Time-trend analysis on the influence of the COVID-19 pandemic on patient satisfaction among Dutch physiotherapists

Master thesis

Universiteit Utrecht

This thesis has been written as a study assignment under the supervision of an Utrecht University teacher. Ethical permission has been granted for this thesis project by the ethics board of the Faculty of Social and Behavioral Sciences, Utrecht University, and the thesis has been assessed by two university teachers. However, the thesis has not undergone a thorough peer-review process so conclusions and findings should be read as such.

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Abstract

Aims: This study examined differences in patient satisfaction among patients of Dutch physiotherapists, comparing a period before the COVID-19 pandemic, the years of the pandemic, and after the pandemic. The impact of self-rated health (SRH) and age on patient satisfaction among patients of Dutch physiotherapists is explored, as well as differences in this impact during several phases of the pandemic. **Methods:** Quantitative data from PREM questionnaires from January 2019 and March 2024, gathered by Mediquest, was used. Multivariate linear regression analyses were conducted. **Results:** Patient satisfaction among physiotherapists' patients increased during the COVID-19 pandemic compared to before. After the pandemic, patient satisfaction decreased. A positive relation was found between SRH and patient satisfaction among physiotherapists' patients. No effect of phase on patient satisfaction could be found among patients with different SRHs. Physiotherapists' patients between 25 and 64 years old gave higher patient satisfaction scores than other age categories. A partial effect of phase on patient satisfaction has been found among patients in different age categories: patients aged 65 years or older were more satisfied after the pandemic than patients in other age categories. **Conclusions: Differences in patient satisfaction are found before, during, and after the pandemic. A better SRH leads to higher patient satisfaction scores, but this effect does not differ during different pandemic phases. Patients between 25 and 64 years old give higher patient satisfaction scores than those younger than 25 or 65 years or older. The impact of age on patient satisfaction was influenced by phase after the pandemic, where patients of 65 years or older were more satisfied compared to the other age categories.**

Keywords: Patient satisfaction, physiotherapy, time trends, COVID-19 pandemic, self-rated health, age, Netherlands

1. Introduction, problem statement, and relevance

1.1 Physiotherapist care in the Netherlands: The obligation of monitoring and improving quality

Dutch people visit their physiotherapist on average nine times a year, which is even more than the number of times they see their general practitioner, which is five times a year (Het Koninklijk Nederlands Genootschap voor Fysiotherapie (KNGF), 2021). This makes the physiotherapist an indispensable factor in Dutch primary care. The most common complaints for patients who visit a physiotherapist in the Netherlands are muscle, tendon, and fascia disorders of the spine, shoulder, knee, and pelvic region (Veldkamp et al., 2023). General figures on how often a physiotherapist cures these conditions are difficult to find, as many specific conditions fall within this category. However, the study by Veldkamp et al. (2023) shows that in 2022, in 18,1% of all treatments in the Netherlands, the same health complaints for which the patient had been (successfully) treated returned within two years. The remaining 81.9% had no complaints.

Insight into the quality of care is important and established by law: De Wet kwaliteit, klachten en geschillen zorg (Ministerie van Volksgezondheid, Welzijn en Sport, 2024). Thanks to this law, healthcare providers must monitor and improve the quality of their care. Also, agreements have been made between healthcare providers, health insurers, and patient organisations about what is understood as good quality care (Zorginstituut Nederland, 2023). One of the ways to measure this quality of care among physiotherapists is patient-reported experience measures-scores (PREM-scores). This is an internationally standard measurement instrument used in the Netherlands (Bull et al., 2019). The results of these surveys give an idea of patient satisfaction. In recent years, more and more studies have shown that patient satisfaction is a valuable measure of quality of care (Farley et al., 2014). However, with the caveat that other measurement forms must also be used to provide a complete overview of quality.

Patient satisfaction can vary between individuals depending on their individual experiences, but overall levels of patient satisfaction can also vary due to external impacts, such as the recent COVID-19 pandemic (Abrahamsen Grøndahl et al., 2013).

1.2 The impact of the COVID-19 pandemic on care and cure in the Netherlands

In the Netherlands, the years between March 2020 and March 2022 are considered the 'coronajaren' (Ministerie van Algemene Zaken, 2024). During these years, healthcare and healthcare workers were the topics of conversation in the Netherlands. Without them, 'we' would be unable to fight the virus, and society would be disrupted even more. While many people could not work or had to work from home because of governmental measures, healthcare workers had to work harder than ever and were at increased risk of infection (Bielicki, 2020).

This led to a national sense of pride and gratitude towards healthcare workers. This was expressed, among other things, during 'clapping for care' on March 17, 2020, at the beginning of the pandemic (NOS, 2020). Many Dutch people applauded at the same time from behind their windows, in their gardens, or on their balconies. Also, nurses and doctors received much attention on (social) media, partly because of the risks they faced because of their work, the governmental measures they had to deal with, and the threat of 'code zwart' (V&VN, 2021).
As people were generally grateful for healthcare during this period, it is plausible that this gratitude also increased towards the physiotherapist and was expressed in greater patient satisfaction.

On the other hand, lower scores on patient satisfaction among physiotherapists could also be the case since some patients have experienced the negative consequences of the pandemic on their treatment. Research by Menting et al. (2022) shows that 25% of patients with chronic illnesses experienced at least one or more changes in the care they received. This group of patients gave lower scores on patient satisfaction than the ones who did not experience changes.

This thesis will focus on patient satisfaction among physiotherapists and the factors that influenced this during the COVID-19 pandemic in the Netherlands.

1.3 Problem Statement

Much research has been done on the consequences of the recent COVID-19 pandemic on patients, the quality of care of hospitals (Rijksinstituut voor Volksgezondheid en Milieu (RIVM), 2020), and the healthcare workers themselves (De Vroege, 2020), but little is known of the impact of the pandemic on patient satisfaction.

Maher et al. (2021) compared PREM scores, which measure patient satisfaction before and during the pandemic in the United States, among patients of several medical disciplines. In this study, lower scores were found during the first stages of the pandemic, but there were significant differences between medical disciplines.
However, Maher et al. or other researchers have not yet studied the physiotherapy discipline. The study's context in the United States differs from the Dutch context, not only geographically or culturally but also in government measures during the pandemic. It will be relevant to study whether a similar outcome applies to the Dutch medical discipline of physiotherapy. Therefore, this study aims to explore if and how the COVID-19 pandemic influenced patient satisfaction among patients of Dutch physiotherapists.

1.4 Theoretical and Empirical Background

A non-systematic review by Jans-Beken (2021) studied coping manners during the pandemic. According to this study, the confrontation with our existential vulnerability during the pandemic because of threatening infection, death, and a different way of living because of the governmental measures is not only a crisis but also an opportunity to view our lives differently. Cultivating an attitude of mature gratitude through actions of kindness and expressing gratitude can help people cope with the threats of the pandemic. When translating this finding to the context of patient satisfaction during the pandemic, it could be the case that patients of physiotherapists indeed used this way of coping to deal with the threats of the pandemic. Encouraged by national actions such as giving applause

to healthcare workers, patients might have given higher scores on patient satisfaction to their physiotherapists during the pandemic to show their kindness and gratitude.

Patient satisfaction is a critical indicator of the recovery results of patients of physiotherapists. Articles by Trivedi and Amarnath (2019) and Hills (2007) point out this importance. They state that it "plays a crucial role in rehabilitation of physiotherapy after injury." The more satisfied patients are about the therapy, the better they recover. This is partly because satisfied patients adhere to the appointments made and adhere better to the rules of life they receive in addition to their treatment.

Major external factors or events, such as the COVID-19 pandemic, can also influence overall patient satisfaction (Abrahamsen Grøndahl et al., 2013). The pandemic greatly impacted the Netherlands and the rest of the world. Between the first infection in February 2020 and the end of 2022, 48 thousand people died in the Netherlands because of a COVID-infection (CBS, 2023). The Dutch government decided on an 'intelligent' lockdown in March 2020 whereby different measures occasionally applied to diverse groups, such as working from home when possible, education from home for children because of the closing of primary and high schools, the use of personal protection equipment such as face masks for professions that could not work from home, and so on. These measures were phased out during the pandemic and eventually expired in March 2022 (Ministerie van Algemene Zaken, 2024).

Dutch physiotherapists were, just like other disciplines, faced with governmental measures that affected the care they provided during the pandemic. For example, they were not allowed to see their patients face-to-face for a short time. This resulted in fewer patients that could be helped and different forms of treatment, such as conversations or exercises by video calling, asking medical questions online, or only contact by phone (Rompelberg et al., 2020).

Research has been done on the effects of the pandemic on physiotherapists themselves. Systematic research by van der Westhuizen and Killingback (2023) shows that physiotherapists experienced challenges around the resource shortage they had to deal with during the pandemic, such as personal protection

equipment like face masks. Also, physiotherapists reported psychological stressors, for example, anxiety both during as well as after the pandemic (Hassem et al., 2022). These insights may be helpful in the case of a future pandemic. The experiences of physiotherapists and patients during the pandemic are of interest to help healthcare organisations better prepare for a future pandemic.

Although the course of the pandemic was different in every country, and the measures also differed per government, the earlier mentioned study by Maher et al. (2021) in chapter 1.3 points out the impact of the pandemic on patient satisfaction. The article suggests that those lower scores during this first period resulted from a need for more awareness among patients about digital possibilities in healthcare, such as telemedicine, and reluctance among patients and healthcare givers to use these resources. Since the beginning of the pandemic, awareness of and necessity for these resources have grown, resulting in their being embedded into healthcare.

Knowing which factors—in addition to external factors/events—contribute to patient satisfaction is essential. A study by Batbaatar et al. (2017) distinguishes two determinants: 'health care provider-related determinants' and 'patient-related characteristics'.

Healthcare provider-related determinants relate to the care or treatment provided by the practitioner. Many studies show accessibility, competence, communication, and the physiotherapist's behaviour and the treatment explanation are essential determinants of patient satisfaction (Shirley & Sanders, 2013; Sitzia & Wood, 1997; Vranceanu & Ring, 2011). This will be explained more in-depth in Chapter 2.

Patient-related characteristics are personal characteristics of the patient on which a practitioner has no influence. Ample research has been done on which characteristics influence or predict patient satisfaction the most, and three characteristics show a strong relation with patient satisfaction. Berkowitz (2016) studied the fact that patient satisfaction is influenced by expectations of what patients believe should be provided. Living up to the expectations of patients positively affects their satisfaction with the treatment they had. This is also in

line with the earlier findings of Hills & Kitchen (2007), who did not study patient satisfaction in general but patient satisfaction among physiotherapists. Since this study is almost 20 years old and a lot has changed, it is worth investigating whether the results from then still apply today.

Studies by Batbaatar et al. (2017) and Thi et al. (2002) found two significant patient-related predictors of patient satisfaction: older age and better self-rated health (SRH). The most recent study of these, the Batbaatar et al. study, systematically researched evidence concerning factors influencing or predicting patient satisfaction between 1980 and 2014. Some 109 articles were reviewed, including quantitative, qualitative, and mixed methods studies. They found that older patients were more satisfied in most studies than younger patients. Therefore, age was the most critical and consistent determining variable of patient satisfaction among other background variables such as race, religion, or socio-economic status.
Secondly, Batbaatar et al. state that SRH is one of the strongest predictors of patient satisfaction. Patients who experienced more pain and suffered from disease or pain complaints gave lower scores on patient satisfaction in general. The same applies to mental complaints or illnesses.
These studies were conducted among healthcare providers in general. No comparable studies have been found on patient satisfaction among physiotherapists, so this will be the focus of this thesis.

Figure 1 – theoretical framework based on empirical literature

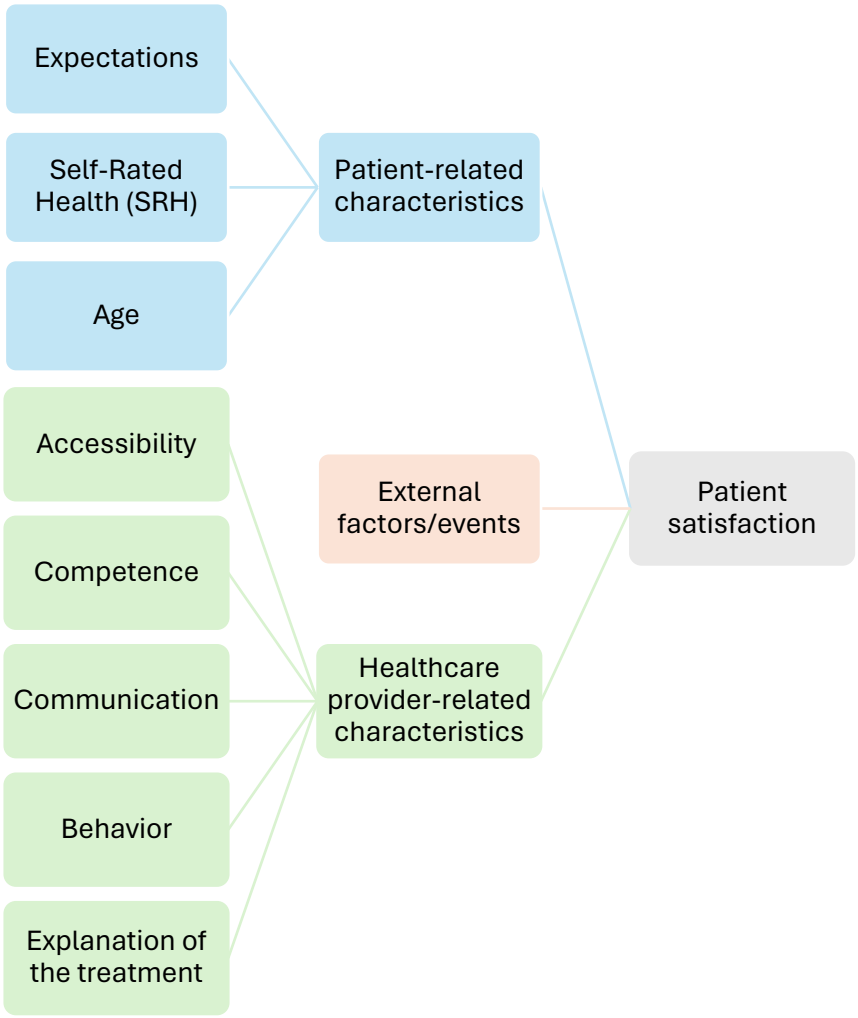


Figure 1 shows a theoretical framework that can be drawn to visualise which factors might influence patient satisfaction among patients of physiotherapists as well. This theoretical framework combines the various interdisciplinary empirical literature described above.

However, no existing theories have been found yet. It could be argued that external factors such as the COVID-19 pandemic influence patient satisfaction directly and indirectly via SRH and age.

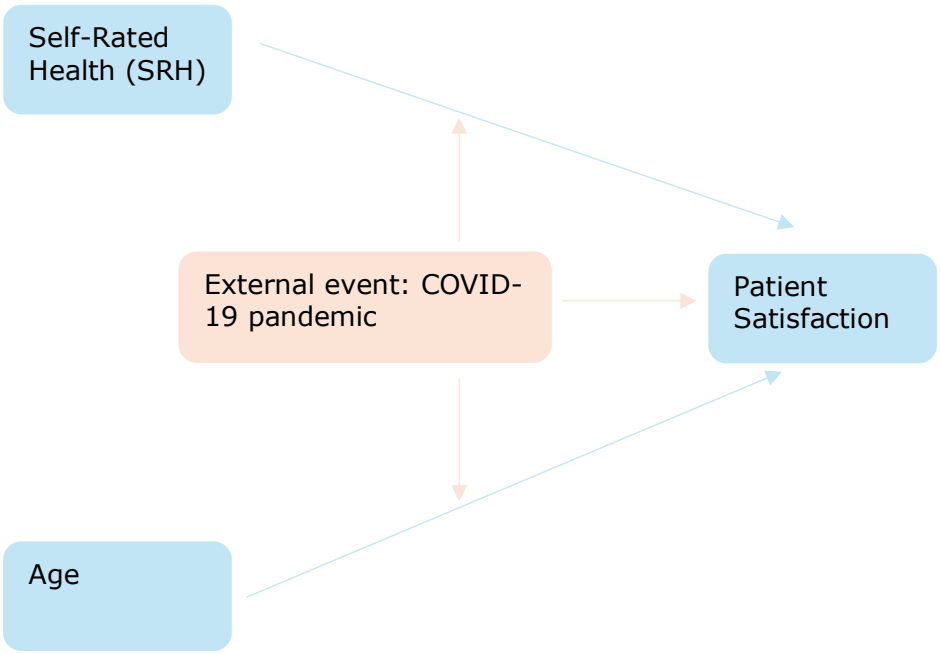
Van de Weijer et al. (2022) studied whether SRH among Dutch people changed during the pandemic. They found that the SRH of most people did not change but that this resulted from more positive health perceptions, which resulted from social comparison with people infected with the COVID-19 virus and not from actual health improvements. If the pandemic influences people's SRH because of

more positive health perceptions, this could also influence the effect of SRH on patient satisfaction during the pandemic.

During the pandemic, elderly people were among the groups that faced higher risks due to COVID-19. Therefore, most Dutch elderly people tried to minimise face-to-face contact and mostly had digital appointments (in general) (Doolan et al., 2020). Some elderly had trouble with these digital appointments, experienced less attention from their caretaker, or felt they were not being heard.
Since trouble with digital appointments influences the accessibility of the physiotherapist, experiencing less attention is about the physiotherapist's behaviour, and the feeling of not being heard is part of communication, it could be hypothesised that elderly people were less satisfied with their physiotherapists during the pandemic than before. The consequences of the pandemic negatively influenced the factors that affected their satisfaction. Moreover, Doolan et al. also found that the pandemic negatively affected the elderly mentally. Research by Lüdecke & von dem Knesebeck (2023) among Europeans found a worsened SRH among elderly people, and Cross-national research by Kim & Kim (2021) shows how emotional anxiety because of the COVID-19 pandemic negatively influenced people’s SRH.

Figure 2 visualises the conceptual model of this thesis study, wherein the pandemic is an external event impacting the relation between SRH and patient satisfaction and age and patient satisfaction.
This thesis will focus on SRH and age since many empirical studies have shown that these patient-related characteristics are influential moderators of patient satisfaction (Batbaatar, 2017).

Figure 2 – Conceptual model of this research



1.5 Research Questions and Expectations

1.5.1 Research Question

Based on the previously mentioned predictors of patient satisfaction, several questions and associated hypotheses arise on how the pandemic and its consequences might have influenced patient satisfaction of physiotherapists during this period. Therefore, the research question of this thesis is: *To what extent did patient satisfaction with physiotherapist treatment in the Netherlands change over time, based on patient-reported experience measures-scores (PREM-scores), before, during, and after the COVID-19 pandemic, and what is the role of the patient-related characteristics SRH and age?*

This research question will be answered with the help of three sub-questions:
1. *To what extent did patient satisfaction with physiotherapist treatment in the Netherlands change over time, based on patient-reported experience measures-scores (PREM-scores) before, during, and after the COVID-19 pandemic?*

2. *To what extent did self-rated health (SRH) impact patient satisfaction over time, during and after the COVID-19 pandemic compared to before the pandemic?*
3. *To what extent did age impact patient satisfaction over time, during and after the COVID-19 pandemic compared to before the pandemic?*
Those sub-questions will be further explained in the following subparagraphs.

1.5.2 Sub-question and expectation on changes in PREM scores over time

The first sub-question is about changes in PREM scores over time and reads: *To what extent did patient satisfaction with physiotherapist treatment in the Netherlands change over time, based on patient-reported experience measures-scores (PREM-scores) before, during, and after the COVID-19 pandemic?*
By examining changes over time instead of only before and during the pandemic, insight can be gained into whether possible changes are short-term and only during the pandemic or if they last longer than the duration of the pandemic.

The first hypothesis regarding sub-question 1 is that patient satisfaction decreased during the pandemic since this effect was shown in the earlier study by Maher (2021) among medical specialists in the United States.
On the other hand, the second hypothesis regarding sub-question 2 is that patient satisfaction does not differ during the pandemic compared to before. This could be in line with the findings of Berkowitz (2016): lower expectations among patients during the pandemic, since patients expected to receive their care in a distinctive way than they were used to.

1.5.3 Sub-question and expectation on the impact of SRH on patient satisfaction during the pandemic

The second sub-question will explore whether self-rated health (SRH) impacts patient satisfaction over time. The second sub-question is: *To what extent did self-rated health (SRH) impact patient satisfaction over time, during and after the COVID-19 pandemic compared to before the pandemic?*
One of the predictors mentioned above of patient satisfaction is better SRH (Thi et al., 2002; Batbaatar, 2017). Since studies on the influence of SRH on patient

satisfaction of patients of physiotherapists have yet to be found, it will be relevant to see if this effect can also be found for this research population.

Based on the earlier mentioned study of Van de Weijer et al. (2022), the first hypothesis regarding sub-question 2 is that the impact of SRH on patient satisfaction does not interact with 'time', as in during or after the pandemic, compared to before the pandemic, since no noticeable differences in SRH during the pandemic have been found in other research.
The second hypothesis regarding this sub-question is, on the other hand, that people with lower SRH during the pandemic, despite the more positive health perceptions, give even lower scores on patient satisfaction than before the pandemic. In that case, it could be expected that SRH and 'time', as in during or after the pandemic, compared to before the pandemic, do interact and that a lower SRH during the pandemic leads to less patient satisfaction compared to before the pandemic.

1.5.4 Sub-question and expectation on the impact of age on patient satisfaction during the pandemic

Finally, this thesis will study whether age impacts patient satisfaction differently during and after the pandemic compared to before the pandemic. So, the third sub-question is: *To what extent did age impact patient satisfaction over time, during and after the COVID-19 pandemic compared to before the pandemic?*

According to Thi et al. (2002), older age is the second factor associated with patient satisfaction. Based on the conceptual model explained in Chapter 1.4, the hypothesis regarding the third sub-question is that older age—due to poorer mental health among the elderly and emotional anxiety because of COVID-19 related to this— negatively impacts patient satisfaction during the COVID-19 pandemic compared to before the pandemic.

2. Methods

2.1 Study Design and Overall Procedures

The research question and sub-questions in this study require a quantitative time-trend analysis. To see if SRH is also a predictor of patient satisfaction among patients of physiotherapists in the Netherlands and if there are changes during different phases, the influence of SRH on patient satisfaction during and after the pandemic will be compared to its influence before the pandemic. The same will be tested for age.

The dataset used in this thesis is PREM-data, gathered by Mediquest via a questionnaire on behalf of Dutch physiotherapists. Mediquest is a Dutch organisation that uses data-driven information to help healthcare providers and patients make the right choices regarding quality (Mediquest, 2022). PREM scores are obligated for Dutch physiotherapists by health insurers in the Netherlands. Mediquest is one of the four recognised PREM measuring agencies in the Netherlands (Vektis, n.d.), and by making these PREM scores transparent as well for physiotherapists and their patients, physiotherapists can improve their quality of care, and patients can search for a physiotherapist of quality nearby.

Data from 2019 till April 2024 will be analysed, including more than a year before the pandemic, the two pandemic years, and one year after.
Six phases will be distinguished: before the Covid 19 pandemic (January 2019 until March 2020), the first wave of the pandemic (March 2020 to September 2020), the second wave of the pandemic (September 2020 to April 2021), the period wherein the society careful, slowly opened again during the pandemic (April 2021 to October 2021), the third wave of the pandemic (October 2021 to April 2022) and after the pandemic (April 2022 to April 2024). Those phases are based on the 'Coronavirus tijdlijn' of het Ministerie van Algemene Zaken (2024).

2.2 Participant Sample and Recruitment

Patients of physiotherapists received an invitation for the questionnaire by e-mail when they had at least two appointments with their physiotherapist and had given their permission for an invitation by informed consent. In the case of a patient younger than 16 years, parents or caregivers had to give this permission. When a patient did not fill in the questionnaire within one week, he or she received one reminder by e-mail.

The total dataset consists of 1.010.754 questionnaires sent between January 2019 and the end of March 2024. Table 1 shows the distribution between the different phases and the distribution between no response, non-valid response, and valid response.
A total of 383.169 questionnaires filled in will be analysed: 84.634 during the phase before the pandemic and 155.230 during the pandemic, which is divided into four different phases: the first wave, the second wave, the slow re-opening of society, and the third wave. Lastly, 143.305 questionnaires filled in after the pandemic will be analysed.

Table 1

	No response	**Non-valid response**	**Valid response (% = response rate)**	**Total**
Before the pandemic 01-2019 until 02-2020	117.595 (58.1%)	72 (0.0%)	84.634 (41.8%)	202.301 (100%)
During the pandemic – wave 1 03-2020 until 08-2020	44.168 (58.5%)	188 (0.2%)	31.169 (41.3%)	75.525 (100%)
During the pandemic – wave 2 09-2020 until 03-2021	72.780 (57.7%)	638 (0.5%)	52.797 (41.8%)	126.215 (100%)
During the pandemic – opening society 04-2021 until 09-2021	59.677 (61.8%)	454 (0.5%)	36.460 (37.7%)	96.591 (100%)
During the pandemic – wave 3 10-2021 until 02-2022	54.431 (60.1%)	1335 (1.5%)	34.804 (38.4%)	90.570 (100%)
After the pandemic 03-2022 until 03-2024	264.789 (63.1%)	11.458 (2.7%)	143.305 (34.2%)	419.552 (100%)
Total 01-2019 until 03-2024	613.440 (60.7%)	14.145 (1.4%)	383.169 (37.9%)	1.010.754 (100%)

2.3 Data and Measurement

2.3.1 Questionnaire

PREM questionnaires are similar for every physiotherapist, regardless of the organisation (one of the four measuring agencies or the physiotherapist itself) that performs the measurement. Till June 2020, the questionnaire was called PREM 1.0. Since June 2020, the existing questionnaire has been adapted and continued under PREM 3.0. The PREM 3.0 is a shorter questionnaire than the PREM 1.0, with some questions removed. In addition, some questions were asked slightly differently in PREM 3.0 (see Table 1), and respondents had a different answer scale. As a result, both questionnaires could not be compared one-on-one, and specific data had to be recoded. This is explained in more detail in Chapter 2.3.3 – Patient Satisfaction.

For this research, various types of questions (both from PREM 1.0 and PREM 3.0) will be used:
- Questions about the patient him-/herself: gender, age, and SRH (patient-related characteristics)
- Experience questions that measure patient satisfaction, asking how the patient experienced specific aspects of the treatment based on health care provider-related determinants.

Table 2 shows the six experience questions and how the questions were asked in both PREMs. It also makes clear which healthcare provider-related determinant relates to which question.

Table 2

Healthcare provider-related determinants influencing patient satisfaction	**PREM 1.0**	**PREM 3.0**
Behavior	My physiotherapist did take me seriously	Did the physiotherapist take you seriously?

Competence	I have confidence in the expertise of my physiotherapist	Did you have confidence in the physiotherapist's expertise?
Communication /behavior	My physiotherapist determined the goals of the treatment together with me (what I want to achieve with the treatment)	Did you determine the goal of the guidance or treatment together with the physiotherapist?
Communication	My physiotherapist discussed the progress and results of the treatment with me.	Did the physiotherapist always discuss the progress and results of the treatment or guidance with you?
Explanation	My physiotherapist provided me clear explanations and information (for example, for exercises at home	Did the physiotherapist provide clear explanations and information (for example, advice and/or exercises at home)?
Accessibility	The physiotherapy practice is easily accessible by telephone or email.	Was the physiotherapy practice easily accessible by telephone or email?

2.3.3 Operationalisation of Study Variables

Age

The research and sub-questions consist of 3 variables: age, SRH, and patient satisfaction.
Age is, in both PREM 1.0 and PREM 3.0, asked employing the following multiple-choice question: "What is your age?". In PREM 3.0, respondents could answer one of the following categories: 'younger than 12 years', '12-15 years', '16-24 years', '25-34 years', '35-44 years', '45-54 years', '55-64 years', '65-74 years', 7'5-97 years', '80 years or older'. In PREM 1.0, the categories younger than 12 years and 12-15 years were one category, and the others were the same.
In the analysis, respondents will be divided into three categories: 'younger than 25 years', '25-64 years', and '65 years or older'.
Dummy variables will be constructed with age younger than 25 as a reference.

Self-Rated Health

In PREM 1.0 and PREM 3.0, SRH is asked using the following multiple-choice question: "How would you, generally, rate your own health?" Respondents could answer one of the following categories: 'excellent', 'very good', 'good',

'moderate', and 'bad'. These different answers are categorised as ordinal variables, where 1 is 'bad' and 5 is 'excellent'.
Dummy variables will be constructed with a bad SRH set as a reference.

Control Variable

Gender will be included as a control variable. This variable is categorised into two categories: man or woman.

Patient Satisfaction

According to Krol's (2015) findings, combining six experience questions will create patient satisfaction, as the average of those questions is a valid score. Moreover, these six experience questions ask patients about their experiences in the fields of behaviour, communication, and competence of the physiotherapist, the accessibility of the practice, and the explanation of the physiotherapist's treatment. These are the earlier-named factors that influence patient satisfaction.

Table 2 (Chapter 2.3.1) overviews the six experience questions and shows which of the five influencing factors relates to the question. The experience questions in PREM 1.0 compared to PREM 3.0 are worded slightly differently. The answer scale changed from a 5-point Likert scale in PREM 1.0 ('Strongly disagree', 'disagree', 'neither disagree nor agree', 'agree', 'fully agree') to a 10-point Likert scale (where 1 is 'No, not at all' and 10 is 'Yes, completely') in PREM 3.0.

To compare PREM 1.0 and PREM 3.0 data, a Z-score will be computed for these six experience questions. The average of these six scores will be the variable patient satisfaction.

Phases

Lastly, a new variable based on the response date will be created.
Response dates from 01-2019 until 02-2020 will be categorised as 'before the pandemic', response dates from 03-2020 until 08-2020 will be categorised as

'during the pandemic – wave 1', response dates from 09-2020 until 03-2021 will be categorised as 'during the pandemic – wave 2', response dates from 04-2021 until 09-2021 will be categorised as 'during the pandemic – opening society', response dates from 10-2021 until 02-2022 will be categorised as 'during the pandemic – wave 3', and response date from 03-2022 till 04-2024 will be categorised as 'after the pandemic'. Chapter 2.1, 'Study Design and Overall Procedures', explains why these phases were chosen.
Dummy variables will be constructed with phase 'before the pandemic' set as a reference.

2.3.4 Validity and Reliability

Since PREM is a measuring instrument used in several medical disciplines and different countries, its validity and reliability are often studied.
A systematic review of the validity and reliability of PREM by Bull et al. (2019) found positive results for the reliability and validity criteria that were most frequently undertaken, including structural validity, content validity, and internal consistency. The usability of the PREM was also studied (Krol, 2015). This study concluded that PREM is helpful for stakeholders searching for general information. The results of this study also indicate that the experience questions have the most added value. Moreover, the average score of the experience questions was a valid, useable score.

2.4 Data analysis approach

Multivariate linear regression analyses will be performed. Only valid responses will be included during all analyses.
First, a model will be made that tests the effect of the several phases on patient satisfaction. Second, a second model will add SRH and the age categories to model 1, both as dummy variables. Gender will also be included as a control variable.

Lastly, two models will be created with interaction analyses between SRH*Phase and Age*Phase to test whether the effect of phases differs between different age categories and SRH.

Dummy variables are necessary to execute these analyses since age, SRH, and phase are all ordinal variables in this dataset. For these three variables, no linear relation with patient satisfaction is found. Therefore, they cannot be placed in the models as continuous variables.

3. Results

Table 3 shows the gender, age distribution, and SRH of the respondents per phase. During all phases, most respondents were women. Also, most respondents were between 25 and 64 during the six phases. Lastly, most respondents rated their health as 'good' before, during, and after the pandemic.

Table 3

	Before the pandemic 01-2019 until 02-2020	**During the pandemic – wave 1** 03-2020 until 08-2020	**During the pandemic – wave 2** 09-2020 until 03-2021	**During the pandemic – opening society** 04-2021 until 09-2021	**During the pandemic – wave 3** 10-2021 until 02-2022	**After the pandemic** 03-2022 until 03-2024
Gender						
Man	39,1%	38,9%	39,3%	39,3%	39,5%	39,1%
Woman	60,9%	61,1%	60,7%	60,7%	60,5%	60,9%
Age						
< 25 years	9,5%	7,9%	6%	5,1%	5,5%	4,8%
25-64 years	59,6%	60,1%	62,8%	61,9%	59,8%	57,3%
≥64 years	30,8%	32%	31,3%	33%	34,7%	38%
SRH						
Bad	1,6%	1,5%	1,7%	1,5%	1,7%	1,8%
Moderate	16,4%	16,3%	16,5%	17,8%	17,3%	19,2%
Good	55,5%	55,8%	56,8%	57%	56,8%	56,8%
Very good	20,5%	20,3%	19,7%	18,6%	18,8%	17,4%
Excellent	6%	6,1%	5,3%	5,1%	5,4%	4,8%

Table 4 shows the outcomes of Model 1. It shows the effect of the different phases on patient satisfaction. During the first and second waves of the pandemic, patient satisfaction increased compared to before the pandemic (B=0.009; p=0.016, B=0.021; p<0.001). Also, during the careful opening of society during the pandemic, patient satisfaction increased compared to before the pandemic (B=0.024; p<0.001). This growth decreases during the third wave of the pandemic (B=0.011; p<0.01). After the pandemic, a decrease in patient satisfaction compared to before the pandemic is observed (B=-0.021; p<0.001).

Table 4

		Patient satisfaction B	SE
Model 1	Phase (ref. before the pandemic)		
	During the pandemic – wave 1	.009*	.004
	During the pandemic – wave 2	.021***	.003
	During the pandemic – opening society	.024***	.003
	During the pandemic – wave 3	.011**	.004
	After the pandemic	-.021***	.002

***p<0.001; **p<0.01, *p<0.05.

Table 5 shows the outcomes of Model 2. Compared to those who rated their health as 'bad', patients with better self-rated health report more patient satisfaction, with the strongest difference for patients who report 'very good' or 'excellent' health (B=0.111; p<0.001). The same model shows that patients aged between 25 and 64 reported more patient satisfaction than patients younger than 25 years (B=0.044; p<0.001). No significant effect was found for patients 65 or older (B=-0.004; p=0.363).

Table 5

Model 2	Patient satisfaction	
	B	SE
(Constant)	-.103***	.008
Phase (ref. before the pandemic)		
During the pandemic – wave 1	.008*	.004
During the pandemic – wave 2	.019***	.003
During the pandemic – opening society	.023***	.003
During the pandemic – wave 3	.011**	.003
After the pandemic	-.018***	.002
Self rated health (ref. bad)		
Moderate	.060***	.007
Good	.092***	.007
Very good	.111***	.007
Excellent	.111***	.008
Age (ref. younger than 25)		
25-64 years	.044***	.004
65 years or older	-.004	.004
Gender (ref. man)		
Woman	-.008***	.002

***p<0.001; **p<0.01, *p<0.05.

Table 6 shows the outcomes of Model 3. No significant interaction effect was found between SRH and phase. The effect of phase on patient satisfaction is similar among patients who rate their health differently.

Table 6

Model 3	Patient satisfaction	
	B	SE
(Constant)	-.089***	.015
Phase (ref. before the pandemic)		
During the pandemic – wave 1	.020	.029

During the pandemic – wave 2	.039	.024
During the pandemic – opening society	.061*	.027
During the pandemic – wave 3	-.014	.027
After the pandemic	-.017	.018
Self rated health (ref. bad)		
Moderate	.050**	.016
Good	.103***	.015
Very good	.130***	.015
Excellent	.132***	.017
Gender (ref. man)		
Woman	-.005**	.002
SRH * phase		
SRH = bad * before the pandemic	reference	
SRH = moderate * during pandemic wave 1	-.017	.031
SRH = moderate * during pandemic wave 2	.012	.025
SRH = moderate * during pandemic opening society	-.023	.029
SRH = moderate * during pandemic wave 3	.052	.028
SRH = moderate * after the pandemic	.017	.019
SRH = good * during pandemic wave 1	-.008	.030
SRH = good * during pandemic wave 2	-.019	.024
SRH = good * during pandemic opening society	-.037	.028
SRH = good * during pandemic wave 3	.018	.028
SRH = good * after the pandemic	-.004	.019
SRH = very good * during pandemic wave 1	-.011	.030
SRH = very good * during pandemic wave 2	-.041	.025
SRH = very good * during pandemic opening society	-.046	.029
SRH = very good * during pandemic wave 3	.023	.028
SRH = very good * after the pandemic	-.006	.019
SRH = excellent * during pandemic wave 1	-.036	.033
SRH = excellent * during pandemic wave 2	-.024	.027
SRH = excellent * during pandemic opening society	-.054	.031
SRH = excellent * during pandemic wave 3	.020	.031
SRH = excellent * after the pandemic	-.011	.021

***p<0.001; **p<0.01, *p<0.05.

Table 7 shows the outcomes of Model 4. Patient satisfaction decreased after the pandemic compared to before the pandemic (B=-0.048; p<0.001). However, Model 4 shows an effect of age on the influence of phase on patient satisfaction: patients 65 years or older reported significantly more patient satisfaction during the second wave of the pandemic (B=0.038; p=0.003) and after the pandemic (B=0.061, p<0.001) compared to patients in other age categories.
No other significant interaction effects were found between age and phase.

Table 7

Model 4		Patient satisfaction	
		B	SE
	(Constant)	.002	.006
	Phase (ref. before the pandemic)		
	During the pandemic – wave 1	.024	.013
	During the pandemic – wave 2	.018	.012
	During the pandemic – opening society	.032*	.014
	During the pandemic – wave 3	.014	.014
	After the pandemic	-.048***	.009
	Age (ref. younger than 25)		
	25-64 years	.043***	.007
	65 years or older	-.047***	.007
	Gender (ref. man)		
	Woman	-.011***	.002
	Age * phase		
	<25 years * before the pandemic	reference	
	25-64 years * during pandemic wave 1	-.022	.013
	25-64 years * during pandemic wave 2	-.017	.012
	25-64 years * during pandemic opening society	-.026	.015
	25-64 years * during pandemic wave 3	-.018	.015
	25-64 years * after the pandemic	.016	.010
	≥ 65 years * during pandemic wave 1	-.004	.014
	≥ 65 years * during pandemic wave 2	.038**	.013
	≥ 65 years * during pandemic opening society	.024	.015
	≥ 65 years * during pandemic wave 3	.025	.015
	≥ 65 years * after the pandemic	.061***	.010

***p<0.001; **p<0.01, *p<0.05.

4. Conclusion and discussion

4.1 Main findings and relation to hypotheses

This research aimed to answer the following research question: *To what extent did patient satisfaction with physiotherapist treatment in the Netherlands change over time, based on patient-reported experience measures-scores (PREM-scores), before, during, and after the COVID-19 pandemic, and what is the role of the patient-related characteristics SRH and age?*

To answer this research question, three sub-questions have been researched. In researching the first question, a regression analysis was done to test whether different phases around the period of the pandemic impacted patient satisfaction. Patients were more satisfied with their physiotherapist during the pandemic than before and less satisfied after it. This finding contradicts the hypotheses for this sub-question, namely that patient satisfaction would decrease during the pandemic or no differences would be found.

Hereafter, SRH and age were added to the regression analysis.
Patient satisfaction among physiotherapists' patients increases as their SRH increases. An interaction effect between SRH and phase is researched to answer the second sub-question. The hypothesis that the impact of SRH on patient satisfaction does not interact with 'time' has been confirmed. The impact of SRH on patient satisfaction does not differ during the different phases. The second hypothesis regarding this sub-question, that there would be an interaction effect, has not been confirmed.

Finally, age partly impacts patient satisfaction among patients of physiotherapists. Patients aged 25-64 give higher scores on patient satisfaction than patients under 25 years old and patients 65 and older. An interaction effect between age and phase is researched to answer the third sub-question. The hypothesis that older age negatively impacts patient satisfaction during the pandemic compared to before has not been confirmed.

4.2 Findings in the context of theory and other research

Even though most theories and existing literature, as discussed in this thesis, mainly focused on other medical disciplines than physiotherapy, some of them also applied to physiotherapy, as expected.

Abrahamsen Grøndahl et al. (2013) found that external events influence patient satisfaction. This thesis confirms that the same applies to the pandemic as an external event and its influence on patient satisfaction among patients of physiotherapists.
However, this thesis's results contradict previous research by Maher et al. (2021) on patient satisfaction among several medical disciplines in the United States during the pandemic. Patient satisfaction among patients of physiotherapists in the Netherlands was not lower during the pandemic, but higher. Although it is beyond the scope of this thesis to study and explain this difference, it could be argued that this is the result of different types of governmental measures against the pandemic in the United States and the Netherlands. Also, the healthcare systems of the United States and the Netherlands are structured differently, which might partly explain the difference between the study of Maher et al. and this thesis. Future research could investigate this further.

In earlier research by Batbaatar et al. (2017) and Thi et al. (2002), SRH was found to be a patient-related predictor of patient satisfaction for several medical disciplines. A better SRH positively impacts patient satisfaction. In this thesis, it was theorised that the same would apply to physiotherapy, which is confirmed in the findings.
Van de Weijer et al. (2022) found that the SRH of most people in the Netherlands did not change during the pandemic due to more positive health perceptions. Also, the results of this thesis show that the impact of SRH on patient satisfaction did not differ during several stages of the pandemic nor after the pandemic compared to before.

Not only SRH is pointed out as a predictor of patient satisfaction by both Batbaatar et al. (2017) and Thi et al. (2002). They also specified older age as a predictor of patient satisfaction as well. Based on this, in this thesis, it was theorised that older age among patients of physiotherapists would positively impact patient satisfaction. This appears not to be the case; therefore, this theory cannot be confirmed based on this research. Not the elderly, but adults between 25 and 64 years old, give higher scores on patient satisfaction. Even though the scope of this study does not permit an explanation of this finding, it could be argued that adults are more satisfied if a physiotherapist's treatment helps them perform everyday activities normally again. Being unable to carry out everyday activities like working or caring for children might influence the elderly less than adults. Future research is needed to explore this.
In this thesis, it was theorised that the pandemic would mainly negatively impact patient satisfaction of the elderly because of the higher risks they faced (Doolan et al., 2020) and the negative mental effect the pandemic had on them (Lüdecke & von dem Knesebeck, 2023). However, patient satisfaction among the elderly during the second wave and after the pandemic is higher than that of the other two age categories. Higher patient satisfaction among the elderly after the pandemic fits the theory since the risks the elderly faced during the pandemic were no longer there, and the mental effects they experienced decreased. The higher patient satisfaction among the elderly during the second wave could be explained by the fact that people were already more used to the pandemic and its associated consequences during this phase. However, this is not measured in this thesis. As said before, future research is needed to study these presumptions.

4.3 Strengths and limitations related to aspects of validity

This study has several strengths, among other things, that it is the first study to examine the impact of SRH and age on patient satisfaction among patients of physiotherapists in the Netherlands. This impact was examined over five years, including the influential period on people and health care during the COVID-19

pandemic. Many physiotherapist patients throughout the Netherlands were included in this study, which makes it a good starting point for further research. However, this study also has its limitations. Because of the limited dataset Mediquest permitted for this thesis, not all data related to the complete questionnaire was allowed for analysis. Based on the Data Processing Agreement between Mediquest and the questionnaire respondents, as little data as strictly necessary to answer the research and sub-questions was used. Because of this, the effect of education level on patient satisfaction in general or during the pandemic could not be tested. Adding the impact of the level of education would have been relevant to getting insight into the influence of patients' socioeconomic status (SES) on patient satisfaction and how the pandemic influences this. This could have been measured via educational level.
Another limitation of the dataset is that age was asked via a categorical question. Predetermined categories in the questionnaire reduce information density. Moreover, the questionnaire does not contain explicit questions about the pandemic's influence. Other factors than the pandemic could have influenced differences in patient satisfaction between January 2019 and March 2024.

Lastly, the internal validity of this research could have been influenced since questions were asked slightly differently in PREM 1.0 and PREM 3.0. Changes in the questions and the different answer scales on these same questions could have negatively influenced the internal validity.

4.4 Implications and recommendations

This research shows that the COVID-19 pandemic and its different phases influenced patient satisfaction among patients of Dutch physiotherapists. For physiotherapists and health insurers who look to patient satisfaction scores as an indicator of quality, it can be recommended to be aware of the impact of the pandemic on these scores because these may give a distorted picture compared to scores in previous years.

SRH and age are both factors that influence patient satisfaction among patients of Dutch physiotherapists. Although age is not something a physiotherapist can affect, it can influence SRH. Since SRH is about more than just the complaint

that incites a patient to visit the physiotherapist, it can be recommended that physiotherapists (and other healthcare givers) work together where necessary and refer patients with multiple health complaints to the proper discipline.

Since this thesis is descriptive in nature, a recommendation for future research could be to examine how the changes in patient satisfaction during and after the pandemic can be explained, for example, through qualitative research. This could gain insight into to what extent other factors than the pandemic influenced differences in patient satisfaction during the pandemic.

4.5 Concluding statement

The general research question of this thesis was: To *what extent did patient satisfaction with physiotherapist treatment in the Netherlands change over time, based on patient-reported experience measures-scores (PREM-scores) before, during, and after the COVID-19 pandemic, and what is the role of the patient-related characteristics both SRH and age?*
Differences in patient satisfaction are found in the different phases examined. Patients give higher scores on patient satisfaction during the pandemic than before but lower scores after.

SRH, in line with the literature on patient satisfaction in general, also influences patient satisfaction of physiotherapists' patients. A better SRH leads to higher patient satisfaction scores. However, the influence of SRH on patient satisfaction did not differ during the six phases of the research.

Age's effect on physiotherapists' general patients was only found for patients aged 25-64; they gave higher scores on patient satisfaction than patients under 25. A linear relationship, as described in the literature, between higher age and higher patient satisfaction has not been found. The influence of age on patient satisfaction partly differs during the six phases researched: the elderly give higher scores on patient satisfaction during the second wave of the pandemic and after the pandemic compared to the other age categories.

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Appendix 1 - Syntax

Syntax PREM 1.0

```
*Opening the data of PREM 1.0.

* Encoding: UTF-8.

PRESERVE.
SET DECIMAL DOT.

GET DATA  /TYPE=TXT
  /FILE="U:\My Documents\Scriptie\PREM1.0_v3.csv"
  /ENCODING='UTF8'
  /DELCASE=LINE
  /DELIMITERS=" ;"
  /ARRANGEMENT=DELIMITED
  /FIRSTCASE=2
  /DATATYPEMIN PERCENTAGE=95.0
  /VARIABLES=
  survey_deployment_id AUTO
  gender AUTO
  age AUTO
  versie AUTO
  verzamelmethode AUTO
  contact_1_serieus AUTO
  contact_3_deskundigheid AUTO
  behandelplan_4_samenspraak AUTO
  behandelplan_5_voortgang AUTO
  behandelplan_6_instructies AUTO
  praktijk_9_bereikbaarheid AUTO
  v12_cijfer AUTO
  v13_aanbevelingsvraag AUTO
  v17_SRH AUTO
  respons AUTO
  aanleverdatum AUTO
  created_at AUTO
  V18 AUTO
  /MAP.
RESTORE.

CACHE.
EXECUTE.
DATASET NAME DataSet1 WINDOW=FRONT.

* Making Z-scores of the experience questions.
```

```
DESCRIPTIVES VARIABLES=contact_1_serieus contact_3_deskundigheid
behandelplan_4_samenspraak
    behandelplan_5_voortgang behandelplan_6_instructies
praktijk_9_bereikbaarheid
  /SAVE
  /STATISTICS=MEAN STDDEV MIN MAX.

RENAME VARIABLES (Zcontact_1_serieus = Z_serieus).
RENAME VARIABLES (Zcontact_3_deskundigheid = Z_deskundigheid).
RENAME VARIABLES (Zbehandelplan_4_samenspraak = Z_samenspraak).
RENAME VARIABLES (Zbehandelplan_5_voortgang = Z_voortgang).
RENAME VARIABLES (Zbehandelplan_6_instructies = Z_instructies).
RENAME VARIABLES (Zpraktijk_9_bereikbaarheid = Z_bereikbaarheid).

VARIABLE LABELS  Z_serieus 'Z_serieus'.
VARIABLE LABELS  Z_deskundigheid 'Z_deskundigheid'.
VARIABLE LABELS  Z_samenspraak 'Z_samenspraak'.
VARIABLE LABELS Z_voortgang 'Z_voortgang'.
VARIABLE LABELS Z_instructies 'Z_instructies'.
VARIABLE LABELS Z_bereikbaarheid 'Z_bereikbaarheid'.



FREQUENCIES VARIABLES=aanleverdatum
  /ORDER=ANALYSIS.

*handmatig width op 7 zetten

* Recoding into the correct categories: before the pandemic (1), during
the pandemic (2).

RECODE aanleverdatum ('2019-04'=1) ('2019-05'=1) ('2019-08'=1)
('2019-07'=1) ('2019-06'=1)
    ('2019-09'=1) ('2019-10'=1) ('2019-11'=1) ('2019-12'=1) ('2020-
01'=1) ('2020-02'=1)
    ('2020-03'=2) ('2020-04'=2) ('2020-05'=2) ('2020-06'=2) (ELSE=-99)
INTO Periode.
VARIABLE LABELS  Periode 'Periode'.
EXECUTE.

VALUE LABELS Periode
    1 'before the pandemic'
    2 'during the pandemic'
    -99 ' MISSING'.

FREQUENCIES VARIABLES=periode
  /ORDER=ANALYSIS.
```

```
FREQUENCIES VARIABLES=age
  /ORDER=ANALYSIS.

VALUE LABELS age
    1 'younger than 16 years'
    2 '16-24'
    3 '25-34'
    4 '35-44'
    5 '45-54'
    6 '55-64'
    7 '65-74'
    8 '75-80'
    9 '80 years or older'.

FREQUENCIES VARIABLES=age
  /ORDER=ANALYSIS.


VALUE LABELS respons
    2 'no response'
    3 'non-valid response'
    4 'valid response'.

FREQUENCIES respons.

FREQUENCIES VARIABLES=v17_SRH
  /ORDER=ANALYSIS.

*Recode SRH so that the lowest score is the lowest SRH.

VALUE LABELS v17_SRH
    1 'excellent'
    2 'very good'
    3 'good'
    4 'moderate'
    5 'bad'.

FREQUENCIES VARIABLES=v17_SRH
  /ORDER=ANALYSIS.

RECODE v17_SRH (1=5) (2=4) (3=3) (4=2) (5=1) INTO SRH.
VARIABLE LABELS  SRH 'SRH'.
EXECUTE.

VALUE LABELS SRH
    1 'bad'
    2 'moderate'
    3 'good'
```

```
    4 'very good'
    5 'excellent'.

FREQUENCIES v17_SRH SRH.
```

Syntax PREM 3.0

```
*Opening the data of PREM 3.0.


* Encoding: UTF-8.


PRESERVE.
SET DECIMAL DOT.

GET DATA  /TYPE=TXT
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  /ENCODING='UTF8'
  /DELCASE=LINE
  /DELIMITERS=" ;"
  /ARRANGEMENT=DELIMITED
  /FIRSTCASE=2
  /DATATYPEMIN PERCENTAGE=95.0
  /VARIABLES=
  v01_serieus AUTO
  v02_deskundigheid AUTO
  v03_samenspraak AUTO
  v04_voortgang AUTO
  v05_instructies AUTO
  v06_bereikbaarheid AUTO
  v08_aanbevelingsvraag AUTO
  v11_leeftijd AUTO
  v13_SRH AUTO
  rapportcijfer AUTO
  versie AUTO
  verzamelmethode AUTO
  geslacht AUTO
  leeftijdscategorie AUTO
  aanleverdatum AUTO
  respons AUTO
  questionnaire_deployment_id AUTO
  V18 AUTO
  /MAP.
RESTORE.
```

```
CACHE.
EXECUTE.

* Making Z-scores of the experience questions. First, make numeric
scores of the string scores.


FREQUENCIES VARIABLES=v01_serieus v02_deskundigheid
v03_samenspraak v04_voortgang v05_instructies
    v06_bereikbaarheid.

RECODE v01_serieus (CONVERT) INTO serieus.
FREQUENCIES v01_serieus serieus.

RECODE v02_deskundigheid (CONVERT) INTO deskundigheid.
FREQUENCIES  v02_deskundigheid deskundigheid.

RECODE  v03_samenspraak (CONVERT) INTO samenspraak.
FREQUENCIES  v03_samenspraak samenspraak.

RECODE  v04_voortgang (CONVERT) INTO voortgang.
FREQUENCIES  v04_voortgang voortgang.

RECODE v05_instructies (CONVERT) INTO instructies.
FREQUENCIES v05_instructies instructies.

RECODE v06_bereikbaarheid (CONVERT) INTO bereikbaarheid.
FREQUENCIES v06_bereikbaarheid bereikbaarheid.


DESCRIPTIVES VARIABLES=serieus deskundigheid samenspraak
voortgang instructies
    bereikbaarheid
  /SAVE
  /STATISTICS=MEAN STDDEV MIN MAX.

RENAME VARIABLES (Zserieus = Z_serieus).
RENAME VARIABLES (Zdeskundigheid = Z_deskundigheid).
RENAME VARIABLES (Zsamenspraak = Z_samenspraak).
RENAME VARIABLES (Zvoortgang = Z_voortgang).
RENAME VARIABLES (Zinstructies = Z_instructies).
RENAME VARIABLES (Zbereikbaarheid = Z_bereikbaarheid).

VARIABLE LABELS  Z_serieus 'Z_serieus'.
VARIABLE LABELS  Z_deskundigheid 'Z_deskundigheid'.
VARIABLE LABELS  Z_samenspraak 'Z_samenspraak'.
VARIABLE LABELS Z_voortgang 'Z_voortgang'.
VARIABLE LABELS Z_instructies 'Z_instructies'.
```

```
VARIABLE LABELS Z_bereikbaarheid 'Z_bereikbaarheid'.

*handmatig width op 7 zetten.

FREQUENCIES VARIABLES=aanleverdatum
  /ORDER=ANALYSIS.



* Recoding into the correct categories: during the pandemic (2), after the
pandemic (3)


RECODE aanleverdatum ('2020-06'=2) ('2020-07'=2) ('2020-08'=2)
('2020-09'=2) ('2020-10'=2)
    ('2020-11'=2) ('2020-12'=2) ('2021-01'=2) ('2021-02'=2) ('2021-
03'=2) ('2021-04'=2)
    ('2021-05'=2) ('2021-06'=2) ('2021-07'=2) ('2021-08'=2) ('2021-
09'=2) ('2021-10'=2)
    ('2021-11'=2) ('2021-12'=2) ('2022-01'=2) ('2022-02'=2) (ELSE=3)
INTO Periode.
VARIABLE LABELS  Periode 'Periode'.
EXECUTE.

VALUE LABELS Periode
    2 'during the pandemic'
    3 'after the pandemic'
    -99 ' MISSING'.

FREQUENCIES VARIABLES=periode
  /ORDER=ANALYSIS.

FREQUENCIES VARIABLES=V11_leeftijd
  /ORDER=ANALYSIS.

RECODE v11_leeftijd (CONVERT) INTO age1.

RECODE age1 (1,2 = 1) (3=2) (4=3) (5=4) (6=5) (7=6) (8=7) (9=8)
(10=9)
  INTO age.


VALUE LABELS age
    1 'younger than 16 years'
    2 '16-24'
    3 '25-34'
    4 '35-44'
    5 '45-54'
```

```
    6 '55-64'
    7 '65-74'
    8 '75-80'
    9 '80 years or older'.


FREQUENCIES v11_leeftijd age.


VALUE LABELS respons
    2 'no response'
    3 'non-valid response'
    4 'valid response'.

FREQUENCIES respons.


FREQUENCIES VARIABLES=v13_SRH
  /ORDER=ANALYSIS.

*Recode SRH so that the lowest score is the lowest SRH.

VALUE LABELS v13_SRH
    1 'excellent'
    2 'very good'
    3 'good'
    4 'moderate'
    5 'bad'.

FREQUENCIES VARIABLES=v13_SRH
  /ORDER=ANALYSIS.

RECODE v13_SRH (1=5) (2=4) (3=3) (4=2) (5=1) INTO SRH.
VARIABLE LABELS  SRH 'SRH'.
EXECUTE.

VALUE LABELS SRH
    1 'bad'
    2 'moderate'
    3 'good'
    4 'very good'
    5 'excellent'.

FREQUENCIES v13_SRH SRH.
```

Syntax merging two files and recoding some variables.

```
* Encoding: UTF-8.

GET
  FILE='U:\My Documents\Scriptie\Data\240514_Dataset bewerkt PREM
1.0.sav'.
DATASET NAME DataSet1 WINDOW=FRONT.



DATASET ACTIVATE DataSet1.
ADD FILES /FILE=*
  /RENAME (behandelplan_4_samenspraak behandelplan_5_voortgang
behandelplan_6_instructies
    contact_1_serieus contact_3_deskundigheid created_at
praktijk_9_bereikbaarheid survey_deployment_id
    v12_cijfer v13_aanbevelingsvraag v17_SRH V18=d0 d1 d2 d3 d4 d5 d6
d7 d8 d9 d10 d11)
  /FILE='U:\My Documents\Scriptie\Data\240514_Dataset bewerkt PREM
3.0.sav'
  /RENAME (age1 bereikbaarheid deskundigheid instructies
leeftijdscategorie
    questionnaire_deployment_id rapportcijfer samenspraak serieus
v01_serieus v02_deskundigheid
    v03_samenspraak v04_voortgang v05_instructies v06_bereikbaarheid
v08_aanbevelingsvraag v11_leeftijd
    v13_SRH V18 voortgang=d12 d13 d14 d15 d16 d17 d18 d19 d20 d21
d22 d23 d24 d25 d26 d27 d28 d29 d30
    d31)
  /DROP=d0 d1 d2 d3 d4 d5 d6 d7 d8 d9 d10 d11 d12 d13 d14 d15 d16
d17 d18 d19 d20 d21 d22 d23 d24
    d25 d26 d27 d28 d29 d30 d31.
EXECUTE.

FREQUENCIES geslacht gender.

* Create a new variable geslacht_gender, as these had different names in
the two separate datasets.

COMPUTE geslacht_gender=ANY(2, geslacht, gender).
EXECUTE.


VALUE LABELS geslacht_gender 0 'Man' 1 'Vrouw'.
frequencies geslacht_gender.
```

```
*Opening the file with the two datasets combined.

* Encoding: UTF-8.

GET
  FILE='U:\My Documents\Scriptie\Data\240514_Dataset bewerkt PREM
samengevoegd.sav'.
DATASET NAME DataSet1 WINDOW=FRONT.


*Coding a new variable for age with only 3 categories since 9 categories
are too many to make dummies of.

RECODE age (1=1) (2=1) (3=2) (4=2) (5=2) (6=2) (7=3) (8=3) (9=3)
INTO age_new.
VARIABLE LABELS  age_new 'age_new'.
EXECUTE.

FREQUENCIES age_new.
VALUE LABELS age_new
    1 'younger than 25 years'
    2 '25-64'
    3 '65 years or older'.
FREQUENCIES age_new.

*recoding a new variable for period, differentiating between several
phases during the pandemic.


FREQUENCIES aanleverdatum.

RECODE aanleverdatum ('2019-01'=1) ('2019-02'=1) ('2019-03'=1)
('2019-04'=1) ('2019-05'=1) ('2019-08'=1) ('2019-07'=1) ('2019-06'=1)
    ('2019-09'=1) ('2019-10'=1) ('2019-11'=1) ('2019-12'=1) ('2020-
01'=1) ('2020-02'=1)
    ('2020-03'=2) ('2020-04'=2) ('2020-05'=2) ('2020-06'=2) ('2020-
07'=2) ('2020-08'=2) ('2020-09'=3) ('2020-10'=3)
    ('2020-11'=3) ('2020-12'=3) ('2021-01'=3) ('2021-02'=3) ('2021-
03'=3) ('2021-04'=4)
    ('2021-05'=4) ('2021-06'=4) ('2021-07'=4) ('2021-08'=4) ('2021-
09'=4) ('2021-10'=5)
    ('2021-11'=5) ('2021-12'=5) ('2022-01'=5) ('2022-02'=5) (ELSE=6)
INTO Phase.
VARIABLE LABELS  Phase 'Phase'.
EXECUTE.

VALUE LABELS Phase
    1 'before the pandemic'
```

```
    2 'during the pandemic - wave 1'
    3 'during the pandemic - wave 2'
    4 'during the pandemic - opening society'
    5 'during the pandemic - wave 3'
    6 'after the pandemic'.

FREQUENCIES Phase.

*Alleen valide respons selecteren.

DATASET ACTIVATE DataSet1.
USE ALL.
COMPUTE filter_validresponse=(respons=4).
VARIABLE LABELS filter_validresponse 'respons=4 (FILTER)'.
VALUE LABELS filter_validresponse 0 'Not Selected' 1 'Selected'.
FORMATS filter_validresponse (f1.0).
FILTER BY filter_validresponse.
EXECUTE.

FREQUENCIES respons.

COMPUTE patient_satisfaction=(Z_serieus + Z_deskundigheid +
Z_samenspraak + Z_voortgang +
    Z_instructies + Z_bereikbaarheid) / 6.
EXECUTE.

DESCRIPTIVES patient_satisfaction.


*Creating a dummy of phase.

frequencies phase.

SPSSINC CREATE DUMMIES VARIABLE=Phase
ROOTNAME1=Phase
/OPTIONS ORDER=A USEVALUELABELS=YES USEML=NO OMITFIRST=NO.


VALUE LABELS Phase_1 0 'Other phase' 1 'Before the pandemic'.
frequencies Phase_1.

VALUE LABELS Phase_2 0 'Other phase' 1 'During the pandemic - wave 1'.
frequencies Phase_2.

VALUE LABELS Phase_3 0 'Other phase' 1 'During the pandemic - wave 2'.
frequencies Phase_3.
```

```
VALUE LABELS Phase_4 0 'Other phase' 1 'During the pandemic - opening
society'.
frequencies Phase_4.

VALUE LABELS Phase_5 0 'Other phase' 1 'During the pandemic - wave 3'.
frequencies Phase_5.

VALUE LABELS Phase_6 0 'Other phase' 1 'After the pandemic'.
frequencies Phase_6.


*Creating a dummy of SRH.

FREQUENCIES SRH.

SPSSINC CREATE DUMMIES VARIABLE=SRH
ROOTNAME1=SRH
/OPTIONS ORDER=A USEVALUELABELS=YES USEML=NO OMITFIRST=NO.

VALUE LABELS SRH_1 0 'Other SRH' 1 'SRH  = Bad'.
frequencies SRH_1.

VALUE LABELS SRH_2 0 'Other SRH' 1 'SRH = Moderate'.
frequencies SRH_2.

VALUE LABELS SRH_3 0 'Other SRH' 1 'SRH = Good'.
frequencies SRH_3.

VALUE LABELS SRH_4 0 'Other SRH' 1 'SRH = Very good'.
frequencies SRH_4.

VALUE LABELS SRH_5 0 'Other SRH' 1 'SRH = Excellent'.
frequencies SRH_5.

*Creating a dummy of age.

FREQUENCIES age_new.

SPSSINC CREATE DUMMIES VARIABLE=age_new
ROOTNAME1=Age
/OPTIONS ORDER=A USEVALUELABELS=YES USEML=NO OMITFIRST=NO.

VALUE LABELS Age_1 0 'Other age' 1 'Younger than 25 years'.
frequencies Age_1.

VALUE LABELS Age_2 0 'Other age' 1 '25-64 years'.
frequencies Age_2.
```

```
VALUE LABELS Age_3 0 'Other age' 1 '65 years or older'.
frequencies Age_3.
```

Syntax final dataset

```
* Encoding: UTF-8.

GET
  FILE="U:\My Documents\Scriptie\Data\240515_Dataset met dummy's.sav".
DATASET NAME DataSet1 WINDOW=FRONT.


* Crosstab to get insight into the distribution of responses, non-responds, and
non-valid responses per phase.

CROSSTABS
  /TABLES=Phase BY respons
  /FORMAT=AVALUE TABLES
  /CELLS=COUNT ROW
  /COUNT ROUND CELL.

* Only using valid responses (respons = 4) for the following analyses.

FREQUENCIES respons.

DATASET ACTIVATE DataSet1.
USE ALL.
COMPUTE filter_validresponse=(respons=4).
VARIABLE LABELS filter_validresponse 'respons=4 (FILTER)'.
VALUE LABELS filter_validresponse 0 'Not Selected' 1 'Selected'.
FORMATS filter_validresponse (f1.0).
FILTER BY filter_validresponse.
EXECUTE.

FREQUENCIES respons.
FREQUENCIES Age_1 Age_2 Age_3.
FREQUENCIES SRH_1 SRH_2 SRH_3 SRH_4 SRH_5.
FREQUENCIES Phase_1 Phase_2 Phase_3 Phase_4 Phase_5 Phase_6.


* Distribution of age per phase


DATASET ACTIVATE DataSet1.
CROSSTABS
  /TABLES=Phase BY geslacht_gender age_new SRH
  /FORMAT=AVALUE TABLES
  /CELLS=COUNT ROW
  /COUNT ROUND CELL.
```

```
* Regression analysis model 1.

REGRESSION
  /MISSING LISTWISE
  /STATISTICS COEFF OUTS R ANOVA
  /CRITERIA=PIN(.05) POUT(.10)
  /NOORIGIN
  /DEPENDENT patient_satisfaction
  /METHOD=ENTER Phase_2 Phase_3 Phase_4 Phase_5 Phase_6.

* Regression analysis model 2.

REGRESSION
  /MISSING LISTWISE
  /STATISTICS COEFF OUTS R ANOVA
  /CRITERIA=PIN(.05) POUT(.10)
  /NOORIGIN
  /DEPENDENT patient_satisfaction
  /METHOD=ENTER Phase_2 Phase_3 Phase_4 Phase_5 Phase_6 SRH_2 SRH_3
SRH_4 SRH_5 Age_2 Age_3
    geslacht_gender.

*Regression analysis model 3.

COMPUTE ia_badbefore= SRH_1*Phase_1.
COMPUTE ia_badwave1= SRH_1*Phase_2.
COMPUTE ia_badwave2= SRH_1*Phase_3.
COMPUTE ia_badopen= SRH_1*Phase_4.
COMPUTE ia_badwave3= SRH_1*Phase_5.
COMPUTE ia_badafter= SRH_1*Phase_6.

COMPUTE ia_modbefore= SRH_2*Phase_1.
COMPUTE ia_modwave1= SRH_2*Phase_2.
COMPUTE ia_modwave2= SRH_2*Phase_3.
COMPUTE ia_modopen= SRH_2*Phase_4.
COMPUTE ia_modwave3= SRH_2*Phase_5.
COMPUTE ia_modafter= SRH_2*Phase_6.

COMPUTE ia_goodbefore= SRH_3*Phase_1.
COMPUTE ia_goodwave1= SRH_3*Phase_2.
COMPUTE ia_goodwave2= SRH_3*Phase_3.
COMPUTE ia_goodopen= SRH_3*Phase_4.
COMPUTE ia_goodwave3= SRH_3*Phase_5.
COMPUTE ia_goodafter= SRH_3*Phase_6.

COMPUTE ia_verygoodbefore= SRH_4*Phase_1.
COMPUTE ia_verygoodwave1= SRH_4*Phase_2.
COMPUTE ia_verygoodwave2= SRH_4*Phase_3.
COMPUTE ia_verygoodopen= SRH_4*Phase_4.
COMPUTE ia_verygoodwave3= SRH_4*Phase_5.
COMPUTE ia_verygoodafter= SRH_4*Phase_6.
```

```
COMPUTE ia_excbefore= SRH_5*Phase_1.
COMPUTE ia_excwave1= SRH_5*Phase_2.
COMPUTE ia_excwave2= SRH_5*Phase_3.
COMPUTE ia_excopen= SRH_5*Phase_4.
COMPUTE ia_excwave3= SRH_5*Phase_5.
COMPUTE ia_excafter= SRH_5*Phase_6.

REGRESSION /dep=patient_satisfaction /enter=
geslacht_gender
SRH_2
SRH_3
SRH_4
SRH_5
Phase_2
Phase_3
Phase_4
Phase_5
Phase_6
ia_modwave1 ia_modwave2 ia_modopen ia_modwave3 ia_modafter
ia_goodwave1
ia_goodwave2
ia_goodopen
ia_goodwave3
ia_goodafter
ia_verygoodwave1
ia_verygoodwave2
ia_verygoodopen
ia_verygoodwave3
ia_verygoodafter
ia_excwave1
ia_excwave2
ia_excopen
ia_excwave3
ia_excafter.


*Regression analysis model 4.

COMPUTE ia_youngbefore= Age_1*Phase_1.
COMPUTE ia_youngwave1= Age_1*Phase_2.
COMPUTE ia_youngwave2= Age_1*Phase_3.
COMPUTE ia_youngopen= Age_1*Phase_4.
COMPUTE ia_youngwave3= Age_1*Phase_5.
COMPUTE ia_youngafter= Age_1*Phase_6.

COMPUTE ia_adultbefore= Age_2*Phase_1.
COMPUTE ia_adultwave1= Age_2*Phase_2.
COMPUTE ia_adultwave2= Age_2*Phase_3.
COMPUTE ia_adultopen= Age_2*Phase_4.
COMPUTE ia_adultwave3= Age_2*Phase_5.
COMPUTE ia_adultafter= Age_2*Phase_6.
```

```
COMPUTE ia_elderlybefore= Age_3*Phase_1.
COMPUTE ia_elderlywave1= Age_3*Phase_2.
COMPUTE ia_elderlywave2= Age_3*Phase_3.
COMPUTE ia_elderlyopen= Age_3*Phase_4.
COMPUTE ia_elderlywave3= Age_3*Phase_5.
COMPUTE ia_elderlyafter= Age_3*Phase_6.


REGRESSION /dep=patient_satisfaction /enter=
geslacht_gender
Age_2
Age_3
Phase_2
Phase_3
Phase_4
Phase_5
Phase_6
ia_adultwave1
ia_adultwave2
ia_adultopen
ia_adultwave3
ia_adultafter
ia_elderlywave1
ia_elderlywave2
ia_elderlyopen
ia_elderlywave3
ia_elderlyafter.
```

Appendix 2 – Questionnaire PREM 1.0

Introductie
Deze vragenlijst gaat over uw ervaringen met de fysiotherapie(praktijk). De vragenlijst heeft tot doel de kwaliteit van de fysiotherapie te meten zoals deze door patiënten wordt ervaren. Zo kan de zorg beter worden afgestemd op de wensen van patiënten. Wij stellen het zeer op prijs als u deze vragenlijst wilt invullen. Het invullen duurt minder dan 5 minuten.

Vertrouwelijk
☐ Alle informatie wordt strikt vertrouwelijk behandeld.
☐ Uw fysiotherapeut en uw zorgverzekeraar krijgen geen inzicht in uw persoonlijke antwoorden.
☐ Alle vragenlijsten worden anoniem verwerkt. Het is voor uw fysiotherapeut en de praktijk belangrijk te weten hoe patiënten de zorg hebben ervaren. Met de resultaten kan de praktijk of fysiotherapeut de kwaliteit van zorg verbeteren.
☐ Uw persoonlijke (inlog)code wordt ALLEEN gebruikt om te weten of u de vragenlijst hebt ingevuld. Als u heeft gereageerd ontvangt u geen herinnering.

Vrijwillige deelname
☐ Deelname aan dit onderzoek is vrijwillig.
☐ Het wel of niet meedoen heeft geen gevolg voor de zorg die u krijgt.

Instructies voor het invullen van deze vragenlijst
☐ De vragenlijst is persoonsgebonden: het is belangrijk dat de vragen worden ingevuld door de persoon die in de e-mail staat vermeld. Geef daarom de vragenlijst niet aan iemand anders door.
☐ Hebt u moeite met het invullen van de vragenlijst en hebt u hierbij hulp nodig, dan kunt u dat natuurlijk vragen aan familie of een naaste.
☐ Graag alle vragen beantwoorden. Kies het antwoord dat het beste bij u past.
☐ Soms is een vraag niet op u van toepassing of misschien weet u soms een antwoord niet. Beantwoord deze vraag dan met ‘weet ik niet/n.v.t.’.

Ervaren kwaliteit van de fysiotherapie

Wat vindt u van de zorg van [naam fysiotherapiepraktijk]?

De volgende vragen gaan over uw ervaringen met deze fysiotherapiepraktijk en de behandeling die u hier kreeg. De vragen gaan over de fysiotherapeut die u het **meest heeft behandeld.**

U kunt deze vragenlijst anoniem invullen; niemand weet welke antwoorden u geeft. Het wel of niet meedoen heeft geen gevolg voor de zorg die u krijgt. Wilt u alstublieft alle vragen invullen? Als u een vraag niet kunt beantwoorden, kies dan ‘weet ik niet/niet van toepassing (n.v.t.)’.

	Helemaal oneens	Oneens	Niet oneens, niet eens	Eens	Helemaal eens	Weet ik niet/n.v.t
Mijn fysiotherapeut nam mij serieus	○	○	○	○	○	○
Ik heb vertrouwen in de deskundigheid van mijn fysiotherapeut	○	○	○	○	○	○
Mijn fysiotherapeut bepaalde samen met mij het doel van de behandeling (wat ik met de behandeling wil bereiken)	○	○	○	○	○	○
Mijn fysiotherapeut besprak steeds de voortgang en resultaten van de behandeling met mij	○	○	○	○	○	○
Mijn fysiotherapeut gaf me duidelijke instructies (bijvoorbeeld voor oefeningen thuis)	○	○	○	○	○	○
De fysiotherapiepraktijk is telefonisch of via e-mail goed bereikbaar	○	○	○	○	○	○
	Uitstekend	**Zeer goed**	**Goed**	**Matig**	**Slecht**	
Hoe zou u over het algemeen uw gezondheid noemen?	○	○	○	○	○	

Appendix 3 – Questionnaire PREM 3.0

Introductie
Deze vragenlijst gaat over uw ervaringen met de [zorgverleners (praktijk)]. De vragenlijst heeft tot doel de kwaliteit van de [beroepsgroep zorgverlener] te meten zoals deze door patiënten wordt ervaren. Door uw deelname aan deze vragenlijst kunnen wij de kwaliteit van zorg verbeteren Wij stellen het zeer op prijs als u deze vragenlijst wilt invullen. Het invullen duurt minder dan 5 minuten.

Wat wordt er met deze informatie gedaan
Alle informatie die u verstrekt wordt strikt vertrouwelijk behandeld. Alle vragenlijsten worden anoniem en vertrouwelijk gebruikt. Uw [zorgverlener] en uw zorgverzekeraar krijgen geen inzicht in uw persoonlijke antwoorden.
Het is voor uw [zorgverlener] en de praktijk belangrijk te weten hoe patiënten de zorg hebben ervaren. Met de resultaten kan de [praktijk of zorgverlener] de kwaliteit van zorg verbeteren.
Uw persoonlijke (inlog)code wordt ALLEEN gebruikt om te weten of u de vragenlijst hebt ingevuld. Als u heeft gereageerd ontvangt u geen herinnering

Vrijwillige deelname
Deelname aan dit onderzoek is vrijwillig. Het wel of niet meedoen heeft geen gevolg voor de zorg die u krijgt.

Instructies voor het invullen van deze vragenlijst
De vragenlijst is persoonsgebonden: het is belangrijk dat de vragen worden ingevuld door de persoon die in de e-mail staat vermeld. Geef daarom de vragenlijst niet aan iemand anders door.
Hebt u moeite met het invullen van de vragenlijst en hebt u hierbij hulp nodig, dan kunt u dat natuurlijk vragen aan familie of een naaste.
Wilt u alstublieft géén vragen overslaan. Kies het antwoord dat het beste bij u past.
Soms is een vraag niet op u van toepassing of misschien weet u soms een antwoord niet. Beantwoord deze vraag dan met 'n.v.t.'.

Hartelijk dank voor uw medewerking!

Ervaren kwaliteit van de [beroepsgroep zorgverlener]

Wat vindt u van de zorg van [naam zorgverlenerspraktijk]?

De volgende vragen gaan over uw ervaringen met deze [zorgverlenerspraktijk] en de behandeling die u hier kreeg. De vragen gaan over de [zorgverlener] die u het meest heeft behandeld

U kunt deze vragenlijst anoniem invullen; niemand weet welke antwoorden u geeft. Het wel of niet meedoen heeft geen gevolg voor de zorg die u krijgt. Wilt u alstublieft alle vragen invullen? Als u een vraag niet kunt beantwoorden, kies dan 'niet van toepassing (n.v.t.)

	Nee, helemaal niet						Ja, helemaal				
	1	2	3	4	5	6	7	8	9	10	NVT
Nam de [zorgverlener] u serieus?											
Had u vertrouwen in de deskundigheid van de [zorgverlener]?											
Bepaalde u samen met de [zorgverlener] het doel van de begeleiding of behandeling?											
Mijn fysiotherapeut besprak steeds de voortgang en resultaten van de behandeling met mij											
Gaf de [zorgverlener] duidelijke uitleg en informatie (bijvoorbeeld bij adviezen en/of oefeningen thuis)											
Was de praktijk telefonisch of via e-mail goed bereikbaar?											

	Uitstekend	Zeer goed	Goed	Matig	Slecht
Hoe zou u over het algemeen uw gezondheid noemen?					