experts

After creating the interview guideline, five occupational therapists from Austria were recruited. Recruitment was done using the

snowball sampling method, where individual experts were selected and their contacts were used to find further interviewees [40]. In this study, the author already knew some therapists beforehand and they assisted in contacting additional potential participants. The experts were subsequently contacted via email using an informational letter.

To qualify for participation, individuals were required to work in the field of orthopedics, either in hand therapy or the rehabilitation of the upper limbs, with a minimum of three years of professional experience in this area. All interviews were conducted on-site. It is necessary to say that no ethics application was submitted beforehand as no sensitive client data was used, nor were any interventions carried out.

Transcription

The recordings were transcribed into written German before analysis, as the primary focus of the expert interviews was content rather than non- and paraverbal elements [45].

The complete transcription was carried out according to the guidelines by Dresing and Pehl [46] and supplement-ed by Rädiker and Kuckartz [47]. Therefore, the entire recording was transcribed.

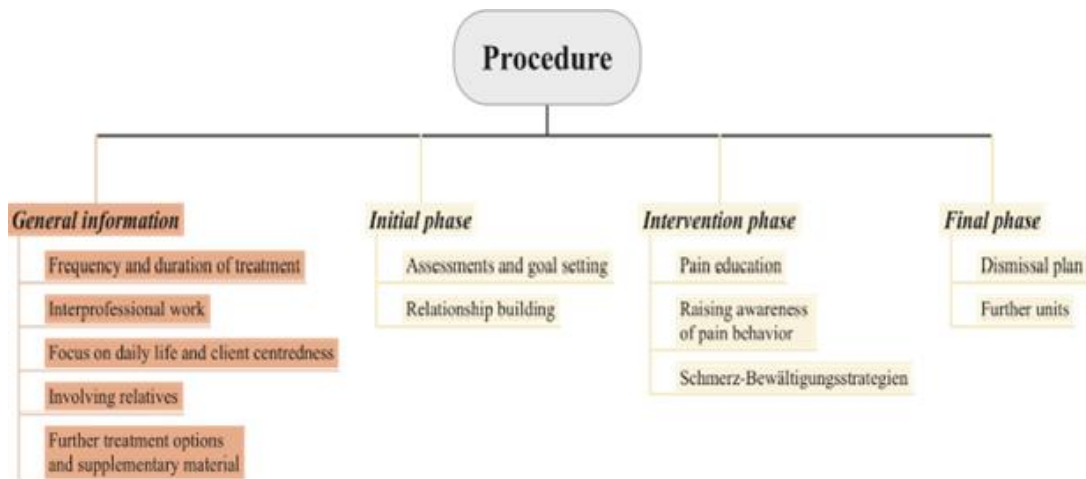


Figure 3: Categories of the procedure (Author, 2023).

Content analysis according to Elo and Kyngäs

The qualitative content analysis method developed by Elo and Kyngäs was used in this research project [53]. A deductive-inductive approach was used, where a structure was predetermined based on theoretical knowledge to guide the research process. The inductive expansion refined or expanded the categorization system [28].

The data were coded according to main, generic and sub categories. Throughout the research process, the category system was repeatedly re-revised, resulting in a total of 278 codings. As the research question pertains to the application of CBT in occupational therapy for chronic pain in the upper limb, this aspect of the paper will be highlighted through the following mind map.

The division into initial, intervention and final phases is based on Zahid et al., who in turn drew from Murphy and her research team [20-52].

Results

To answer the research question, eight studies with nine to 109 participants each and published between 1987 and 2023 were reviewed. Of those, three studies focused on rheumatoid arthritis [48, 49, 55], three studied chronic pain with at least some involvement of the upper extremity [50-52] and one surveyed therapist [35]. Additionally, an article was included to support and expand upon the findings, which contained statements from an occupational therapist and a physiotherapist regarding modern approaches to physiotherapy and occupational therapy [54]. All experts in this study were female.

They work as employees and freelancers or solely as free-lancers and have a minimum of five and a maximum of 23 years of experience in the relevant field. Additionally they mentioned chronic pain conditions such as complex regional pain syndromes [E1,E2,E4,E5], chronic unexplained pain [E1,E3] and chronic hand pain due to in-

stabilities after radius fracture [E1,E5] or other hand injuries [E1], such as scaphoid fractures [E5]. Furthermore, pain was mentioned in the case of a Frozen Shoulder [E2] or after a carpal tunnel operation [E5], as well as neuropathic pain [E1, E4] and pain after prolonged inactivity, especially of

the fingers [E2]. Repetitive Strain Injuries [E4] frequently progress into chronic pain syndromes, just like injuries of the triangular fibrocartilage complex [E4]. Another expert considers knowledge of the frequent chronification of neuropathic pain to be significant [E1].

Gender	Setting	Professional experience in years	Abbreviation	Duration of the interview in minutes
Female	Employed and Self-employed (in a ratio of 50:50)	32 as an occupational therapist, 23 of them in hand therapy	E1	36:24:00
Female	Employed and Selfemployed (in a ratio of 75:25)	Twelve as an occupational therapist, five of them in hand therapy	E2	29:55:00
Female	Self-employed	Seven as an occupational therapist, five of them in hand therapy	E3	28:46:00
Female	Self-employed	19 as an occupational therapist, 16 of them in hand therapy	E4	36:05:00
Female	Self-employed	21 as an occupational therapist, six of them in hand therapy	E5	30:09:00

Table 3: Participants (Author, 2023).

General information

In general, it can be said that the frequency and duration of therapy range from once weekly to daily, lasting between 30 minutes and 2 hours. Units are provided either on an inpatient or out-patient basis and as individual or group therapies. Interprofessional collaboration has been described by both experts [E2,E4] and the literature [51,54]. According to two experts, the emphasis on everyday orientation distinguishes occupational therapy from other professions [E1,E3]. The involvement of relatives was considered in the studies [54,55], while it was hardly considered by the experts,

although three out of five deem it important [E1,E4]. However, the final decision regarding involvement should be made by the clients. In addition to CBT, various methods and materials such as documents [E1,E2], [50,48,54], apps on the phone [E2], a telephone buddy system [48], links [E3], mirror therapy [E4,E5] and several others can be used. According to an expert, success is determined by a combination of various treatment interventions [E1].

Initial phase

During the assessment and goal-setting process, objectives are established and various assessments are used. For instance,

the Numeric Rating Scale [E2,E4], [51] and Visual Analog Scale [E1], [55,49,54] are presented as an example for determining pain intensity, which is mentioned by both interviewees and literature. Additionally, everyday performance is evaluated [E1,E3] and measurements of strength, flexibility, fine motor skills and sensitivity are also taken [E1]. One expert adopts the McGill Pain Questionnaire approach to assess the character of pain [E4]. A pain diary is used to demonstrate which activities are going particularly well or have improved. This shifts the focus away from pain towards positive aspects. When someone is more active in their daily life, their pain is implicitly reduced, or they can apply the coping strategies developed [E4]. A brief assessment in the first session seems reasonable to one respondent, with further measurements possible during the process [E3]. Although not addressed in the literature, experts view relationship-building as significant for establishing rapport with clients. Relaxation and hands-on techniques are employed and conversations take place [E1,E4].

Intervention phase Pain education (PE)

According to an expert, pain education involves shifting the focus from achieving pain-free status to altering pain management techniques [E1]. Additionally, the interviewees discuss the Bio-Psycho-Social Model, as well as physiology and anatomy related to pain [E4], pain memory [E2,E4], brain plasticity [E2] and the natural [E4] and harmless nature of pain [E1,E5].

The importance of self-determination in spite of pain is also highlighted [E1,E3]. Pain education represents a process across multiple units [E1,E5] and requires varied terminology [E1,E4,E5].

In the literature, a general overview is provided regarding the disease profile and the implemented measures, as well as the Gate-Control Theory. In addition to explaining the difference between acute and chronic pain [49], the Bio- Psycho Social Model of pain is also discussed [48].



Figure 4: Pain Education based on the five experts; O’Leary et al., 1988; Parker et al., 1988 (Created using Simple Mind by the author, 2023).

Raising awareness of pain behavior

An expert suggests that people should pay more attention to themselves and their bodies [E3]. Another one uses mirroring techniques to help her clients [E5]. Additionally, the experts determine whether fear is causing limitations or if the individual reacts with excessive endurance in spite of pain [E2]. The therapist and client develop a hypothesis about the worst-case scenario and then work to disprove it. Motivational

Interviewing can be used to support the recognition of problematic behavior [E1]. According to the literature, clients are taught to recognize the connection between thoughts, actions and emotions and the potential for changing one modality to influence the others [52]. A study emphasized the importance of demonstrating reasons for changing behavior and reinforcing desired behavior when managing pain. Realistic expectations are considered crucial [51].

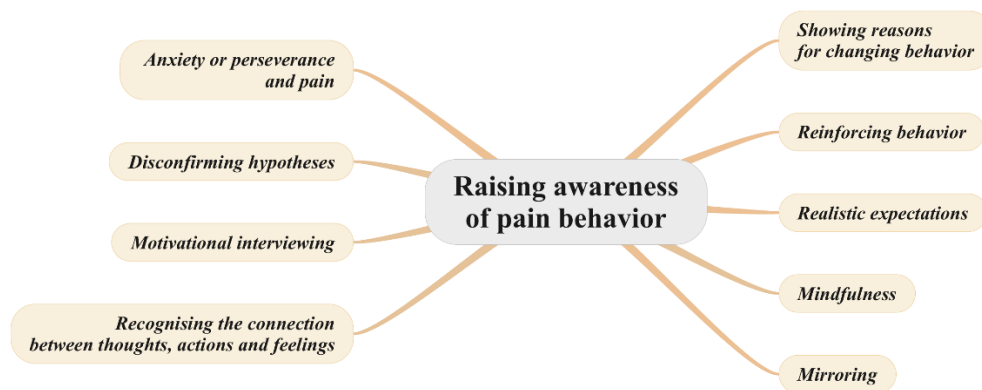


Figure 5: Raising awareness of pain behavior based on the five experts; Richardson et al., 1994; Zahid et al., 2023 (Created using Simple Mind by the author, 2023).

Pain management strategies

Both sides mentioned the use of distraction or attention focusing [E3,E4], [48,49,51], grading and pacing [E1], [51], relaxation techniques [55], as well as active, active-assistive or passive exercise [E5], [49] in relation to pain management strategies. Likewise, the execution of pleasant activities [E1,E3,E4,E5], [48], supplemented by the creation of weekly plans based on the literature [53], were also mentioned. Optimal loading should be evaluated by alternating between activity and rest [E4], splitting tasks into smaller portions

and adjusting speed. Further coping strategies, according to an expert, include verbally acknowledging pain and hands-on techniques [E1]. In a publication, a combination of structure and flexibility was offered for pain management in all group sessions. The objective was to encourage team proactivity through a positive group atmosphere [50]. The application of stretching exercises [51], body boundary perception, stability, support, self- activity promotion and finding a healthy movement pattern was provided [52]. Biofeedback methods can be an optional addition [54]. In

addition, the studies conducted trainings focused on family dynamics [51] and

communication techniques [48] to reduce social stress.



Figure 6: Pain management strategies based on the five experts; Bradley et al., 1987; Kalmanti et al., 2022; O’Leary et al., 1988; Parker et al., 1988; Richardson et al., 1994; Zahid et al., 2023; Zander and Paries, 2016 (Created using Simple Mind by the author, 2023).

Final phase

The experts mentioned an incremental reduction in units [E1], with their availability for queries or referrals to other professionals [E3]. Additionally, patients will be asked if they require further appointments [E1]. Conversely, one expert suggested that clients would prefer to receive therapy indefinitely, but usually, a course of ten therapy units is administered, followed by a therapy break [E3].

Following the inpatient phase, the literature suggests a self-help group program was implemented to maintain treatment success. These groups were held during the clients’ regular appointments [49].

Discussion

Chances and challenges

Clients learn a different meaning of pain through this method, namely that pain is not necessarily synonymous with damage. By applying this method, clients are encouraged to become active again, particularly if they have a fear of movement. Additionally, they experience a sense of control while participating in activities [35].

An expert adds that the brain is highly adaptable and constantly undergoes restructuring. This process enables individuals to manage pain, adjust to living with it and learn how to accept it [E2]. Implementing it into daily life becomes easier

and affected people gain more self-confidence [E5]. Participatory work with clients can be successful, if the focus is on the persons themselves [E4]. Because, if they are empowered to recognize their own reality, they can change their behavior [E4,E5]. E1 identifies an improvement of quality of life as an opportunity, even if the pain does not disappear completely [E1]. Clients are grateful for the patience, listening, encouraging and positive words [E1]. E5 mentioned the relief of pain [E5]. Tools for self-efficacy are conveyed through CBT [E1,E4] while self-esteem is simultaneously increased [E4]. E1 distinguishes between consciously and unconsciously applying knowledge. Therapists' confidence increases when they know they are applying CBT at that moment. This self-assurance and belief in their therapy simultaneously lead to better outcomes. Furthermore, the deliberate implementation of CBT enables precise and confident use of such strategies, subsequently resulting in increased satisfaction among therapists [E1]. A challenge is that clients often seek therapy only after developing chronic pain [E2]. Furthermore, more complex daily activities are difficult to carry out [E1] and direct support in daily life is not feasible [E4].

Low financial resources on the part of the affected are viewed as a significant challenge, particularly in freelance work [E1]. Personal communication is significant [E3] and multiple sessions may be required [E2]. The explanations need to be simplified [E3] and conveyed to the clients in a comprehensible manner [E2]. Ups and downs can persist for months [E2], and both parties need to demonstrate persistence [E5]. Long-term

therapies are often discontinued or interrupted due to capacity constraints [E3] or lack of time resources [E1,E3]. Establishing a rapport with clients can be challenging [E2] as therapists usually do not know what it is like to experience persistent pain [E2,E5]. Therapists must listen to their clients to understand what they should explain them [E4]. It is important for therapists not to provide too many exercises as self-practice programs to be completed at home, as this may cause the affected ones to become even more preoccupied with pain [E3]. Therefore, it is essential to start slowly and monitor the client's reaction. If there is a positive response, the programmed can be gradually increased [E3]. Another expert reported acquiring knowledge about pain and CBT through listening to podcasts or reading papers [E1]. Patient believes that the effort required is small compared to the benefits [E1]. The inclusion of a course on CBT in occupational therapy curriculum [E1], pain management or provision of communication training will become increasingly crucial in the future. This is due to the ageing population on one hand and the increasing incidence of mental health disorders on the other hand. Pain often reflects one's mental state.

This may result in avoiding possible mental illness, but instead, it may be compensated for with pain [E2]. Last but not least, social expectations must not be ignored. The idea that life is pain free creates false hope and expectation and also leads to discontent. The reality is that almost all people experience pain and live with it to a greater or lesser extent [E1].

Interpretation and critical reflection

Regarding the methodological approach, according to Mayring, it is essential to adhere to quality criteria [56]. The description of the procedure by Elo and Kyngäs does not provide specific methods for evaluating the quality of the analysis process. Therefore, the connection to Mayring was established. Intra-coder reliability was assessed, but not intercoder reliability. This may represent a weakness in the research process, although it should be remembered that with an inductive approach, full agreement cannot be assumed [56]. Additionally, it would have been useful to conduct a pilot interview. However, due to limited participation from occupational therapists, this step could not be taken. Otherwise, only the opinions of four experts would have been considered. Reflecting the gender composition of the profession, the sample consisted entirely of female experts. The lack of knowledge regarding the theoretical background of CBT for chronic pain by some experts did not limit the author's ability to conduct the interviews. Participants were encouraged not to delve too deeply into the topic beforehand, in order to elicit authentic opinions, actual possibilities and challenges. Nevertheless, the author believes it is highly important to ensure the safe and evidence-based application of interventions. Knowledge acquisition about pain and CBT was obtained through podcasts and papers rather than formal training or education.

This might be due to the fact that currently only one out of the eight full-time occupational therapy degree programmed in Austria includes a lecture on pain. Seven

universities offer lectures on communication, although not specifically focused on clients with chronic pain.

However, it is possible that this topic may be addressed in some courses rather than in an additional standalone session. Moreover, it is worth noting that there is few evidence-based training programmed in the field of pain management. Completing the Hand Therapist Certificate Programmed involves a module on "painful, restricted hand" [57]. Perhaps, there are more opportunities for professional development in other countries regarding to this topic. Due to variations in chronic pain conditions discussed in different studies, the use of disparate assessments and one including an art-based program, comparability is limited. Moreover, four of the eight publications were released prior to the turn of the Millennium.

As such, there is little current evidence available on this topic. Various methods were not examined in the studies, indicating only a common effect of the respective applied steps. According to one expert, the term CBT itself is too superficial and this approach is already used in occupational therapy. This expert also assumes that that is the reason why the author was unable to find much new literature [E3]. However, it should be added that evidence-based knowledge is certainly not a disadvantage, as confirmed during the interviews. In the studies, some stationary stays are described. Nonetheless, implementing such programmed could be challenging in everyday life. Responsibilities must be assumed in various roles of an individual. One expert considers pain rehabilitation programs focusing on daily life

implementation to be a potential option [E4]. Richardson and colleagues argue that occupational therapists can enhance the positive effects of CBT by conducting booster treatments after the completion of the actual treatment sessions. These refreshment treatments are necessary to promote the long-term efficacy of CBT since there is hardly any effect present after 18 months. To reduce absenteeism and sick days and increase the productivity of employees with rheumatoid arthritis, means and ways must be found to integrate CBT into the workplace [50]. The author takes a different stance and suggests accompanying clients over an extended period by phasing out therapy units, yet. Where appropriate, units could be offered for refresher training. Murphy and colleagues also perceive potential in the application of CBT within occupational therapy. Training occupational therapists to conduct CBT could lead to more individuals receiving this effective treatment, without increasing the time commitment required for treatment [20]. The Bio-Psycho-Social Model was mentioned, but the other models described in the back-ground section were neither cited by the interviewees nor the literature. However, knowledge of both the psychological and physiological processes involved in (chronic) pain should not be overlooked. Nonetheless, avoidance and perseverance behavior were addressed. Therefore, it can be assumed that individuals react differently in different situations. From personal experience, the author notes that avoidance or overactivity may dominate in various situations.

Therefore, it can be assumed that individuals react differently in different situations. This suggests a link between the situation and the resulting reaction. According to two experts, the distinction between occupational therapy and other professions is achieved by establishing a connection to everyday life [E1,E3]. If a therapist is overchallenged, it becomes necessary to refer clients to other professions [E2]. The author of this paper shares this perspective but wishes to provide further specificity. For clients who exhibit significant psychological distress, for instance those whose anxiety is pronounced and severely interferes with everyday life to the extent that it cannot be addressed through occupational therapy, psychiatric professionals should be consulted. Creating awareness of pain behavior is one of the practices implemented in CBT. As reported by an expert, many clients are aware that they perform actions they should not [E3]. However, it should be noted that clients may not recognize better ways of responding, despite being aware that their reactions are suboptimal.

Therefore, it seems useful to raise awareness and compare negative and positive reactions. Furthermore, the author of the paper suggests that acute pain should be addressed as early as possible to prevent chronicity. This is supported by an expert [E4]. Moreover, due to today's performance-driven society, the author believes that taking breaks is often associated with laziness. An appropriate and conscious scheduling of breaks during activities, as described in the results section, is advisable.

In addition, it should be emphasized that this is also necessary during enjoyable activities as they too can be stressful. Reducing activity levels should be done without guilt, as pointed out by an expert [E2]. Incorporating family members appears to be advantageous according to both scholarly literature and the viewpoints of some experts. One expert emphasizes empowerment [E4]. In general, it may be necessary to involve family members. Nonetheless, it is essential to prioritize the clients themselves.

The author suggests not disregarding the possibilities of providing communication techniques or family dynamics training, as described in the literature, if there is sufficient expertise in this area. In general, it can be said that the described CBT are adaptable to pain in other body regions. Finally, it should be noted that the three-phase approach is used for structuring purposes. However, it is not a fixed pattern, as the contents of each phase may overlap or shift.

Significance for research and practice

As pain is a highly complex phenomenon that affects (virtually) all aspects of a person's life, as demonstrated by this study, the author suggests that further research in this field will be necessary in the future. To cover as many perspectives as possible, a diverse range of professions should be involved. The preference for activating rather than passive-interventional measures is favored within the context of interdisciplinary-multimodal pain therapy [40]. Recently, Lyng and colleagues conducted an Evidence and Gap Map, which incorporated 457 studies from the last 20

years. It emerged that there is a need for more psychological and interdisciplinary interventions [57]. In order to optimally provide care for clients with chronic pain, it is necessary to have a deep understanding of pain, communication skills and CBT. The interviewees consider these skills to be essential.

Additionally, pain can affect all specializations. Therefore, it is essential to offer and promote more training by experts to enable evidence-based practice, according to the author.

Conclusion

In summary, it can be said that CBT may support the occupational therapy process. These interventions enable the development of strategies to cope with pain and maintain autonomy in daily life. Occupational therapists take different approaches to implementation, including individual or group sessions, inpatient or outpatient stays and varying areas of emphasis. Interventions for pain education, awareness and management are used. The approach aims to consider both the biological, social and psychological aspects of chronic pain. The integration of daily life activities distinguishes occupational therapy from other professions. The involvement of family members is considered valuable by three experts and two studies but the final decision should be made by the clients. Collaborating with other professions is deemed important. A deliberate application of CBT, encouragement of clients, improvement of quality of life, increasing selfworth and enabling a sense of control present opportunities. Challenges include

acquiring knowledge about pain and CBT from the therapists' side, lack of resources, implementing interventions into daily life, as well as the concept of unrealistic expectations. Additionally, individuals experiencing pain often seek therapeutic assistance only after chronic conditions have set in.

According to an expert, it would be beneficial to implement CBT in the acute stage. Knowledge about the complexity of chronic pain and occupational therapy principles is essential for evidence-based practice.

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