MASTER THESIS

Predictors On The Efficacy Of Multidisciplinary Treatment Of Chronic Pain

The influence of a patient's expectation on the efficacy of multidisciplinary treatment with credibility and individual chronic pain treatment history as mediators

Master thesis: 10 EC

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POSITIEVE PSYCHOLOGIE EN TECHNOLOGIE

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Preface

Before you lies the master thesis "Predictors on the Efficacy of Multidisciplinary Treatment of Chronic Pain: the influence of a patient's expectation on the efficacy of multidisciplinary treatment with credibility and individual chronic pain treatment history as mediators". This thesis is the result of a quantitative research studying the influences on the efficacy of multidisciplinary treatment of chronic pain patients of the "Roessingh Revalidate Centrum" in Enschede, Netherlands from 2013 to 2015. It has been written to fulfill the graduation requirements of the master program "Positieve Psychologie en Technologie" at the University of Twente, Enschede Netherlands. I was researching and writing this thesis from September 2015 to February 2016.

I would like to thank my first supervisor Karlein Schreurs for supporting me in the last six months. Karlein, thank you for your guidance and your ideas. You motivated me to delve into the research topic and to use statistical analyses which I did not think I was capable of using. Also I would like to thank my second supervisor Saskia Kelders for her good ideas and advices during our conversations.

I wish to thank my parents for supporting me my whole life with your love, your advice and your patience. You were always backing me up in all my decisions and also supported my financially so that I could fulfill many of my dreams. Also I would like to thank my big brother who always stood by my side. Blood is thicker than water but still you are not only a sibling but also a good friend to me. Furthermore I would like to thank all my friends from Enschede, my hometown and from all over the world who made my student years an unforgettable time.

Last but not least I would like to thank my boyfriend who supported me in everything I did in the last three years. You have been very patient and supportive especially in the last six months, although I was not always easy to handle. Thank you!

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Abstract: English

Background. Chronic pain is a major public health issue and decreases a person's quality of life in physical, psychological and social life areas. In the last decades a lot of research was done to improve the efficacy of chronic pain treatment but still further research is needed to identify possible influences on the efficacy and to continuously stabilize the treatment efficacy.

Aim. The aim of this study is to explore if the efficacy of multidisciplinary treatment of chronic pain patients is influenced by the patients' expectations with a patient's opinion about treatment credibility and the personal treatment history as mediators.

Method. The data was provided by the Revalidatiecentrum Roessingh in Enschede, Netherlands. 72 chronic pain patients, 26 men and 46 women, participated in the study which all followed the chronic pain multidisciplinary treatment program of the RRC. The patients had to complete a questionnaire, containing the CEQ, the HADS-NL, the MPI-DLV and the PDI, before treatment start and at treatment end which was used for the data analysis. To measure the influences of expectation and the two mediators on the treatment outcome multiple mediation analyses were conducted.

Results. The results showed that a patients' expectation has no direct effect on the treatment efficacy. However credibility and treatment history together are significantly mediating the effect of expectation on the treatment outcome. Furthermore credibility alone is also significantly mediating this effect whereas treatment history as only mediator has no mediation effect.

Conclusion. Evidence was found that treatment outcome is indeed influenced by a person's expectation when a patient's opinion about treatment credibility and the personal treatment history are functioning as mediators. Thus, considering a person's expectation, credibility and personal treatment history as influential factors on treatment efficacy might be useful for future studies and in the field.

Abstract: Dutch

Aanleiding. Chronische pijn is een groot probleem voor de maatschappij. Ook leiden de symptomen tot een vermindering van de levenskwaliteit in fysieke, psychische en sociale gebieden van het leven van de eraan lijdende persoon. In het verleden tijd zijn er al vele onderzoeken gedaan om de effectiviteit van chronische pijn behandelingen te vergroten. Echter is er nog meer onderzoek nodig om mogelijke factoren van invloed te identificeren en om de effectiviteit van de behandelingen te stabiliseren.

Doel. In dit onderzoek is onderzocht in hoeverre de verwachtingen van een chronische pijn patiënt invloed heeft op de effectiviteit van een multidisciplinaire behandeling als deze gemedieerd wordt door de mening van de patiënt over de geloofwaardigheid van de behandeling en eerdere persoonlijke ervaringen met chronische pijn behandelingen.

Methode. 72 proefpersonen, 26 mannen en 46 vrouwen, deden mee aan dit onderzoek. Alle deelnemers waren chronische pijn patiënten die de multidisciplinaire behandeling in het Revalidatiecentrum Roessingh in Enschede, Nederland hebben gevolgd. Metingen werden bij de aanmelding, voor het begin en na afloop van de behandeling middels een online vragenlijst afgenomen. De vragenlijst bevatte de CEQ, de HADS-NL de MPI-NL en de PDI. Om de onderzoekvraag te kunnen beantwoorden wordt een multiple mediatie analyse uitgevoerd.

Resultaten. De resultaten laten zien dat de uitkomst verwachting van een patiënt geen direct effect heeft op de effectiviteit van de behandeling. Uitkomst verwachting heeft alleen een significant effect op de behandeleffectiviteit als deze gemedieerd wordt door geloofwaardigheid en eerdere persoonlijke ervaringen met chronische pijn behandelingen. Verder beïnvloed de mediator geloofwaardigheid ook alleen het effect van de uitkomstverwachting op de effectiviteit van de behandeling. Eerdere persoonlijke ervaringen met chronische pijn behandelingen hebben alleen geen mediatie effect.

Conclusie. Dit onderzoek laat zien dat de uitkomst verwachting van een patiënt invloed heeft op de effectiviteit van een multidisciplinaire behandeling van chronische pijn als deze gemedieerd wordt door de mening van de patiënt over de geloofwaardigheid van de behandeling en eerdere persoonlijke ervaringen met chronische pijn behandelingen. Het blijkt dus belangrijk te zijn om met deze aspecten in de toekomst rekening te houden om de effectiviteit van een chronische pijn behandeling te verbeteren en beter te kunnen controleren.

1. Introduction

Experiencing pain is an everyday life matter. Under normal circumstances pain has a protective function (Gebhart, 2000). For example if we touch a hot pan we suffer from pain. Protectively we pull our hand away from the pan, to avoid a more intense burn and the pain is going away after a while. But what if the pain does not go away, has no protective function and lasts for a really long time? Under these conditions pain can be named chronic (Gebhart, 2000). Researchers define chronic pain differently but overall pain is described as chronic if it lasts longer than three to six months and appears with a diversity of symptoms which decrease a person's quality of life. Common symptoms are sleep problems, tiredness, mood disturbance, other psychological issues and problems in a person's social and working life (Breivik, Eisenberg & O`Brien, 2013; Dawn, 2009; Lazkani, Delespierre, Bauducceau, Pasquier, Bertin, Berrut, Corruble, Doucet, Falissard, Forette, Hannon, Benattar-Zibi , Piedvache & Bequemont, 2015; Scascighini, Toma, Dober- Spielmann & Sprott, 2008). According to Gatchel and Epker (1999) earlier experience with strong pain, reinforcement of pain behavior through the social environment, insufficient pain coping strategies, female gender, dissatisfaction at work and depression are factors which increase the chance of evolving chronic pain. Moreover earlier experience, pain reinforcement or insufficient coping strategies are not only predisposing factors but can also maintain chronic pain. Thus the predisposition and the maintenance of chronic pain are influenced by physical, psychological and social factors (Flor & Turk, 2011; Gatchel & Epker, 1999; Lazkani, et al, 2015). Next to negative influence on the life quality of the affected persons, chronic pain is also a major public health issue. At the moment it is one of the most common reasons for medical consultations, medication use, hospital admissions and other healthcare services. The costs for treating chronic pain exceeded the healthcare costs of diabetes and cancer treatment in 2014. At the moment there is no indication that treatment costs and chronic pain diagnoses will decrease in the future which clearly will bring more financial and health problems for the society (Lazkani et al., 2015). Summarized it is obvious that improvement in the field of chronic pain treatment is already needed in the present and in the future.

To add to this improvement the aim of this study is to identify possible predictable factors which might influence the efficacy of chronic pain treatment. Certainly there are many possible predictors but in this study the focus will lie on a person's outcome expectation, the treatment credibility and the personal treatment history as possible influential factors. These factors were chosen based on the provided data used for this study and study-based literature research on previous studies.

In the last decades a lot of research was conducted about the efficacy of different chronic pain treatment models which all evolved during three different waves of behavior therapy (Hayes, 2004; Hayes, Luoma, Bond, Masuda & Lillies, 2006; McCracken & Morley, 2014). In the first wave chronic pain treatment had its focus on direct behavior change whereas in the second wave the cognitions of a person became more important. Cognitive-behavior therapy was mostly used. In the third and current wave the enhancement of psychological flexibility is the focal point (Hayes, 2004; McCracken & Morley, 2014). Each model out of the three different therapy waves can name treatment successes and outcomes of interest. Nevertheless every therapy has important limitations and no model was fully successful so far (Buhrmann, Skoglund, Husell, Bergströ, Gordh, Hursti, Bendelin, Furmark & Andersson, 2013; McCracken & Morley, 2014; McCracken & Volwes, 2014; Scascighini et al., 2008). This is no surprise considering that chronic pain is influenced by physical, psychological and social factors. Therefore it became common to use multidisciplinary treatment, thus a combination of different models, to treat chronic pain. (Hayes, 2004; Kempke, Luyten, Van Wambeke, Coppens & Morlin, 2013; Scascighini et al., 2008; Trompetter, 2014). In multidisciplinary treatment experts from different fields of expertise such as psychologists, social workers, physicians and physiotherapists are working together to improve the functioning of the chronic pain patient in physical, psychological and social life areas. To do so strategies such as 'graded exposure' (*cognitive*), 'graded activity' (*behavior*), 'pacing' (*behavior*) and 'committed action' (*psychological flexibility*) are used (Kempke et al., 2013; Scascighini et al., 2008; Schreurs, 2013; Trompetter, 2014). Scascighini and colleagues (2008) conducted a meta- analysis of 70 different multidisciplinary chronic pain treatments. Results showed that multidisciplinary treatment is more efficient than medical treatment or other monodisciplinary treatment. However the treatment efficacy was unstable between different treatments and individuals. Thus these authors pointed out the urgent need for further research to understand the mechanisms of efficacy and to identify possible influential factors . For example in most of the reviewed studies hardly any information about possible influences of patients' characteristics on the differential effects was given (Scascighini et al., 2008). The lack of information about the influence of individual characteristics on treatment efficacy became obvious and aroused interest for this study.

Concerning this issue only two useful articles were found during the literature research for this study, using different scientific data bases like 'Scopus', 'ScienceDirect', 'UL'- and 'ITC catalogues' and 'PsycINFO', and search keywords like 'personality influences (on research outcomes)', 'Personality (personal characteristics) as an outcome predictor', 'efficacy of

chronic pain treatment', ' influences on (treatment) efficacy' or 'individual characteristics (by chronic pain treatment)'.

In the first found article Kempke and colleagues (2013) studied if self-critical perfectionism predicts the outcome of multidisciplinary treatment of chronic pain. The results showed that self-critical patients need more time to develop a positive therapeutic alliance but furthermore no significant effects on the treatment outcome were found. Interestingly Kempke et al. (2013) also pointed out the lack of information concerning the influence of other personality factors on the success of chronic pain treatment. Personality as research topic for this study was taken into consideration. Unfortunately the data which was used for this study did not contain the measurement of personality factors.

In the second article Constantino and colleagues (2011) argued that a patient's expectation about the treatment outcome has long been considered as an influence factor on the treatment efficacy. These authors carried out a meta-analysis of 46 studies and found a small but significant effect which suggests that a higher expectation about the treatment outcome can be associated with greater posttreatment symptom reduction. Still these findings were inconsistent and therefore the need for further research was underlined. Also the review included different treatments for different psychological problems and not only chronic pain. Nevertheless this article gives a promising direction showing that expectation seems to have some effect on treatment efficacy. Constantino and colleagues (2011) referred to other interesting literature trying to answer the question why higher expectation can be associated with symptom reduction. For instance Frank (1973) argued in his book that increasing the patient's hope and positive expectation are two major aspects which influence the therapy outcome and achieve symptom reduction. Meissner and colleagues (2011) shared this opinion and argued that expectation, for that reason, is often used as a 'manipulative' variable in studies. In their article these authors gave an overview about different methodological approaches referring to the placebo effect. The placebo effect can be described as a forged treatment or medication which can improve a patient's condition based on the strong expectation the patient developed about the own beneficial outcome. This expectation can be created (and/or manipulated) through verbal, conditioned and observational cues (Meissner, Bingel, Colloca, Wager, Watson & Flaten, 2011). Placebo studies are mostly used for testing the success of medications which showed growing evidence for a significant placebo effect especially on chronic pain (Meissner et al, 2011; Vase, Skyt, Laue Petersen & Price, 2014). Thus a certain expectation about a beneficial outcome of medical treatment already is an influential factor in the field of chronic pain which, of course, is of importance for the current

study because certain expectation might also influence the outcome of psychological treatment. Schulte (2008) already argued that expectation is often used as a 'manipulative' variable by psychological treatments. He researched the influence of patients' outcome expectations and their impression of suitability on treatment outcome. Importantly here, the expectation was not used as a manipulated variable and was only measured with self-report questionnaires. Schulte (2008) found no or only moderately significant effects on symptom reduction. Still, based on the moderate effects, he argued that there is a correlation between a patient's subjective view about therapy suitability, outcome expectation and the subjective therapy outcome achievement. However instead of chronic pain, the author focused on cognitive-behavioral therapy on patients with anxiety and depression disorders. He underlined that his research findings yet cannot be applied to other treatments and disorders (Schulte, 2008). Although all studies had different treatment approaches and focused on different disorders they achieved interesting and partly promising outcomes which gives room for further exploration in the field of chronic pain treatment.

The current study focusses on a patient's expectation as a possible efficacy predictor of multidisciplinary treatment of chronic pain. Similar to Schulte's study the expectation of the patient will not be manipulated. Thus it will be explored if a high expectation can work as a 'natural' placebo-effect and improves the efficacy of the treatment. Expectation is defined as 'the improvement the patient believes he or she will achieve through the treatment' (Devilly & Borkovec, 2000). Concerning the definition of expectation in relation to treatment outcome, there is some debate whether this term should be merged with the term credibility - the opinion about how believable, convincing and logical a treatment is. Some researchers are using both terms as a synonym (Devilly & Borkovec, 2000; Schulte, 2008). However Devilly and Borkovec (2000) who developed the Credibility and Expectancy Scale argued that the term credibility refers to the logical thought about a treatment whereas expectation refers to hope or faith the patient has about the treatment outcome. Based on this explanation both terms will be used separately in this study. However credibility appears to be an important term and it seems logical that a person's opinion about treatment credibility might also influence the expectation about the treatment. For that reason the role of the credibility will be researched in this study as well. Increasing the hope of a patient, as already mentioned above, is another important aspect for symptom reduction because patients who enter therapy are often demoralized (Frank, 1973; Schulte, 2008). For example if people already have tried out many different doctors and treatments but without any or insufficient success they could begin to lose their hope which could decrease the outcome expectation. Consequently outcome

expectation might also be shaped by earlier experiences with medical or psychological treatment (Schulte, 2008). Knowing that multidisciplinary treatment is often used as final treatment if no other therapy was successful so far, it can be assumed that treatment history, in this study, might have a strong influence on the outcome expectation of the patient. Summarized it could be possible that the treatment history and also the credibility are operating as mediators of expectation on the treatment outcome. Considering all aspects and possible influences, this study tries to answer the question:

Is the efficacy of multidisciplinary treatment of chronic pain patients influenced by the patient's expectation, with credibility and personal treatment history as possible mediators?
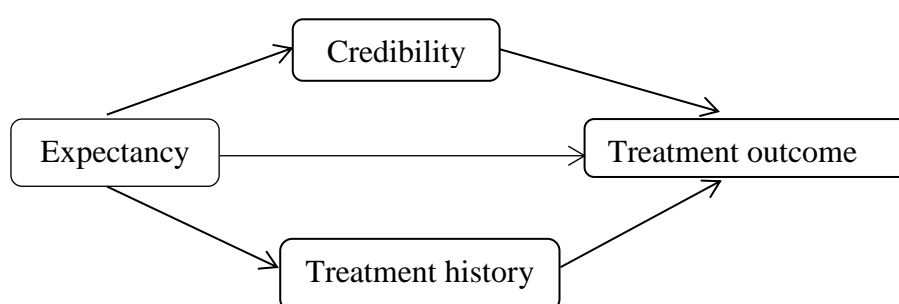

Figure 1. Research question

2. Method

The used data for this study was provided by the Revalidatiecentrum Roessingh (RCR) in Enschede, Netherlands. Since 1982 the RRC has been one of the rehabilitation facilities in the Netherlands which uses multidisciplinary treatment for chronic pain patients. The goals of this treatment in the RRC are to improve a patient's psychological flexibility, to minimize the influence of chronic pain in daily life, to improve a patient's working and social life and to expand the physical condition. A rehabilitation doctor, a psychologist, a social worker, a physiotherapist, an occupational therapist and an activation therapist are involved during the therapy to accomplish these goals (Schreurs, 2012; Roessingh, 2015; Roessingh, n/d).

2.1. Participants & in- / exclusion criteria

72 people, 26 men and 46 women, with an age average of 45 (SD=12.13) ranging from 19 to 77 participated in this study. More detailed information about demographic data of the participants is shown in table 1. All participants were chronic pain patients of the RRC in the timeframe from 2013 to September 2015, following multidisciplinary treatment. The participants of this study had to meet the same inclusion criteria as for the treatment. They had to (1) be older than 18 years, (2) be fully in command of the Dutch language, (3) suffer from

chronic pain, (4) have the potential for change, (5) have the willingness and motivation to behavior change, (6) have a complete medical diagnosis of the complaints and (7) the willingness to stop other current chronic treatments if existing. Exclusion criteria of the treatment program and the study are (1) already successful pain- coping strategies, (2) serious psychopathology, (3) problematic use of alcohol and other drugs, (4) legal or financial advantage through the chronic pain, (5) acute stressors and (6) insufficient financial means to afford the treatment (Schreurs, 2012; Roessingh, 2015). Additionally for this study all participants had to consent to the use of their data for research and had to entirely fill in the questionnaires at treatment start and treatment end.

Table 1. Demographic data

	N	Percentage
Gender		
male	26	36
female	46	64
Country of Birth	71	99
Netherlands		
Other	1	1
Life situation		
Single	11	15
Married/in a relationship	58	81
Living with parents	2	3
Other	1	1
Education		
Primary education (basisonderwijs)	4	6
Low education (lagere beroepsonderwijs)	15	21
Secondary education (middelbaar beroepsonderwijs)	32	44
Higher secondary school education (HAVO)	6	8
First year university (propedeuse HBO/WWO)	3	4
University	11	15
PhD student	1	1

2.2. Procedure

Patients were sent to the RRC by their general practitioner but also by hospitals, psychologists, physiotherapists and other medical specialists. During the admission people had to complete a digital questionnaire concerning demographic data, current life situation, past experiences and general measurement instruments which verified the suitability for the treatment program. At this point they also consented to the use their data for further research. If a person met the inclusion criteria he or she was admitted to the program. During the

treatment program the participants followed an individual or a group multidisciplinary treatment program over a period of 8 -20 weeks. At treatment start and end the participants again had to complete the same digital questionnaire which was already used during the admission.

An estimated drop-out percentage of 30 % during the admission and the latency period until treatment start and of 10-20% during the treatment, especially in the first two weeks was assumed (Schreurs personal communication, 2015). The true drop-out percentage in this study was higher than the estimated percentage. 49% Dropped out between the treatment admission and the treatment start. 82% Dropped out during the treatment. In part 2.4 and 4 of this study possible reasons and consequences of these high drop-out percentages will be explained.

2.3. Questionnaires

Chronic pain has an impact on psychological, physical and social life areas of the patient. To measure if this impact had changed through the treatment program the Dutch versions of three different questionnaires were used. The Hospital Anxiety and Depression Scale (HADS-NL) measured the psychological state of the patient. The impact of chronic pain on the social life was measured with the Pain Disability Index (PDI). Finally two subscales of the Multidisciplinary Pain Inventory (MPI- DLV) were used to measure the physical situation of the patient but also the impact of chronic pain on daily life in general. To evaluate the patients' expectations and treatment credibility, the Credibility and Expectancy Questionnaire (CEQ) was used. The impact of the treatment history was measured through questions over past experiences. A reliability analysis of all used questionnaires was conducted during the current study based on the three measure moments at the admission, treatment start and treatment end.

2.3.1 Hospital Anxiety and Depression Scale (HADS-NL): Dutch version

The HADS is a self-report questionnaire established by Zigmond and Snaith in 1983 and translated into Dutch in 1997 (Herrmann, 1996; Johnston, Pollard & Hennessey; 2000; Spinhoven, Ormel, Sloekers, Kempen, Speckens &Van Hermert, 1997). The HADS-NL consists of 14 items whereas 7 items each measure depression and anxiety. The items are scaled on a 4-point Likert scale going from 0 to 3, for example 0= never (*nooit*) to 3= frequently (*vaak*). The reliability of the HADS-NL was rated acceptable with a Cronbach's alpha of 0.89. Also the validity of the HADS-NL was valued as satisfactory (Herrmann, 1996; Johnson et al., 2000; Spinhoven et al., 1997). Based on the reliability analysis of the current

study, the reliability of the HADS-NL was found to be acceptable as well at all three measure moments (α=0.77 to 0.84).

2.3.2 Pain Disability Inventory (PDI): Dutch Version

The PDI established by Pollard in 1984 is a self-report questionnaire which consists of 7 items. Each item measures the impact of pain in 7 social life areas: (1) family/ home responsibilities, (2) recreation, (3) social activity, (4) occupation, (5) sexual behavior, (6) self-care and (7) life-support activity. All items are scaled on an 11-point Likert Scale going from 0 = no disability *(geen beperking)* to 10 = worst disability *(volledig beperkt).* Former research about psychometric properties of the PDI rated the reliability as good with a Cronbach's alpha of 0.86 and the validity as acceptable (Tait, Chibnall & Krause, 1990). The PDI was found highly reliable with Cronbach's alphas of 0.83 to 0.90 in the current study.

2.3.3 Multidimensional Pain Inventory (MPI- DLV): Dutch version

The MPI is a multidimensional self- report questionnaire established by Kerns, Turk and Rudy in 1985 and translated into Dutch by Lousberg and colleagues in 1999 (Bosmans, 2002; Lousberg, Van Breukelen, Groenman, Schmidt, Arntz & Winter, 1999). The whole scale consists of 12 subscales and 61 items. Two of these subscales were used for this study: pain intensity (PS) and pain interference with daily life (PI). PS contains 2 items and measures severity of the pain. For example 'Rate the level of your pain at the present moment' (*Geef aan hoeveel pijn u op dit moment heeft*). The PI consists of 9 items and measures the pain interference with the daily life in general with questions such as 'How much has your pain changed the amount of satisfaction or enjoyment you get from family related activity?' (*In hoeverre heeft uw pijn de mate van tevredenheid of plezier dat u ondervindt door deelname aan gezinsbezigheden veranderd?).* For this study these subscales were combined into one scale, named MPI-DLV in the progress of this study. All items are scaled on a 7-point Likert scale rating from 0 to 6, for example 0 = no change (*geen verandering*) to 6= extreme change (*heel veel verandering*). Lousberg and his colleagues (1999) evaluated the reliability of MPI as acceptable with Cronbach's alpha scores of 0.63 to 0.89. Furthermore they also rated the validity of the MPI- DLV as acceptable (Lousberg et al, 1999; Bosmans, 2002). Based on the reliability analysis of the current study the MPI- DLV was rated highly reliable (α=0.89 to 0.93).

2.3.4 Credibility and Expectancy Questionnaire (CEQ): Dutch version

The CEQ was established by Devilly and Borkovec in 2000 and includes 6 items. 4 items are scaled on a 9-point Likert scale going from 1 to 9, for example from 1= not at all logical (*helemaal niet logisch*) to 9= very logical (*heel logisch*). The other 2 items are rated in percent from 0% to 100% in decadic steps. Credibility and expectancy are measured in 3 items each (Devilly & Borkovec, 2000). The reliability of the CEQ was valued as good with a Cronbach's alpha of 0.86 for the credibility scale, 0.90 for the expectancy scale and 0.85 for the whole questionnaire. The validity was rated from acceptable to inadequate in different studies (Devilly & Borkovec, 2000). Based on the reliability analysis of this study the CEQ was found highly reliable for both subscales with Cronbach's alphas of 0.83 to 0.85 for the credibility subscale and 0.80 to 0.84 for the expectancy scale.

2.3.5 Treatment History

19 Items of the RRC questionnaire were used to give more information about the individual treatment history. One item referred to the amount of doctor visits in the last 12 months ('how many times have you visited a doctor or a specialist because of your current pain in the last 12 months?'*(Hoe vaak heeft u, in de afgelopen 12 maanden, een arts (huisarts of specialist) bezocht vanwege uw huidige pijnklachten?)*) and was rated on a 6-point Likert scale. In the course of this study the variable was named 'doctor visits'. The other 18 items all referred to the field of expertise of the doctor the patient had visited in the last 12 months. To simplify the analysis all 18 items were recoded into a dichotome answer possibility (1= yes and 0= no) and were all computed into one variable which was named 'variety of experts'. 'Doctor visits' and 'variety of experts' both gave important information about a patient's treatment history. Consequently all analyses were executed two times for each treatment history construct. More detailed information about the used variables is demonstrated in appendix 1.

2.4. Data analysis

Data were quantitatively analyzed using SPSS Statistics, version 21. The plan was to conduct the analysis based on the intention-to-treat principle. Unfortunately the drop-out percentage during the treatment was higher than expected. Therefore the data analysis was carried out with completers only. A reliability analysis and a normality test of Kolmogorov- Smirnov for all questionnaires at all measure moments were conducted. However the purpose of the first measure moment at the treatment admission was to test the suitability of the people for the treatment based on the in- and exclusion criteria. Consequently only the two following

measure moments, treatment start (TS) and treatment end (TE) were used for the further data analysis. The normality test showed that all used scales were significantly different ($p < 0.05$) from a normal distribution. Therefore for the following analyses only non-parametric tests were used. The Wilcoxon Signed Ranks Test for two related samples was carried out to measure if there was a significant difference between TS and TE for each questionnaire measuring the treatment outcome. With the Spearman correlation analysis the relations between all variables were examined. For this analysis the scores of the measure moment at treatment start for the variables expectation, credibility and treatment history were used because the patients already form their opinion about expectation and credibility before treatment start. To explore the correlation of expectation and the mediating factors with the treatment outcome, the scores at treatment end for the three outcome measurement instruments were used. To further explore these correlations and to ultimately answer the research question a multiple mediation analysis was elaborated. Therefore a difference score of all three measure instruments (HADS-NL, MPI-DLV, and PDI) was computed by subtracting the scores of TS from the scores of TE. The bootstrapping technique of Preacher and Hayes (2008) was used with a standard bias correct confidence interval of 95%. The confidence interval, from the lower to the upper bound, provides that to 95% the indirect effect, which is also named 'point of estimate', lies within this range in the population (Preacher & Hayes, 2008). The mediation is only significant if 0 does not lie in the 95% confidence interval. Based on the recommendation of Hayes (2009) a resampling size of 5000 was chosen to estimate the direct and indirect effects. Figure 2 displays the used mediation analysis. The difference scores of the HADS-NL, the MPI-DLV and the PDI are the outcome variables, 'credibility' and 'treatment history' are the mediator variables and 'expectation' is the independent variable.
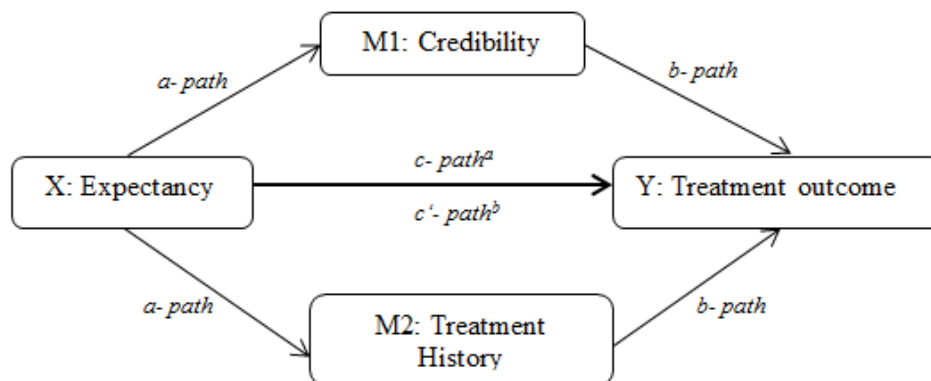
Note [a]. Total effect: no control by mediators

[b]. direct effect: controlled by the mediators

Figure 2. Multiple mediation analysis

3. Results

3.1. Efficacy of the multidisciplinary treatment

As shown in table 2 the results of the Wilcoxon Signed-ranks test, comparing the two measure moments TS and TE, showed a significant difference on the HADS-NL (M_{TS} (SD) = 18.43 (5.69); M_{TE} (SD) = 15.78 (7.09)), the MPI-DLV (M_{TS} (SD) = 45.53 (11.20); M_{TE} (SD) = 39.75 (14.21)) and the PDI (M_{TS} (SD) = 38.94 (11.91); M_{TE} (SD) = 34.94 (15.17) indicating that the participants scored significantly lower on the three measurement instruments at the end of the treatment.

Table 2. Score difference between treatment start and treatment end

	PDI	MPI-DLV	HADS-NL
Standardized Test Statistic Z	-2.488[b]	-4.375[b]	-4.488[b]
p	.013	.000	.000

Note. a. Wilcoxon Signed Ranks Test

b. Based on positive ranks.

3.2. Relationships between all variables

Results of the Spearman non-parametric correlation analysis of all variables are listed in table 3. All correlations of the CEQ, which measured 'expectation' and 'credibility', with the other variables were negative based on the different polarity. For example a high score on the CEQ means a high expectation and credibility whereas a low score on the PDI indicates less impact of chronic pain on the patient's social life. There was a positive significant correlation between all questionnaires, the HADS-NL, the MPI-DLV and the PDI, indicating that all three instruments were measuring the impact of chronic pain on the different life areas of the patient in the same way. 'Expectation' was negative- significantly correlated with the PDI ($r = -0.311$, $p < 0.01$), indicating that a higher score on 'expectation' correlates with a lower score on the PDI. Furthermore there is a positive significant correlation with 'credibility' ($r = 0.409$, $p < 0.01$) showing that a higher score on 'expectation' correlates with a higher score on 'credibility'. 'Credibility' had a significant- negative correlation with the HADS-NL ($r = -0.430$, $p < 0.01$), the MPI-DLV ($r = -0.406$, $p < 0.01$) and the PDI ($r = -0.316$, $p < 0.01$). This indicates that a higher score on 'credibility' correlates with a low score on the outcome measurement instruments. A higher score on 'variety of experts' correlated significantly with

a higher score on 'doctor visits' (r = 0.274, p < 0.05). Also 'variety of experts' correlated positive- significantly with the HADS-NL (r = 0.250, p < 0.01), the MPI-DLV (r = 0.382, p < 0.01), the PDI (r = 0.282, p < 0.05) indicating that a higher score on 'variety of experts' correlates with a lower score on the three instruments. Additionally 'doctor visits' also had a positive- significant correlation with the HADS-NL (r = 0.232, p < 0.05).

Table 3. Bivariate correlation between all variables

	Expectation (TS)	Variety of Experts (TS)	Doctor Visits (TS)	Credibility (TS)	HADS-NL (TE)	MPI-DLV (TE)	PDI (TE)
Expectation	1	-.024	-.131	.409**	-.186	-.168	-.311**
Variety of experts	-.024	1	.274*	-.035	.350**	.382**	.282*
Doctor visits	-.131	.274*	1	-.057	.232*	.210	.180
Credibility	.409**	-.035	-.057	1	-.430**	-.406**	-.316**
HADS-NL	-.186	.350**	.232*	-.430**	1	.769**	.643**
MPI-DLV	-.168	.382**	.210	-.406**	.769**	1	.768**
PDI	-.311**	.282*	.108	-.316**	.643**	.768**	1

**. Correlation is significant at the 0.01 level (2-tailed).

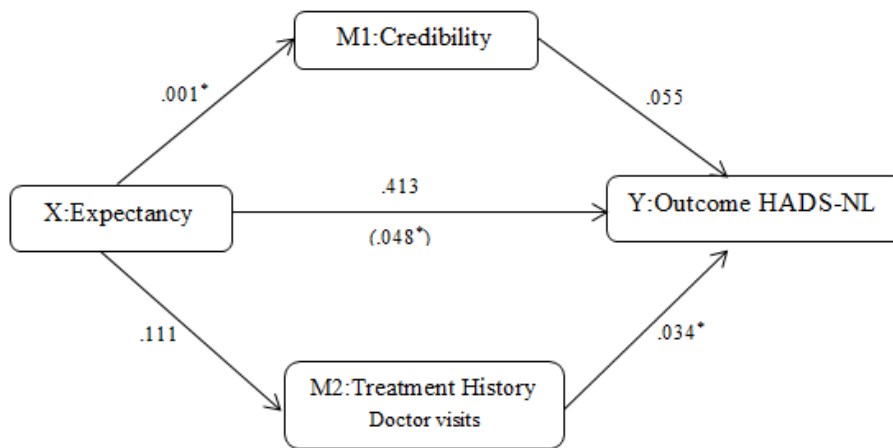*. Correlation is significant at the 0.05 level (2-tailed).

3.3. Mediation analysis

The results of the multiple mediation analyses are demonstrated in the following figures, showing the direct and total effects, and in the tables, demonstrating the indirect effects, the associated bias corrected confidence intervals and the point of estimate. To simplify the demonstration, two different figures were used to show the effects of the two variables measuring the treatment history for each instrument measuring the treatment outcome. The results of the indirect effects are presented in the same table with a clear distinction.

Figure 3 displayed that the coefficients of the a-path from X to M1 (p = 0.001) and of the c-path (p = 0.048) were significant, indicating a direct effect from 'expectancy' to 'credibility' and a total effect , controlled by the mediators from 'expectancy' to 'treatment outcome' measured by the HADS-NL. These coefficients also were significant in figure 4 (a-path: X to M1, p=0.001; c-path: X to Y controlled by M1 and M2, p= 0.048), indicating a direct effect from 'expectancy' to 'credibility' and a total effect, controlled by the mediators from 'expectancy' to 'treatment outcome' measured by the HADS-NL. Furthermore the coefficient of the b-path from M2 to Y was significant (p = 0.034) which displayed a direct effect of 'doctor visits' with 'treatment outcome.
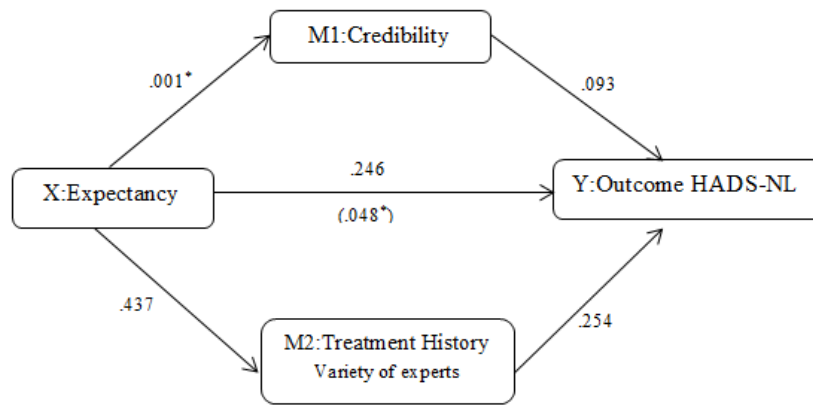
Figure 3. Direct and total effects: HADS-NL with M2: variety of experts

Figure 4. Direct and total effects: HADS-NL with M2: doctor visits

In table 4 the 95% bootstrap confidence intervals indicated significant indirect effects of 'expectation' on 'treatment outcome' mediated by both mediators (*ab* total: 0.0907, 95% CI [0.0191, 0.2336]) and by the mediator credibility alone (*ab* credibility: 0.0802, 95% CI [0.0116, 0.2081]).

Table 4. Indirect effects*: HADS-NL with M2: variety of experts

		Indirect effects (*ab*)		95% CI (BC)	
		Point of Estimate	SE	Lower	Upper
HADS-NL	Total[a]	.0907	.0513	.0191[*]	.2336[*]
	Credibility (M1)	.0802	.0486	.0116[*]	.2082[*]
	Variety of Experts (M2)	.0105	.0178	-.0102	.0650
	M1 vs. M2[b]	.0696	.0522	-.0172	.1895

Note. BC, bias corrected; 5000 bootstrap samples.; [a] indirect effect of all mediators

[b] strength of the effect M1 vs. strength of effect M2

*Correlation is significant at the 0.05 level (2-tailed).

In table 5 the 95% bootstrap confidence intervals also revealed significant indirect effects of 'expectation' on 'treatment outcome' measured with the HADS-NL mediated by the two mediators (*ab* total: 0.1343 [0.0509, 0.2648]) and by the mediator credibility (*ab* credibility: 0.0887 [0.0217, 0.2255]).

Table 5. Indirect effects: HADS-NL with M2: doctor visits

		Indirect effects (ab)		95% CI (BC)	
		Point of Estimate	SE	Lower	Upper
HADS-NL	Total[a]	.1343	.0527	.0509[*]	.2648[*]
	Credibility (M1)	.0887	.0479	.0217[*]	.2255[*]
	Doctor Visits (M2)	.0457	.0355	-.0003	.1493
	M1 vs. M2[b]	.0403	.0659	-.0836	.1820

Note. BC, bias corrected; 5000 bootstrap samples.;

[a] indirect effect of all mediators

[b] strength of the effect M1 vs. strength of effect M2

*Correlation is significant at the 0.05 level (2-tailed).

In figure 5 the coefficients of the a-path form X to M1 (p= 0.001) and of the b-paths from M1 to Y (p = 0.44) and M2 to Y (p = 0.23) were significant, pointing out a direct effect of 'expectation' with 'credibility', 'credibility' with 'doctor visits' and also 'variety of experts' with 'doctor visits'.
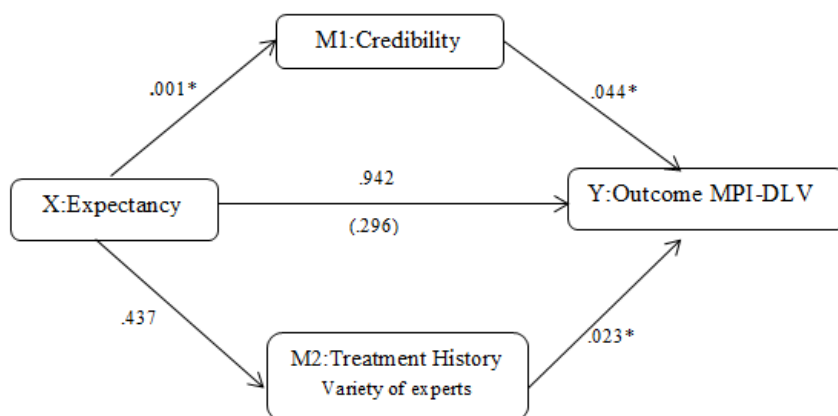
Note. Correlation is significant at the 0.05 level (2-tailed).

Figure 5. Direct and total effects: MPI-DLV with M2: variety of experts

Figure 6 showed that the coefficients of the a – path (X to M1; p = 0.001) and the b-path (M1 to Y; p = 0.026) were significant, displaying a direct effect of 'expectation' on 'credibility' and of 'credibility' on 'treatment outcome'.

Note. * Correlation is significant at the 0.05 level (2-tailed).

Figure 6. Direct and total effects: MPI-DLV with M2: doctor visits

In table 6 the 95% bootstrap confidence intervals indicated significant indirect effects of 'expectation' on 'treatment outcome' mediated by both mediators (*ab* total: 0.2761 [0.0565, 0.5583]) and by 'credibility' (*ab* credibility: 0.2213 [0.0455, 0.5115]).

Table 6. Indirect effects: MPI-DLV with M2: variety of experts

|		Indirect effects (ab)		95% CI (BC)	
		Point of Estimate	SE	Lower	Upper
MPI-DLV	Total[a]	.2761	.1270	.0565[*]	.5583[*]
	Credibility (M1)	.2213	.1171	.0455[*]	.5115[*]
	Variety of Experts (M2)	.0548	.0683	-.0392	.2527
	M1 vs. M2[b]	-.1665	.1435	-.1024	.4599

Note. BC, bias corrected; 5,000 bootstrap samples

[a] indirect effect of all mediators

[b] strength of the effect M1 vs. strength of effect M2
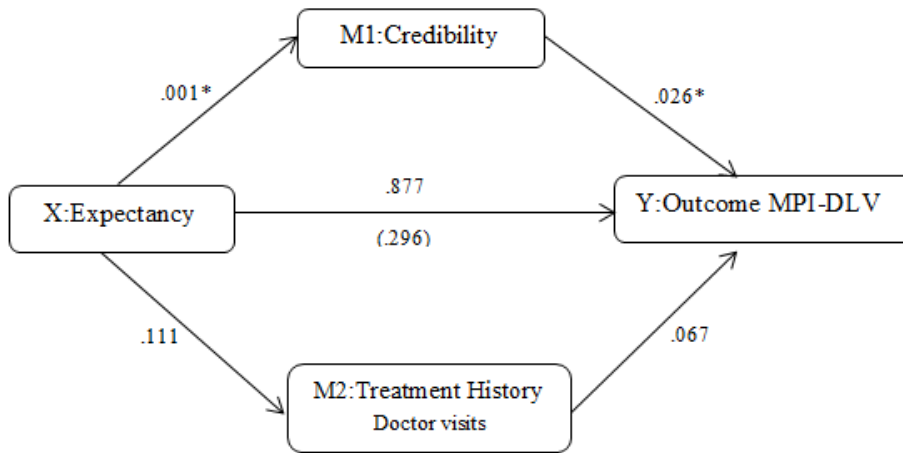
*Correlation is significant at the 0.05 level (2-tailed

Table 7 also displayed significant indirect effects with 95% confidence intervals of 'expectation' on 'treatment outcome' in combination with both mediators (ab total: 0.3387 [0.1028, 0.7144]) and with 'credibility' as only mediator (*ab* credibility: 0.2415 [0.0540, 0.6004]).

Table 7. Indirect effects: MPI-DLV with M2: doctor visits

		Indirect effects (ab)		95% CI (BC)	
		Point of Estimate	SE	Lower	Upper
	Total[a]	.3387	.1503	.1028[*]	.7144[*]
	Credibility (M1)	.2415	.1297	.0540[*]	.6004[*]
MPI-DLV	Doctor visits (M2)	.0972	.0779	-.0061	.3129
	M1 vs. M2[b]	.1443	.1523	-.1152	.4951

Note. BC, bias corrected; 5,000 bootstrap samples

[a] indirect effect of all mediators

[b] strength of the effect M1 vs. strength of effect M2

*Correlation is significant at the 0.05 level (2-tailed).

In figure 7 and 8 the coefficients of the a-paths from X to M1 with M2: variety of experts (p = 0.001) and from X to M1 with M2: doctor visits (p = 0.001) were significant. This indicated direct effect of 'expectancy' on the mediator 'credibility'.
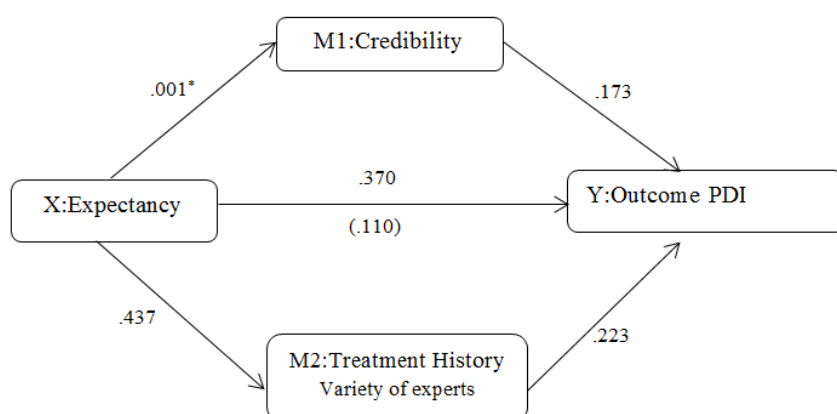
Note. Correlation is significant at the 0.05 level (2-tailed).

Figure 7. Direct and total effects: PDI with M2: variety of experts

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Note. *Correlation is significant at the 0.05 level (2-tailed).

Figure 8. Direct and total effects: PDI with M2: doctor visits

The mediation analyses for the treatment outcome measure instrument PDI showed no significant indirect effects as demonstrated in table 8 and 9.

Table 8. Indirect effects: PDI with M2: variety of experts

|		Indirect effects (ab)		95% CI (BC)	
		Point of Estimate	SE	Lower	Upper
	Total[a]	.2527	.2084	-.0557	.7697
PDI	Credibility (M1)	.2159	.1986	-.0630	.7162
	Variety of Experts (M2)	.0368	.0552	-.0227	.2285
	M1 vs. M2[b]	.1791	.2039	-.1369	.6575

Note. BC, bias corrected;

5,000 bootstrap samples

[a] indirect effect of all mediators
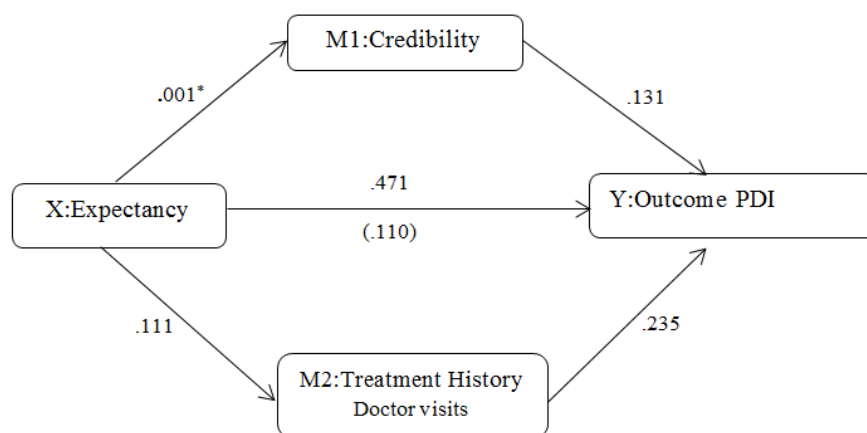
[b] strength of the effect M1 vs. strength of effect M2

Table 9. Indirect effects: PDI with M2: doctor visits

		Indirect effects (ab)		95% CI (BC)	
		Point of Estimate	SE	Lower	Upper
	Total[a]	.3216	.2322	-.0436	.8567
	Credibility (M1)	.2389	.2047	-.0564	.7320
PDI	Doctor Visits (M2)	.0827	.0818	-.0203	.3263
	M1 vs. M2[b]	.1562	.2082	-.1384	.6441

Note. BC, bias corrected; 5,000 bootstrap samples.

[a] indirect effect of all mediators

[b] strength of the effect M1 vs. strength of effect M2

4. Discussion

The results of the study showed that chronic pain has significantly less impact on the participants' psychological, physical and social life areas after the treatment demonstrating that multidisciplinary treatment is an effective way of decreasing chronic pain symptoms. The bivariate correlation analysis revealed that a higher outcome expectation correlates with less impact of chronic pain on the participants' social life after the treatment. Additionally higher outcome credibility correlates with fewer chronic pain symptoms in social, psychical and psychological life areas after the treatment. Surprisingly a greater variety of experts in the participant's treatment history correlates with less impact of chronic pain on all life areas after the treatment. A greater amount of doctor visits in the treatment history only correlates with less impact of chronic pain on the psychological condition of the participant. The results of the mediation analyses showed that expectation has no significant direct effect on treatment efficacy in all life areas of participant. However together credibility and the treatment history

- variety of experts as well as doctor visits- indeed are significantly mediating the effect of the outcome expectation on the treatment efficacy. Furthermore credibility alone also has a significant mediation effect whereas treatment history – variety of experts as well as doctor visits- alone has no mediating effect. All mediation effects are significant in relation to the psychological and physical condition of the chronic pain patient. Concerning the patient's social life there are no mediation effects.

The aim of this study was to explore whether the efficacy of multidisciplinary treatment on chronic pain patients is influenced by outcome expectation with a patient's opinion about treatment credibility and personal treatment history as two possible mediators. Based on the results there is no evidence that expectation is directly influencing the treatment efficacy despite the promising correlation of higher treatment expectation with less impact of chronic pain on the social life of the patient. However there is evidence that credibility in combination with treatment history but also alone is mediating the effect of expectation on the treatment efficacy. This outcome is also underlined by the correlations. Although these mediation effects only count for the treatment efficacy on the psychical and psychological condition of the patient, the research question can still be answered with yes, because expectation does have an influence on the treatment efficacy with credibility and treatment history as mediators.

Comparing the results with the found literature they support the outcome of the meta-analysis of Scascighini and colleagues (2008) who argue that multidisciplinary treatment is an effective way of treating chronic pain. Also the results concur with the opinion of Devilly & Borkovec (2000) that the thought about how logical a treatment is (credibility) is influencing the hoped achievement (expectation). Besides that, Schulte (2008) argued that expectancy and the patient's opinion about the own suitability for the treatment both are influencing treatment outcome and therefore achieve a natural placebo- effect. Schulte (2008) did not find significant evidence to support his opinion. However in the current study there is evidence that the treatment outcome is mediated by a patient's outcome credibility. Meissner and colleagues (2011) also refer to the placebo- effect and used expectation as manipulative variable. In the current study no evidence was found that expectation is directly influencing the treatment efficacy. As a consequence the results of the study of Meissner and colleagues (2011) and of the meta- analysis of Constantino and colleagues (2011) which indicated that higher expectation influences greater posttreatment symptom reduction could not be supported. The found results in the current study concerning the influence of the treatment history did not concur with the expected outcome. As argued in the introduction it was

expected that patients who tried out many different doctors and treatments without any or insufficient success could begin to lose their hope which could decrease the outcome expectation (Frank, 1973; Schulte 2008). Based on the current results treatment history has no effect on the outcome expectation. More surprising, the results reveal that larger variety of experts correlates with less impact of chronic pain on the patient's life. This brings up a new perspective about the influence of the treatment history because a distinct treatment history seems to have a positive, not a negative effect on the treatment outcome. Summarized it can be said that the results of the current study partly concur with the outcome of former researches found during the literature research but on the other hand they also bring up some new approaches.

There are some limitations to this study which should be taken into consideration and may explain some results. The first limitation is the high drop-out percentage which resulted into a small number of participants. Possible reasons are the exclusion from the treatment based on the exclusion- criteria of the RRC, a long waiting list, dissatisfaction during the treatment or incomplete answering of the questionnaires. Additionally some patients of the RRC did not consent to the use of their data for research which prohibited the further use of patient information for the current study. The small sample size decreases the validity, because it is difficult to generalize the results of this study. The second limitation concerns the treatment history. Unfortunately the provided data of the RRC gave limited options to measure the treatment history. In the RRC questionnaire only items concerning the variety of experts and amount of doctor visits were implemented. The amount of doctor visits can spur speculations. It is doubtful if people really remember the amount of own doctor visits within one year. Additionally there were some difficulties during the answer documentation concerning the variety of experts. Based on the subjective point of view and the documentation problems it is questionable, if those constructs are an adequate representation of the personal treatment history.

For future researches it is recommended to implement more items concerning the treatment history in the used questionnaire. This could lead to a better exploration and a more adequate representation of the medical and psychological treatment history of the patient. Furthermore it is recommended to reduce and to get a better control on the drop-out percentage of the participants. For example by improving the digital control of the institute on the questionnaire completion or by making the completion of the questionnaire a more important part of the treatment process for the patients. This could lead to a greater sampling size and therefore also to a better validity of the study.

5. Conclusion

A patient's treatment expectation and opinion about treatment credibility have long been considered as influential factors on the treatment outcome (Frank, 1973; Schulte, 2008; Constantino et al, 2011). The outcome of this study supports this point of view. Treatment expectation indeed is influencing the treatment outcome when the patient's opinion about the treatment credibility is functioning as mediator. Furthermore this study emphasizes treatment history as an influence factor. Together with credibility, treatment history also mediates the effect of a patient's expectation on the treatment outcome. Through the improvement of the limitations these results could be further explored and reestablished. Thus for future researchers it is advised to use a greater size to represent the population and an improved strategy to measure the personal treatment history.

However, despite all limitations this study has brought up significant and promising results for the future and has made it obvious that the individual perception about cure expectations, own experiences and the individual logical understanding are important components which should not be underestimated for a successful treatment of chronic pain.

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7. Appendix

7.1. Appendix 1: Treatment history

Treatment history

		N	Percentage
	1 to 3 times	6	8.3
	3 to 6 times	12	16.7
	6 to 10 times	22	30.6
Doctor visits	10 to 20 times	13	18.1
	20 times and more	19	26.4
	Total	72	100.0
	Gynecologist Surgeon	65	90.3
	Psychologists	57	79.2
	Social worker	22	30.6
	Psychiatrist	13	18.1
	Pain workgroup	22	30.6
	Homoeopathist	25	34.7
	Acupuncturist	27	37.5
	Internist	16	22.2
Variety of experts	Urologist	36	50
	Physiotherapist	3	4.2
	Manual therapist	11	15.3
	Occupational	5	6.9
	therapy	25	34.7
	Orthopedist	15	20.8
	Neurologist	10	13.9
	Anesthetist	4	5.6
	Rheumatologist	25	34.7
	Rehabilitation doctor	3	4.2

7.2. Appendix 2: Questionnaire

7.2.1. Pain Disability Index (PDI): Dutch version

Voor elke vraag moet u het cijfer omcirkelen wat voor de mate van beperking of hinder bij het uitvoeren van deze activiteiten het beste weergeeft. Een score van 0 betekent dat helemaal geen beperkingen of hinder bij het uitvoeren ervaart, en een score van 10 betekent dat het onmogelijke os om de activiteit uit te voeren.

1. Familiaire en huishoudelijke verantwoordelijkheden

0   1   2   3   4   5   6   7   8   9   10   11

Geen beperking   volledig beperkt

2. Recreatie

0   1   2   3   4   5   6   7   8   9   10   11

Geen beperking   volledig beperkt

3. Sociale activiteiten

0   1   2   3   4   5   6   7   8   9   10   11

Geen beperking   volledig beperkt

4. Beroep

0   1   2   3   4   5   6   7   8   9   10   11

Geen beperking   volledig beperkt

5. Seksuele activiteiten

0   1   2   3   4   5   6   7   8   9   10   11

Geen beperking   volledig beperkt

6. Zelfverzorging

0   1   2   3   4   5   6   7   8   9   10   11

Geen beperking   volledig beperkt

7. Basale levensbehoeftes

0   1   2   3   4   5   6   7   8   9   10   11

Geen beperking   volledig beperkt

7.2.2. Credibility and Expectancy Questionnaire (CEQ)

1. Hoe logisch komt de geboden therapie op uw over?

1 2 3 4 5 6 7 8 9
Helemaal niet logisch   heel logisch

2. Hoe succesvol denkt u dat deze therapie zal zijn voor het verminderen van de beperkingen ten gevolge van uw pijnklachten?

1 2 3 4 5 6 7 8 9
Helemaal niet van nut   heel nuttig

3. Hoe zeker zou u zijn als u een vriend of vriendin met dezelfde problemen zou aanraden deze behandeling te laten uitvoeren?

1 2 3 4 5 6 7 8 9
Helemaal niet zeker   heel zeker

4. Hoeveel verbetering van de beperkingen ten gevolge van uw pijnklachten zal er naar uw mening zijn opgetreden wanneer de therapie zal zijn afgerond?

0 %   100 %

5. In hoeverre voelt u werkelijk op dit moment dat de therapie tot het verminderen van de beperkingen ten gevolge van uw pijnklachten zal bijdragen?

1 2 3 4 5 6 7 8 9
Helemaal niet logisch   heel logisch

6. Hoeveel verbetering voelt u dat er in de beperkingen ten gevolge van uw pijnklachten zal zijn opgetreden wanneer de therapie zal zijn afgerond?

0 %   100 %

7.2.3. 2 Subscales of the Multidimensional Pain Inventory (MPI- DLV): Dutch version

1. Geef aan hoeveel pijn u op dit moment heeft

    0 1 2 3 4 5 6 7
Geen pijn   heel veel pijn

2. In welke mate heeft de pijn uw vermogen te werken veranderd, sinds de pijn begon

    0 1 2 3 4 5 6 7
Geen verandering   heel veel verandering

3. In hoeverre heeft uw pijn de mate van tevredenheid of plezier dat u ondervindt door deelname aan sociale en ontspannend activiteiten veranderd?

    0 1 2 3 4 5 6 7
Geen verandering   heel veel verandering

4. Gemiddeld genomen, hoe erg was uw pijn de afgelopen week?

    0 1 2 3 4 5 6 7
Helemaal niet erg   heel erg

5. In hoeverre wordt u door de pijn belemmerd bij de deelname Aan ontspanning en sociale contacten

    0 1 2 3 4 5 6 7
Helemaal niet erg   heel erg

6. In hoeverre beperkt u uw bezigheden om zodoende uw pijn niet erger te laten worden?

    0 1 2 3 4 5 6 7
Helemaal niet   heel erg

7. In hoeverre heeft uw pijn de mate van tevredenheid of plezier dat u ondervindt door deelname aan gezinsbezigheden veranderd?

    0 1 2 3 4 5 6 7
Geen verandering   heel veel verandering

8. In welke mate heeft uw pijn uw relatie met uw echtgeno(o)t(e)/partner of gezin veranderd?

    0 1 2 3 4 5 6 7
Geen verandering   heel veel verandering

9. In welke mate heeft uw pijn de mogelijkheden tot het uitvoeren van huishoudelijke werkzaamheden veranderd?

    0 1 2 3 4 5 6 7
Geen verandering   heel veel verandering

10. In hoeverre heeft uw pijn uw vermogen bezigheden te plannen belemmerd?

    0 1 2 3 4 5 6 7
Helemaal niet   heel sterk

11. In hoeverre zijn vriendschappelijke contacten buiten het gezin veranderd of beïnvloed door de pijn?

    0 1 2 3 4 5 6 7
Geen verandering   heel veel verandering

7.2.4. Hospital Anxiety and Depression Scale (HADS-NL): Dutch version

1. Ik voel me gespannen

0	1	2	3
Nooit	soms	vaak	bijna altijd

2. Ik geniet nog steeds van de dingen waar ik gewoonlijk van kon genieten

0	1	2	3
Zeker zo veel	nauwelijks nog	wat minder	duidelijk minder

3. Ik heb een angstig gevoel alsof er iets vreselijks gaat gebeuren

0	1	2	3
Helemaal niet	een beetje	zeker	zeer zeker

4. Ik kan lachen en de dingen van de vrolijke kant zien

0	1	2	3
Net zo veel als gewoonlijk	nu wat minder	nu wat duidelijk minder	helemaal niet

5. Ik maak me zorgen

0	1	2	3
Niet zo vaak	heel soms	vaak	heel vaak

6. Ik voel me opgewekt

0	1	2	3
meestal	soms	heel af en toe	nooit

7. Ik kan me ontspannen

0	1	2	3
altijd	meestal	af en toe	nooit

8. Ik heb het gevoel dat bij mij alles moeizamer gaat

0	1	2	3
nooit	soms	heel vaak	bijna altijd

9. Ik heb een angstig, gespannen gevoel in mijn buik

0	1	2	3
Nooit	soms	vrij vaak	heel vaak

10. Het interesseert me niet meer hoe ik er uit zie

0	1	2	3
Inderdaad, helemaal niet meer	ik besteed minder aandacht aan mezelf	ik besteed misschien iets minder aandacht aan mezelf	ik besteed net zo veel aandacht aan mezelf als gewoonlijk

11. Ik voel me onrustig

0	1	2	3
Nooit	soms	tamelijk vaak	inderdaad, zeer vaak

12. Ik kijk met plezier uit naar dingen

0	1	2	3
net zo vaak als gewoonlijk	iets minder dan gewoonlijk	veel minder dan gewoonlijk	nauwelijks

13. Ik raak plotseling in paniek

0	1	2	3
Nooit	soms	tamelijk vaak	inderdaad, zeer vaak

14. Ik kan genieten van een goed boek, een radio- of tv programma

0	1	2	3
regelmatig	vaak	af en toe	zelden