GOAL-SETTING IN THE DUTCH GENERAL PRACTITIONER'S PRACTICE

To what extent do Dutch general practitioners use goal-setting in their day-to-day clinical practice?

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Abstract

Background
Seeing that every patient is different and unique, the emphasis of disease management has shifted from a more disease-centered view to a patient-centered view. In this patient-centered approach to medicine, the individual goals and preferences of patients are leading when setting up treatment plans or goals. This process, also called goal-setting, has become more widespread in the medical domain due to the increased prevalence of long-term illnesses, multimorbidity and the ageing of the population. As the medical doctors that often deal with chronic illnesses and long-term follow-up, general practitioners are in the prime position to make use of goal-setting in their day-to-day clinical practice. Despite many initiatives to promote goal-setting in Dutch primary care, it remains unknown what proportion of GP's actually make use of goal-setting. Therefore, this study will aim to answer the following research question: "To what extent do Dutch general practitioners use goal-setting in their day-to-day clinical practice?"

Methods
Firstly, the literature was searched for information on the theory behind goal-setting, the rationale for using goal-setting, the domains in which goal-setting is used and the main barriers and facilitators to the use of goal-setting. This information was used to create a survey using QualtricsXM, which was sent out to Dutch GP's and Dutch GP's-in-training. The survey gathered data on respondent demographics, the composition of their patient populations, the use of goal-setting, the domains of goal-setting use and the main perceived barriers and facilitators to goal-setting. Questions where both closed and open-ended and answers were analysed quantitatively. Additionally, a binary multivariate logistic regression analysis was performed to find potential characteristics of respondents or their patient populations that might be associated with the use of goal-setting.

Results
A total of 128 eligible responses were collected, of which 106 were complete. Respondents had a mean age of 44.9 years and 71.9% (N=92) were females. 82.0% of respondents were general practitioners. Of the respondents 70.3% (N=90) made use of goal-setting in day-to-day clinical practice. The main reason for using goal-setting was the notion that every patient is different and requires an individual approach (N=43, 36.4%). Goal-setting was primarily used in lifestyle related health problems (73.2%) and in palliative care settings (83.7%). Time constraints were the main perceived barrier to goal-setting (N=50, 22.3%), while an individualized approach was seen as the main facilitator to goal-setting (N=61, 25.0%). Binary multivariate logistic regression revealed that having 15 minutes per consultation (OR 5.9), being familiar with goal-setting (OR 13.2), having received prior education on goal-setting (OR 16.4) and having a higher share of working patients in the patient population (OR 1.1), were positively associated with goal-setting. Having a higher share of chronically-ill patients was negatively associated with goal-setting (OR 0.9).

Discussion
Goal-setting is widely used among Dutch GP's, but there is still room for improvement and further stimulation of goal-setting. Goal-setting should take a standard place in medical consultations, especially in the identification of the care question. Moreover, successful use of goal-setting requires flexibility and freedom to deviate from strict unpersonal guidelines to facilitate individualized treatments. Additionally, GP's should receive more time per consultation to effectively use goal-setting and should also receive more training on the use of goal-setting, seeing that both will stimulate the use and further implementation of goal-setting in the Dutch GP-setting. Future, preferably qualitative, research is needed to gain a better understanding of why goal-setting is used the way it is and what implications exist for Dutch primary care.

Table of contents

Chapter 1: Introduction

In medicine we have increasingly come to rely on physical, radiological and/or laboratory outcomes to help guide the choice of treatments, assess treatment progression, and determine the overall success of these treatments. On the one hand these "biological outcomes" are of invaluable importance to both patients and health care providers and will always form an important cornerstone in medical diagnostics and treatment. On the other hand, these outcomes do not paint the entire picture. While these "biological outcomes" may be very useful to determine the pathophysiological status of disease, they do not provide clear information on the progression or regression of goals that are important to the individual patient(1, 2). Patients, especially those that live with chronic disease or multimorbidity, might attach more importance to other outcomes besides the aforementioned biological outcomes(1). For instance, one patient with rheumatoid arthritis might be more concerned with the ability to walk for ten minutes without pain, and not so much with the lowering of inflammatory parameters in the blood. A second patient may have a completely different objective and might want to be able to continue doing sports, while a third patient might be more interested in reducing the necessary number of medications. All these different non-medical goals vary from patient to patient and are thus individualized. Individualized goals do not necessarily have to contribute to the improvement of the measurable pathophysiological or "objective" (biological) state of disease of the patient, but they do contribute to improvements in the "subjective" state of disease as perceived by the individual patient. This concept of taking into account patients' individual goals or outcome preferences falls under the umbrella of individualized medicine or more specifically goal-setting(3).

Goal-setting is a part of patient-centered medicine(4) and involves a dynamic process in which patient and health care provider share and set realistic goals on health and general wellbeing and agree on the most adequate course of action together(2). In this process of goal-setting, the focus lies on the outcomes that are most important to the patient and goals that they strive to achieve. Through clarification and enhancement of patient's understanding of their condition, exploration of their beliefs, norms and values and exploration of their priorities and preferences, health care professionals

are enabled to formulate relevant and fitting goals for their patients(5). Goals are therefore not bound to any medical standard or guideline or to any pre-set list, but are completely based on the unique characteristics, abilities, and preferences of the individual patient. The upcoming importance of this patient-centered approach to medicine, stands in stark contrast with the more traditional ways of practicing medicine in which the doctor-patient relationship was more authoritarian and top-down driven.

The increased recognition of the importance of goal-setting and its subsequent adoption in medical practice can be attributed to changing demographic compositions around the world. Currently, we are dealing with increased aging of populations around the globe, and as a result there has been a marked increase in the prevalence of chronic diseases, multimorbidity and other health care conditions that require long-term management(6). This development is expected to continue in the future and grow even more rapidly than it already has, resulting in a larger part of the population who might have personal goals in the management of their long-term affliction(s). Additionally, our health care system is increasingly shifting towards a more patient-centered system, where the importance and added value of involving patients in the medical decision-making process has been recognized and has become a central tenet in health care delivery(4). Due to these (current and expected) developments, the use and implementation of goal-setting among other forms of patient-centered medicine are therefore more relevant than ever. Furthermore, the adoption of goal-setting could also lead to improvements in the doctor-patient relationship. Adopting, goal-setting will allow patients to follow a treatment strategy that is better adopted to their own personal needs, goals and preferences, while providing physicians with higher treatment satisfaction from their patients, higher levels of treatment compliance and a better perceived quality of care delivered(7-9).

When looking at the different types of care providers, it becomes evident that general practitioners (GP's) are in the prime position to use goal-setting in their day-to-day clinical practice. GP's frequently treat patients with chronic disease and/or multimorbidity and therefore must engage in long-term treatment relationships with their patients(3), more so than other clinicians in other medical

settings. In this setting, multimorbidity is understood as the presence and coexistence of two or more distinct health care conditions, usually of a chronic nature(10). Additionally, GP's often have a better overview of the patient's daily life and daily activities, enabling them to much better identify goals that are relevant but also suitable to individual patients. This combination of chronic disease and long-term follow-up puts GP's in the perfect spot to (in collaboration with their patients) apply goal-setting and adopt individualized treatment strategies. In the Netherlands the importance of goal-setting and other forms of patient-centered care have increasingly been recognized and adopted in the Dutch general health care system and primary health care system. Dutch reports such as "Person-centered care for patients with multimorbidity in the GP-setting"(11) conducted by researchers of the Erasmus School of Health Policy and Management (ESHPM) and the "Handreiking Gezamenlijke Besluitvorming over Doelen en Zorgafspraken" created by the Dutch GP Society(12), illustrate the increased recognition of goal-setting and patient-centered care delivery in the Netherlands.

Despite the aforementioned initiatives, the perceived importance of goal-setting and the increasing (inter)national call to adopt goal-setting in daily practice, the literature remains unclear as to what extent general practitioners in the Netherlands actually make use of goal-setting in their day-to-day clinical practice, why and when they might do so and what challenges they might face. The aim of this thesis study is to explore the use of goal-setting by general practitioners with the hope of elucidating the current state of affairs regarding the implementation of goal-setting in their daily practice. Additionally, this study aims to shed more light on the most common barriers and facilitators that GP's might face and use this information to help find new, better, and smarter ways to further introduce the concept of goal-setting in Dutch GP-care. Concretely, the following research question can be formulated: "To what extent do Dutch general practitioners use goal-setting in their day-to-day clinical practice?". In order to fully answer this question, several related questions need to be answered as well. Therefore, the following list of secondary questions have been formulated:

1. What are the main reasons for using goal-setting in the general practitioners practice?

2. In which clinical settings and medical domains is goal-setting used the most in the general practitioners practice?

3. Which characteristics of Dutch general practitioners are associated with the use of goal-setting?

4. What barriers are most limiting for Dutch general practitioners when applying or trying to apply goal-setting in clinical practice?

5. What facilitators are most supporting for Dutch general practitioners when applying or trying to apply goal-setting in clinical practice?

1.1 Reader's guide

The remaining chapters of this thesis will provide the answers and argumentations to the (sub)questions mentioned in the previous paragraph. In chapter 2, the reader will be guided through the existing literature on the topic and the general background to goal-setting in clinical practice. In this chapter the theoretical background for answering the sub questions and the main research question will be laid down and the thesis research will be positioned within the existing body of literature. In chapter 3, the methodology of the empirical research is described enabling the reader to understand the procedural and methodological considerations and steps that have been taken. Chapter 4 will discuss the results of the empirical data collection. In the final chapter, the reader will be guided through a discussion of the empirical results in which an answer to the sub questions and the main research question will be given. Additionally, the main conclusions, limitations and suggestions for further research will be provided to the reader.

Chapter 2: Background and current literature

2.1 Introduction

To better understand the context into which this thesis research is embedded, it is important to see

what the current state of knowledge on the topic of goal-setting in the general practitioners practice is.

To this end, PubMed and Google Scholar were searched for relevant literature published until May

2021. Two specific search strategies were devised (see Appendix A). The first search strategy was

used to find relevant literature and provide a framework for sub questions 1 and 2, aiming to gain a

better understanding of the reasons for using goal-setting and the main clinical settings in which goal-

setting is used. The second search strategy was used to find relevant literature and provide a

framework for sub questions 4 and 5, looking at general barriers and facilitators of using goal-setting

in health care. The second search was broadened to look at general health care in order to provide a

more complete overview of the known literature on barriers and facilitators to goal-setting, seeing that

these might also be relevant for general practitioner's. Besides the studies found in the literature

searches, references of relevant articles were scanned for possible relevant studies which were not

found in the initial literature search. The findings of the relevant articles were used in the writing of

this chapter.

2.2 Theory on goal-setting

The concept of "Goal-setting Theory"(13) can be useful to gain more insight on the reasons behind

using individual goals when devising a treatment plan. "Goal-setting Theory" was first described by

Locke and Latham in the 1960's and is based on the notion that much of human behaviour and

endeavour is based on purposeful action and directed by conscious goals(14). Goal-setting theory

states that setting certain performance goals, can cause people to perform better by letting them focus

on goal-related activities, strengthening their motivation and persistence while performing and by

allowing them to adopt new skills towards the achievement of their goal (13, 15). Additionally, goal-

setting can lead to rises in self-efficacy, a term which is used to express the confidence in one's own

ability to complete a certain task or achieve a certain goal. Setting and achieving goals will lead to

more confidence in oneself, more self-efficacy and ultimately more motivation and more ambitious goals(13, 15). One specific review by Bodenheimer et al., looked at how goal-setting was implemented in the primary care sector and describe several tenets that stimulate effective goal-setting in this specific sector(13). According to their review, goals in primary care should aim to be specific and based on the short-term, since these types of goals are more likely to be successful in comparison to long-term more abstract goals, because they are clearer to the patient and less extensive than long-term goals, making them easier to achieve. Secondly, goals should preferably be made in collaboration with patient and health care professional, as opposed to directive goal-setting by the health care professional only, seeing that the patient has no obligation towards the health care professional to undertake or achieve the goal whatsoever. Thirdly, goals should aim to either improve clinical outcomes or improve self-efficacy. Even if a goal does not lead to any health-related improvements, the improvement of patient self-efficacy may lead to a new goal-setting process in which actual health-improving goals are set and met. When self-efficacy is the goal, it is important to explore the level of confidence the patient has to begin with, seeing that this might help determine the extensiveness of the goal. Finally, patient follow-up and feedback on the goal-achieving process are important in stimulating self-management and goal-achievement.

2.3 Rationale for using goal-setting in health care

Having understood why goal-setting in and of itself is useful and how goal-setting should be used, it is important to gain a better understanding of why goal-setting should be used in health care. The evidence for the effectiveness of goal-setting and the broader concept of patient-centered medicine is numerous in the literature. A Cochrane systematic review and meta-analysis by Coulter et al., investigated the effects of personalized care-planning in adults with chronic or long-term conditions in 19 different randomized controlled trials(5). In essence, personalized care-planning is a sort of goal-setting in which patient and health care provider identify relevant health-related issues and through the formulation of goals create a personalized plan to tackle these issues. In their review, Coulter et al. found that the use of personalized-care planning led to many positive effects on the health and wellbeing of patients. Firstly, improvements in both objective physical and mental health were

observed, such as lower systolic blood pressure, improved glycaemic control in patients with diabetes mellitus and a reduction of symptoms of depression, were observed with the use of personalized care-planning. Secondly, small but significant improvements in subjective condition-specific health status and quality of life were observed as well with the use of personalized care-planning. Thirdly, the researchers showed that the use of personalized care-planning lead to more self-management capabilities and higher self-efficacy amongst patients. Lastly, the use of personalized care-planning had a positive effect on self-care activities such as daily blood glucose monitoring and foot care in patients with diabetic polyneuropathy. Additionally, using health goals has been described to have a possible positive effect on health promotion interventions such as losing weight, seeing that these interventions can now be tailored to the individual needs and goals of the patient[16]. Other studies have found that goal-setting can help increase patient-satisfaction, general wellbeing, and perceived quality of life [7, 8]. The patient-centered approach of goal-setting and personalized care-planning puts the patient "back in charge" of his/her own condition and treatment, improving self-management and self-efficacy and leading to more treatment satisfaction and higher quality of life through these positive adaptations. These improvements in self-efficacy and self-management also have additional benefits, seeing that higher rates of self-efficacy result in lower medical costs due to reduction in polypharmacy and hospital admissions, improved adherence to treatment and improved ability to alert the treating health care professional when help is needed[17]. These benefits are especially relevant in patients with multimorbidity [18]. Seeing that patients with multimorbidity are usually not included in medical randomized controlled trials and do not have their own disease-specific medical guidelines, current guidelines are less applicable to them resulting in increased treatment burden and unnecessary polypharmacy [17, 19]. The underrepresentation of multimorbid patients in single disease medical guidelines could lead to inadequate care for these patient groups. In the light of the increasing shift from disease-centered practicing of medicine towards a more holistic and person-centered practicing of medicine, the care for patients with multimorbidity should be more closely dictated by the patient's own goals, preferences, understanding of disease and experience with living with multimorbidity[19, 20]. The adoption of goal-setting in care for multimorbid patients could help a great deal in this regard.

2.4 Use of goal-setting in clinical medicine

Going one step further, we turn our attention to the specific health care domains which have adopted goal-setting. Literature reveals that goal-setting has a wide application in numerous and diverse medical and paramedical disciplines. Building forth on the previous paragraph, patients with multimorbidity are one of the main patient groups in which goal-setting is used based on the available literature, with several studies looking at the dynamic between goal-setting and multimorbidity(2, 17, 18). Besides multimorbidity, the field of rehabilitative medicine and physical therapy has historically been the one of the central disciplines in which goal-attainment has been a staple of the treatment plan(21-23). As a staple of good care provision many guidelines within rehabilitative medicine and physical therapy, require health care professionals to discuss and negotiate goals with their patients and herein actively involve patients in the goal-setting process(24, 25). Within this discipline, tools have been developed that aid in making individual goals more measurable and are often widely used by physical therapists and rehabilitative medicine professionals. Such tools are called individualized outcome measures and are used to help health care providers assess in which areas patients individual goals and preferences lie and measure to what extent these goals and preferences have been achieved. Individualized outcome measures can provide both the patient and health care provider with more guidance when trying to decide on a goal-based treatment strategy (21). Examples of individualized outcome measures in the field of rehabilitative medicine and physical therapy are the "Assessment of Motor and Process Skills"(26) and the "Canadian Occupational Performance Measure"(27). Additionally, the field of psychology and psychiatry also makes extensive use of goal-setting. The use of goal-setting in the domain of mental health is shown to have many benefits as well. Goal-setting in psychiatry is believed to help psychiatric patients in their recovery process, contribute to both personal meaning and hope in afflicted patients (28) and strengthen their feelings of empowerment through improved self-efficacy(29). On top of that, the field has created individualized outcome measurement tools such as "Goal Attainment Scaling" and "Target Complaints"(21) to aid in goal-setting for these patients. The presence of these individualized outcome measures in general is widespread and not only restricted to the fields of rehabilitative medicine and mental health, indicating that several medical fields have not only adopted goal-setting as an integral part of care delivery, but have even taken the

extra step and created tools to help make the set goals more measurable and quantifiable. Individualized outcome measures could be invaluable tools for general practitioners when using goal-setting, helping them to measure the progress of the goals set. In this thesis research, however, the use of individualized outcome measures by GP's will not be discussed any further besides the previous illustrations, seeing that the focus is centered on the general use of goal-setting. Returning the focus to the use of goal-setting, the field of diabetology has encountered a marked rise in the use of goal-setting over the years and has perceived goal-setting as an important aspect of the management of patients with diabetes mellitus. The use of goal-setting has led to improvement of diabetes-related self-efficacy and self-management skills and the adoption of healthier lifestyles(30, 31). Moreover, goal-setting has been shown to lead to improvements in blood sugar level (glycaemic control) through reduction of serum HbA1c (a measure for long-term glycation of red blood cells), where patients who set goals for HbA1c reduction more easily reach the preferred rates of glycaemic control than patients who did not set glycaemic control goals(32, 33). Other medical fields that have been described to use goal-setting in the literature include fields such as geriatric primary and secondary care, pediatric primary care, medical oncology, pulmonary medicine and rheumatology and inflammatory diseases (21, 34-41). Looking at these medical domains, many of them can be grouped together in broader categories, including rehabilitative medicine and musculoskeletal diseases, chronic inflammatory and auto-immune disease, age-related and degenerative disease, mental health related-disease and malignant disease. Generally speaking, medical (sub)specialties which provide routinized care to chronically ill or multi-morbid patients seem most likely to adopt a goal-centered approach. Looking at the general practitioners practice, many of the diseases encountered in day-to-day practice have to do with one of these broader categories of long-term disease, presenting general practitioners with ample opportunity to use goal-setting in clinical practice.

2.5 Barriers and facilitators in goal-setting
Finally, it is important to understand challenges that health care providers, including GP's, might face when using goal-setting. The existing literature has described several barriers in the implementation of goal-setting. Generally, these barriers can be classified as to either being patient related,

organizational/structure related or health care provider related(42). The first category of barriers is related to the patients. Many studies show that unpreparedness of patients before the goal-setting consultations or encountering patient's goals that were too broad or vague were significant barriers towards goal-setting (2, 17, 18, 42-44). This could reflect patients' inexperience with goal-setting and inability to come up with proper goals. Additionally, the same studies mentioned that goal-setting was also restricted when patients did not want to engage in goal-setting, if they preferred to forsake goal-setting or if they viewed goal-setting as an unnecessary part of disease management. Another patient-related barrier relates to the patient's readiness in participating in goal-setting. Patients who have just been diagnosed with a chronic condition, often do not know what kind of goals they want to achieve in the first place and do not know enough about their own condition to actively and successfully engage in a conversation on goal-setting (42-44). In these cases, the implementation of goal-setting in the disease management process would be premature, seeing that patients are not yet ready to actively partake in this process. Other barriers are more related to the health care professional and include unsuitable professional attitudes and lacking skills (42, 43, 45). Health care providers who do not realize the benefit or use of goal-setting or who do not see the patient as a full-fledged conversational partner form barriers towards effective goal-setting. Health care provider scepticism, lack of interest or a stereotypical patient-view also did not contribute to effective goal-setting in the literature. Additionally, physicians who lacked the skill to properly guide the patient through the goal-setting process, were also unable to effectively use goal-setting. Another provider-related barrier in goal-setting was the mismatch between the (sometimes unrealistic) goals of the patient and the health care providers ability to help the patient in his or her goal. Patients often formulated broad, ambitious long-term goals, while health-care providers usually formulated more specific goals for the short term, making it difficult for health care providers to manage expectations of their patients in the goal-setting process (17, 42). A final patient-provider related barrier to goal-setting was that it is often difficult to measure goals and the progress towards goals, making it difficult to have an adequate patient follow-up once the goal-setting process was initiated (17, 18). A sixth barrier in effective goal-setting is related to the perception of health care providers and the health care organization they are imbedded in. A health care context which is driven by a biomedical/disease-outcome guided perspective was

considered as a barrier towards goal-setting(43-45). This discouraged both patients and health care providers to invest in goal-setting or discuss health goals which were not directly related to disease. The final barrier is related to time constraints. Not having enough time to engage in collaborative goal-setting was experienced to be a major barrier from both the patient's perspective as well as the health care providers perspective(42, 43, 45).

Apart from challenges, health care providers might also experience elements of support when applying goal-setting in their day-to-day clinical practice. When looking at facilitators towards effective goal-setting, the most mentioned facilitator was a coaching and motivated attitude of health-care providers in the goal-attainment process (42, 43, 45, 46). Patients who had health care providers who were motivated to provide guidance to them and coach them through their goal-attainment process, were more likely to achieve their goals. Another facilitator described in the literature was the use of tools and additional resources in the goal-setting process. Using work-sheets, pictures, pamphlets and/or other written aids were seen as facilitators in the goal-setting process (42). Investing in professional training and education of health care providers in goal-setting has also been described as a facilitator of effective goal-setting(45). Other facilitators that were described to make goal-setting more successful in clinical practice include adopting a personalized approach to goal-setting (42), personal continuity of care with one main health care provider (17), clear and early communication and goal counselling to prevent unrealistic goals (42) and the timely active engagement of the patient's social circle(45).

2.6 Positioning of this thesis research: use of goal-setting in the general practitioner's practice
Despite the many benefits of using goal-setting in medical practice and the prime position of general practitioners to do so both medically and logistically, research shows little evidence for widespread and structural use of goal-setting by general practitioners. Earlier research done in the United Kingdom seems to suggest that only a limited portion of GP's actually apply the concept in their day-to-day practice(5, 47). Studies that looked at the use of care-plans, which are an incorporation of goal-setting, active patient follow-up and self-management support(48), reported different usage rates of

care-planning and goal-setting. A study by Reeves et al. reported that 68.7% (1676 out of 2439) of their respondents were involved in an oral care-planning discussion during consultations, while only 4% could confirm that this care-planning was also written down in a written care plan. Looking at goal-setting they reported a Patient Assessment of Chronic Illness Care (PACIC) score of 2.18 (on a scale of 1 to 5), indicating that among their GP-respondents goal-setting was on average used only "a little of the time"(48). A study by Burt et al. amongst 2,169,718 respondents reported a rate of 12%, looking at the presence of written care plans amongst their respondents, while reporting a rate 84% when it came to the presence of care planning(49). Another study by Turner et al., surveyed British GP's on their use of patient-reported outcome measures and found a usage rate of 77% (77 out of 100) by GP's (50), indicating a much higher percentual usage rate amongst GP's in comparison to the previously mentioned studies. Unfortunately, they only looked at the use of patient-reported outcome measures and not the integral individualized treatment care-plans the studies by Reeves et al.(48) and Burt et al.(49) looked at. The literature provides quite a percentual range when it comes to the use of goal-setting, making it unclear what the exact value and subsequent margins are. It appears that the more extensive and complex goal-setting is used less frequently than more simple forms of goal-setting. Literature did not provide any data on the frequency of use of goal-setting by Dutch GP's and based on the wide-ranged rates of goal-setting use found in the literature, it is not quite possible to make a valid estimation of the usage rate of goal-setting in Dutch GP-practices. Therefore, it remains unknown to what extent Dutch General Practitioners use goal-setting in their own day-to-day clinical practice. This thesis research will aim to provide an answer to this question and close this knowledge gap by surveying Dutch GP's on their use of goal-setting in clinical practice. Additionally, GP's will be surveyed on their familiarity with goal-setting and the main barriers and facilitators that they encounter in goal-setting. This search will have a descriptive and exploratory character and aim to give a gross quantification of the degree of goal-setting (and other parameters) by Dutch GP's. The results found can be used to help improve GP-education on goal-setting during their medical studies and GP-studies and they can be used to improve on clinical guidelines advocating the use of goal-setting. Finally, our results may help stimulate changes in the daily organization of GP-consultations to

facilitate the use goal-setting. All these potential adaptations will be specific to the Dutch primary care system, seeing that they are based on Dutch GP's.

Chapter 3: Research Methods

3.1 Introduction

The goal of this research was primarily descriptive, trying to give a quantification of the use of goal-setting by GP's. In order to do so, an empirical research was conducted based on the surveying of GP's and GP's-in-training. To help answer the main research question, the percentage of respondents that use goal-setting in daily clinical practice was measured through this survey. Moreover, a percentual overview of the perceived importance of goal-setting, its clinical uses, the main reasons for use, the main perceived advantages, the main perceived barriers and facilitators, and the main stimulators to the use of goal-setting were provided through analysis of the survey data. Lastly, causal inference using statistical analysis was performed to assess possible associations between demographic and patient population related predictors with the use of goal-setting, allowing for a better understanding of which factors might be relevant in increasing the use of goal-setting.

3.2 Survey content

Based on existing literature(50) and the aforementioned theoretical background an online survey was created with a total of 28 questions using the QualtricsXM software provided through the Erasmus University of Rotterdam. A survey was chosen due to its ease of distribution and the descriptive and quantitative nature of this study. Additionally, a survey would be much less time intensive for GP's and GP's-in-training than a qualitative approach (potentially requiring interviews), seeing that they may experience increased pressure on them due to the coronavirus pandemic and the corona vaccination campaign. Thirdly, a survey would allow the gathering and quantification of responses from GP's all over the Netherlands, providing a much more equal picture and a more valid answer to the research question. Additional variables for statistical analysis and correction were obtained using a Directed Acyclic Graph (DAG) and logical deduction. DAG's are visual representation of possible causal pathways, helpful when trying to perform correct causal inference and identify the relevant exposure, outcome, possible confounders, possible colliders and the presence of mediators (51). An overview of the DAG's used for this study is provided in appendix B.

The survey was made up out of five distinct parts:

1. *Demographics of the participating respondents.*

   This part consisted of seven multiple-choice questions and was used to gather the following data: Function within general practice medicine, age in years, sex, years of experience as a GP, urbanity of the city or town of employment, region of employment and mean amount of time per consultation in minutes. These parameters were needed to provide baseline demographic information on the study population and to perform statistical corrections in the analysis phase. These questions were mainly used to help answer sub question 3.

2. *Information on the build-up of the patient population*

   This part consisted of six slider questions and one multiple choice question (yes-no) exploring the nature of the patient population the respondent is active in. Respondents were asked to identify the following shares of the patient population, ranging from 0-100%: the share of elderly patients, with elderly patients being defined as 65 years of age or older, the share of highly educated patients, with highly educated being defined as following or having followed at least higher vocational education, the share of patients engaged in paid or voluntary work, the share of patients receiving chronic care, the share of patients receiving palliative and terminal care and the share of patients with multimorbidity, with multimorbidity being defined as having at least two diseases simultaneously. Finally, the respondents were asked if they thought their patient population was representative of the average Dutch patient population. These parameters were needed to provide baseline information on the general build-up of the patient population and to perform statistical corrections in the analysis phase. These questions were mainly used to help answer sub question 3.

3. *Familiarity with goal-setting*

   This part consisted of two multiple choice questions (yes-no), identifying if the respondents were familiar with the concept of goal-setting and if they encountered the concept during their medical training or GP-training. Respondents were presented with the option to write down an open-ended answer on what they learned about goal-setting specifically, if they wished to do

so. The answers to these questions were used for potential statistical corrections during the analysis phase. These questions were mainly used to help answer sub question 3.

4. *Use of goal-setting*

This part consisted of seven multiple choice questions, exploring if GP's use goal-setting, how and why they use it, in what settings and health problems they use it, what the main advantages of using goal-setting are in their mind and how important goal-setting is to them. Respondents were presented with the possibility to give additional open-ended answers to which health problems and settings they used goal-setting and what the main advantages of goal-setting are. These questions helped provide an overview of the frequency and manner of use of goal-setting in the GP's practice. These questions were mainly used to help answer the main research question and sub questions 1 and 2.

5. *Barriers and facilitators to using goal-setting*

The final part consisted of three multiple choice questions, namely what the main barriers in the use of goal-setting were according to the respondents, what the main facilitators in the use of goal-setting were and in what way the use of goal-setting could be stimulated even further. Respondents were provided with the possibility to give open-ended answers to what they experienced to be barriers or facilitators to goal-setting. These questions were used to help answer sub questions 4 and 5.

Participants who did not make use of goal-setting, skipped section 4 and the questions related to barriers and facilitators of section 5 and were immediately directed towards the question on how goal-setting could be stimulated further. They were not directed to the end of the survey immediately, because GP's who did not make use of goal-setting could still provide relevant insights in the ways the use of goal-setting could be further stimulated in their perception, even if they themselves did not make use of it. Survey question and answer options were kept short and neutral, minimizing the risk of response bias. Response bias is a situation in which respondents may (unknowingly) answer questions untruthfully or incorrectly based on unclear formulation of the question or a lack of understanding of the meaning of the question(52). Keeping questions short and neutral helps remove excess ambiguity

from the survey questions. The reason to allow for open-ended answer options in addition to the multiple-choice questions, was to give respondents the possibility to write down anything they deemed missing from the multiple choice answer list, enabling a more complete analysis and answering of the research questions. Seeing that the survey was targeted towards Dutch GP's, the survey and the surrounding communication with other parties and respondents were all conducted in the Dutch language. The complete survey can be found in appendix C.

3.3 In- and exclusion criteria of the survey

Survey responses were included if they met the following inclusion criteria:

- Respondent's age of 18 years or older;

- Respondent is a practicing or retired general practitioner or general practitioner in training;

- Respondent works or has worked in the Netherlands, the Dutch Caribbean or Surinam prior to 1975;

- Survey entirely completed or partially completed WITH a filled in answer to the question: "Do you make use of goal-setting in your daily practice?".

Survey responses were excluded if the analysis showed the following:

- Engagement in acute care delivery only by respondents;

- Partially completed survey WITHOUT a filled in answer to the question "Do you make use of goal-setting in your daily practice?".

In acute care delivery, there is often no room for goal-setting, seeing that goal-setting requires active patient input. In acute situations, acquisition of active patient input is usually not even possible given the severe and possibly life-threatening medical condition(s) of the patient. It is for this reason that GP's that only engaged in acute care delivery were excluded. Seeing that the most useful parameter to help answer the research question was an estimation of the frequency of goal-setting, it was decided to include all incomplete surveys which at least included data on if a GP made use of goal-setting in his or her day-to-day practice, even if other survey questions were not filled in. Excluding these surveys

and only including completely filled-in surveys, was deemed undesirable and a waste of the most useful data for answering the research question.

3.4 Sample size calculation

A sample size calculation was performed using online sample size calculator software provided by Qualtrics to estimate the minimal number of responses needed to be able to provide an accurate description of the use of goal-setting in the Dutch GP-practice(53). Based on a total population of GP's and GP's-in-training of approximately 15021 in 2019 in the Netherlands(54), a confidence interval of 95% and an error margin of 10%, a minimum of 96 respondents were needed for this study. Therefore, an aim of including 100 respondents was set for this study.

3.5 Distribution of the survey

The online survey was converted into an anonymous link and distributed in various ways. Firstly, large overarching Dutch GP-institutions were contacted and queried to fill-in and distribute the survey amongst their members. In this stage the following institutions were contacted: the Dutch General Practitioner Society (Nederlands Huisartsen Genootschap), the National Association of General Practitioners (Landelijke Huisartsen Vereniging), the National Organisation of Aspiring General Practitioners (Landelijke Organisatie Voor Aspirant Huisartsen), the Public Health and Primary Care division of the Leiden University Medical Centre (Publieke Gezondheid en Eerstelijns Geneeskunde), the department of general practice medicine of the Erasmus University Medical Centre, the Julius centre for primary care medicine of the University of Utrecht, the department of general practice medicine of the Groningen University Medical Centre, GP-organisation Arts&Zorg, GP-organisation General Practitioners South-East Limburg (Huisartsen Zuid-Oost Limburg) and the primary care institute DAI-doctors (DAI-artsen). Secondly, 68 general practitioners from the Leiden University Medical Centre (LUMC), were contacted directly on their LUMC e-mail addresses and asked to fill-in the survey. Thirdly, one general practitioner that I have encountered during my own clinical rotations in the general practitioner's practice and six general practitioners and general practitioners in training

from my own personal network were contacted and asked to fill-in this survey and distribute it among their colleagues and GP-acquaintances. Fourthly, the survey was distributed online through several online platforms, including the forum "www.HAweb.nl" for GP's only (part of the National Association of General Practitioner's), a private Facebook group for GP's and GP's-in-training and the professional online network LinkedIn in the hope of attracting GP's and GP's-in-training to fill in the survey. On LinkedIn the survey was shared multiple times by myself as well as a several times by fellow medical students and doctors. Fifthly, a total of 516 general practices were contacted directly through phone and/or e-mail and were invited to participate in the survey. Lastly, thirty general practice emergency centers were contacted and asked to distribute the survey among their GP-member base. A total of two reminders were sent out to the non-responding GP's, departments, and institutions. The survey was online from the 26th of April 2021 until the 25th of June 2021.

3.6 Statistical analysis: general notions

Statistical analysis was performed using "Statistical Package for the Social Sciences" (SPSS) version 26. Survey responses were extracted to SPSS and all eligible survey responses were checked for uniformity and adapted where necessary to ensure adequate data analysis. For instance, answers of respondents who did not provide their age in only numbers were changed to only include numerical answers. Answers to open-ended questions were all individually read and organized thematically. The different themes were given a numerical value to facilitate quantitative analysis of the open-ended answers. For the majority of this study, the goal of the analyses was to provide a descriptive overview of the answers of the respondents. Therefore, a descriptive overview of the demographic data, the answer to the main research question and sub questions one, two, four and five was provided. Seeing that the goal for these components was to provide a descriptive overview, no causal inference analyses were performed on the specific data related to the aforementioned research questions. Moreover, given the quantitative nature of this study and its research questions, open-ended answers were not analysed qualitatively but only quantitatively. Therefore, this study will not provide quotes of open-ended answers by the respondents.

For sub question three causal inference was required in order to find possible statistically significant associations between certain demographic characteristics of respondents and different patient populations of the respondents a higher likelihood of using goal-setting. To this end a binary multivariate logistic regression analysis was performed. The choice for a binary logistic regression analysis was made based on the nature of the dependent outcome variable, namely the presence or absence of the use of goal-setting. Due to the dichotomous nature of this dependent variable, and the subsequent binary distribution of the data, linear regression analysis was not a suitable fit for the dataset since linear distribution will not fit the current data distribution. Prior to the regression analysis, the respondents in the goal-setting group and the non-goal-setting group were compared to see if there were any significant differences among the groups. In order to do this, two different statistical tests were used. A Pearson Chi-square test was performed in order to compare the categorical variables gender, function, experience, urbanity, province, time per consultation, familiarity with goal-setting and prior education on goal-setting between the respondents that used goal-setting and the respondents that did not. A Chi-square test works by comparing the found frequencies in the categorical data with the expected frequency based on the null-hypothesis, namely that the both groups are similar in every regard ceteris paribus(55). For the continuous variables such as age and the variables relating to the patient population an independent T-test was performed between the respondents that used goal-setting and the respondents that did not. An independent T-test works by comparing the mean of the linear variables with the T-value, which is the expected mean based on the null-hypothesis, namely that there are no differences between the groups ceteris paribus(55). For both tests statistical significance was set at a p-value of lower than 0.05. Using a value of 0.05 is often the standard in research. It is important to note that this value is arbitrary in nature, seeing that it is up to the researcher to set the significance level(56). In this case, a value of 0.05 was chosen as the significance level since this would strike a balance in reducing type-I statistical errors (false-positive findings) and allowing to find significant associations based on the data(57). A higher significance threshold may increase the number of type I-errors, while a lower threshold may obscure potential associations between the researched variables and goal-setting.

3.7 Statistical analysis: logistic regression model and variables

A logistic regression enables the user to mathematically transform the linear regression equation based on binary data to a non-linear, logistic equation, which takes on an S-shape, making it better suitable to show probabilities from 0 to 1 and thus to model binary data. Generally, the regression equation (also called the logit function) in logistic regression is the following: $\ln\left(\frac{p}{1-p}\right) = \alpha + \beta_1 \times X_1 + \beta_2 \times X_2 + \cdots \beta_n \times X_n$. Where "$p$" is the probability of the independent variable occurring, "α" the y-intercept or the constant of the equation, "β" the coefficient of a particular variable and X the particular variable of interest(58). In order to find the value for p (probability), the equation can be rewritten as follows: $p = \frac{e^{\alpha + \beta_1 \times X_1 + \beta_2 \times X_2 + \cdots \beta_n \times X_n}}{1 + e^{\alpha + \beta_1 \times X_1 + \beta_2 \times X_2 + \cdots \beta_n \times X_n}}$ (58). The "α", represents the mean value of the dependent variable of using goal-setting when all other independent variables are set at 0, in a way indicating the value of the null model. The "β" represents the effect on the dependent variable caused by the independent variable, displayed in log-odds. The log-odds is the logarithm of the odds, with the odds defined as the probability of something being present divided by the probability of it not being present. In a formula the log-odds in logistic regression is represented by $\ln\left(\frac{p}{1-p}\right)$(58). For linear predictors such as age, the "β" represents the change in log-odds of using goal-setting for every one unit increase in age (in this case years), ceteris paribus. For categorical predictors, dummy variables that are compared to a reference group are made, enabling the inclusion of the various levels of a categorical predictor in the regression equation(59). The "β" is interpreted as the change in log-odds of using goal-setting when the dummy variable is either present (coded as 1) or absent (coded as 0). An example of how the regression equation may look for the predictors age and level of urbanity (with large town set as the reference category) is as follows: $\ln\left(\frac{p}{1-p}\right) = \alpha + \beta_{age} \times X_{age} + \beta_{urbanity-small} \times X_{urbanity-small} + \beta_{urbanity-medium} \times X_{urbanity-medium} \ldots \beta_n \times X_n$. Here a respondent who is 50 years old, will have a value of X_{age} of 50. A respondent who works in a small town will have a value of 1 for $X_{urbanity-small}$ and 0 for $X_{urbanity-medium}$. For someone working in a medium sized town this will be exactly the other way around. Finally, for someone working in a large town both $X_{urbanity-small}$ and $X_{urbanity-medium}$ will be 0, seeing that a large town was set as

the reference category. Besides the dependent variable of using goal-setting, the following

independent variables were included into the model: age in years, sex, function as GP or GP-in-

training, level of urbanity, experience as a GP in years, time per consultation in minutes, the share of

elderly patients in the patient population, the share of highly educated patients, the share of working

patients, the percentage of chronic patients, the share of multimorbid patients, the share of palliative

patients, the share of prior familiarity with goal-setting and the share of prior education on goal-

setting. Here level of urbanity was registered as either working in a small, medium, or large

municipality, respectively with less than 50.000 inhabitants, 50.000 to 100.000 inhabitants and more

than 100.000 inhabitants. Categorical variables were marked as such in the regression input and

reference categories were set to which the other categories within the categorical variable were

compared. Categorical variables are presented in the table below.

Categorical variables including levels and reference categories

Function
     Being a GP (reference)
     Being a GP-in-training

Sex
     Male (reference)
     Female

Experience as a GP
     Still in training as a GP (reference)
     Less than 5 years
     5-10 years
     10-15 years
     15-20 years
     20-25 years
     25-30 years
     More than 30 years

Level of urbanity
     Small town with less than 50.000 inhabitants
     Medium sized town with 50.000-100.000 inhabitants
     Large town with more than 100.000 inhabitants (reference)

Time per consultation
     Approximately 10 minutes (reference)
     Approximately 15 minutes
     Approximately 20 minutes

Prior familiarity with goal-setting
     Yes
     No (reference)

Prior education on goal-setting
     Yes
     No (reference)

The variables experience and time per consultation were also analysed for a linear relationship with the dependent variable. This would allow to look at the overall effect of having one more unit of said variables (one year of experience or one minute more time) on the use of goal-setting and is enabled through the ordinal ranking of the answer options of these variables. These variables were modelled as linear variables by not specifying them as categorical variables in the regression input but as linear predictors, where it was assumed that the intervals between each category were similar. The different models were compared on model fit using likelihood ratio tests and comparison of the pseudo-R^2. The model with the best model fit was selected for further analysis. More explanation on the model fit will be provided further in the next paragraph.

3.8 Statistical analysis: assumptions, model fit, and parameter estimates
Prior to binary logistic regression the following statistical assumptions were checked(60-62):

1. Presence of a dependent variable measured on a dichotomous scale with mutually exclusive categories;

2. Presence of one or more independent variables, either continuous or categorical, included in the model;

3. Presence of independence of observations, referring to the fact that each respondent is counted as 1 unique observation;

4. Absence of multicollinearity in the data, referring to the fact that individual independent variables should not be highly correlated with each other;

5. Presence of a linear relationship between the included continuous predictors and the regression logit of the outcome.

The fourth assumption was checked by calculating the Variance Inflation Factor (VIF)(63, 64). The VIF is defined as $\frac{1}{Tolerance}$, with tolerance being defined as $1 - R^2$. Tolerance indicates the percentage of a certain predictor variable that is not explained by the other predictor variables in the model. A tolerance value close to 1, indicates that there is no to little multicollinearity, whereas a value close to 0 indicates that there is a high level of multicollinearity. Using the tolerance, the VIF can be calculated. A VIF of 1 indicates no multicollinearity, while a value higher than 10 is usually

interpreted as indicative of multicollinearity. VIF's higher than 3 may give rise to suspicions that multicollinearity is present(64). Multicollinearity is a problem since it can lead to problems in the interpretability of the statistical significance of the predictor variables. High correlation amongst predictor variables may lead to large standard errors, making the calculation of the p-value unstable and difficult to interpret correctly(65). Seeing that this study included a relatively large number of variables, the chance of multicollinearity occurring is increased(63). In this study, variables which showed high levels of multicollinearity (VIF larger than 5), were either transformed or removed from the model. The fifth assumption was checked through a Box-Tidwell transformation to test for linearity(60). In this transformation an interaction variable consisting of the factor of the continuous variable and the natural logarithm of the continuous variable was created for each continuous independent variable. Next these interaction variables were included in the regression model, with significance set at a p-value smaller than 0.05. A p-value of higher than 0.05 was interpreted as indicative of a linear relationship between the continuous predictors and the regression logit of the outcome.

The regression model was analysed on overall goodness-of-fit and its predictive capabilities using a likelihood-ratio Chi-square test (Omnibus test). This test compares the log-likelihood of the null model without any predictors with the log-likelihood of the study model including the predictors(66). The log-likelihood is a value which indicates how well the logistic regression model fits the data. A significant value was interpreted as the model having a significantly higher predictive accuracy than the model without the predictors (by chance). Seeing that a logistic regression was performed, no R^2-values could be obtained, because opposed to linear regression, there are no residuals which can be calculated in logistic regression(67). R^2-values provide an estimation of how much of the variance in the data can be explained by the model, with 0 indicating that the model cannot explain any variance and 1 indicating that the model can perfectly explain all variance(67). Instead of the R^2-values, pseudo-R^2-values were calculated, which are approximations of the R^2-value and aim to provide an estimate of the improvement in model likelihood compared to the null model(67). In this study the Nagelkerke pseudo-R^2 will be used since it is made to provide a value between 0 and 1(66). Lastly, the

model fit will be checked again by performing a Hosmer & Lemeshow test. This test divides the data up in deciles based on the predicted probability of using goal-setting and uses a Chi-squared statistic to see if the data is a good fit(66). A non-significant value was interpreted as the model having a good fit with the data.

After analysis of the model fit, the independent variables were analysed for associations with the dependent variable, namely the use of goal-setting. The parameter estimates were first checked for statistical significance, with statistical significance set at a p-value of smaller than 0.05. Seeing that a logistic regression was conducted, the coefficients of statistically significant predictors were not interpreted as direct associations, but as the log-odds (logarithm of the odds, with the odds being probability divided by 1 minus probability)(58). Positive coefficients indicate that the predictor has a positive effect on the use of goal-setting and negative coefficients indicate that a predictor has a negative effect on the use goal-setting(58). Based on the coefficients, Odds Ratio's (OR's) with a 95% confidence interval were calculated in SPSS, giving an indication of the how much larger or smaller the odds of using goal-setting are in relation to the odds of not using goal-setting. As the name states, the OR is a ratio of two odds. Here odds of using goal-setting are defined as $\frac{pGS}{1-pGS}$ and the OR as $\frac{odds\ GS}{odds\ no\ GS}$, where pGS is the probability of using goal-setting. The OR can also be calculated in SPSS by exponentiating the log-odds (c.q. the coefficients) provided by the regression output(58). The 95% confidence interval provides an estimation of the uncertainty surrounding the OR value. The larger the interval, the more uncertainty around the estimate of the OR exists, c.q. the less precise the estimate of the OR is. An OR with a value of 1 was interpreted as the predictor having no effect on the odds of the outcome, while an OR larger and smaller than 1, were respectively associated with higher odds and lower odds of the outcome. OR's with a value larger or smaller than 1 that included the value of 1 in their 95% confidence intervals, were interpreted as not being precise enough/certain enough to show a potential positive or negative effect on the odds of the outcome, seeing that it could still be possible that the true OR related to the relevant predictor actually had a value of 1(58).

Chapter 4: Results

4.1 Survey response

A total of 148 responses were registered in QualtricsXM. Of these responses nineteen were excluded due to an excess of incomplete data and one was excluded due to lack of explicit prior permission. Appendix D shows a flowchart of the inclusion process. A total of 128 eligible responses, including 106 complete and 22 partial responses, were included in the analysis. Seven respondents were recruited through personal connections. The other respondents were recruited through direct contact with GP-practices and GP-emergency centers, direct e-mails to GP's affiliated with the Leiden University Medical Centre, the (social-media) platforms LinkedIn, Facebook and HAweb and several GP-emergency centers and through snowball sampling. The median survey completion time was 479 seconds, equalling approximately 8 minutes per survey.

4.2 Demographics

The demographic characteristics of all respondents are presented in table 1A. Mean age was 44.9 years (±11.7) with an age range of 25 to 73 years. 71.9% of respondents (N=92) were female and 82.0% of respondents (N=105) were general practitioner, while 18.0% (N=32) were general practitioners in training. Looking at the experience of general practitioners, most had between 15-20 years of clinical experience (N=21, 16.4%). Most respondents worked in a large town or city with more than 100.000 inhabitants (N=76, 59.4%). Responses were received from respondents working in nine of the twelve Dutch provinces, with one response by a GP who worked abroad. The bulk of the respondents worked in the province of Zuid-Holland (N=52, 40.6%), followed by Noord-Holland (N=31, 24.2%). Looking at time per consultation, the majority of GP's indicated that they had approximately 15 minutes per consultation (N=87, 68.0%). Table 1B presents the demographic characteristics of the respondents who use goal-setting and the respondents who do not. Groups were similar in age, sex, function, experience, urbanity, and provincial distribution. A Chi square test for independence showed a statistically significant difference in time per consultation between both groups, with goal-setting users reporting they have more time per consultation (more often approximately 15 minutes per consultation) in comparison to non-goal-setting users ($X^2(2) = 9.93$, $p<0.01$).

Table 1A: Demographics of all valid respondents

	N=128
Age (SD), age range	44.9 years (11.7), range 25-73 years
	N (%)
Sex, female	92 (71.9%)
Function	
General Practitioner	105 (82.0%)
General practitioner in training	23 (18.0%)
Experience as a GP (years)	
Still in training	23 (18%)
Less than 5 years	13 (10.2%)
5-10 years	17 (13.3%)
10-15 years	18 (14.1%)
15-20 years	21 (16.4%)
20-25 years	14 (10.9%)
25-30 years	11 (8.6%)
More than 30 years	11 (8.6%)
Urbanity (inhabitants)	
Small (<50.000)	23 (18.0%)
Medium (50.000-100.000)	29 (22.7%)
Large (>100.00)	76 (59.4%)
Province	
Drenthe	0 (0%)
Flevoland	12 (9.4%)
Friesland	0 (0%)
Gelderland	4 (3.1%)
Groningen	1 (0.8%)
Limburg	6 (4.7%)
Noord-Brabant	8 (6.3%)
Noord-Holland	31 (24.2%)
Overijssel	3 (2.3%)
Utrecht	10 (7.8%)
Zeeland	0 (0%)
Zuid-Holland	52 (40.6%)
Works abroad	1 (0.8%)
Time per one consultation (minutes)	
Less than 10 minutes	2 (1.6%)
Approximately 10 minutes	35 (27.3%)
Approximately 15 minutes	87 (68.0%)
Approximately 20 minutes	4 (3.1%)
More than 20 minutes	0 (0%)

Table 1B: Demographics of goal-setting users and non-goal-setting users

	Goal-setting used (N=90)	Goal-setting not used (N=38)	Significance, p-value
Age (SD), age range	45.4 (11.5), 25-73 years	43.7 (12.1), 25-66 years	0.457
	N (%)		
Sex, female	65 (72.2%)	26 (71.1%)	0.893
Function			0.555
General Practitioner	75 (83.3%)	30 (78.9%)	
General practitioner in training	15 (16.7%)	8 (21.1%)	
Experience as a GP (years)			0.684
Still in training	15 (16.7%)	8 (21.1%)	
Less than 5 years	7 (7.8%)	6 (15.8%)	
5-10 years	13 (14.4%)	4 (10.5%)	
10-15 years	13 (14.4%)	5 (13.2%)	

15-20 years	15 (16.7%)	6 (15.8%)	
20-25 years	10 (11.1%)	4 (10.5%)	
25-30 years	10 (11.1%)	1 (2.6%)	
More than 30 years	7 (7.8%)	4 (10.5%)	
Urbanity (inhabitants)			0.653
Small (<50.000)	18 (20.0%)	5 (13.2%)	
Medium (50.000-100.000)	20 (22.2%)	9 (23.7%)	
Large (>100.00)	52 (57.8%)	24 (63.2%)	
Province			0.554
Drenthe	0 (0%)	0 (0%)	
Flevoland	10 (11.1%)	2 (5.3%)	
Friesland	0 (0%)	0 (0%)	
Gelderland	2 (2.2%)	2 (5.3%)	
Groningen	0 (0%)	1 (2.6%)	
Limburg	6 (6.7%)	0 (0%)	
Noord-Brabant	6 (6.7%)	2 (5.3%)	
Noord-Holland	22 (24.4%)	9 (23.7%)	
Overijssel	2 (2.2%)	1 (2.6%)	
Utrecht	7 (7.8%)	3 (7.9%)	
Zeeland	0 (0%)	0 (0%)	
Zuid-Holland	34 (37.8%)	18 (47.4%)	
Works abroad	1 (1.1%)	0 (0%)	
Time per one consultation (minutes)			0.006
Less than 10 minutes	0 (0%)	2 (5.3%)	
Approximately 10 minutes	19 (21.1%)	16 (42.1%)	
Approximately 15 minutes	67 (74.4%)	20 (52.6%)	
Approximately 20 minutes	4 (4.4%)	0 (0%)	
More than 20 minutes	0 (0%)	0 (0%)	

4.3 Patient population

The mean characteristics of the patient population of all respondents are presented in table 2A. Six

components of the patient population were queried under the respondents of which 110 respondents

filled in these six questions. On average, the share of elderly patients (patients aged 65 years or older)

was 36.3% (±20.6), the share of highly educated patients was 33.1% (±21.4), the share of working

patients was 58.2% (± 16.3), the share of patients receiving chronic care was 43.0% (± 18.8), the share

of patients receiving palliative care was 13.5% (± 14.2) and the share of patients with multimorbidity

was 44.2% (± 20.8). All 128 respondents provided an answer on the representativeness of their patient populations, with more than half of the respondents deeming their patient population to be unrepresentative of the average patient population (N=66, 51.8%). Table 2B presents a comparison of the patient population of the goal-setting (GS) group and the non-goal-setting (NGS) group. Groups had similar build-up of the patient population. An independent t-test did not reveal any significant differences between groups.

Table 2A: Characteristics of the patient population based on all respondents

Mean constitution of patient population	Mean % (SD), percentage range (N=110)
Elderly patients (65+)	36.3% (20.6), 5% - 90%
Well educated patients (at least HBO)	33.1% (21.4), 5% - 95%
Working patients (paid and voluntary)	58.2% (16.3), 20% - 95%
Patients receiving chronic care	43.0% (18.8), 10% - 90%
Patients receiving palliative care	13.5% (14.2), 0% - 100%
Patients with multimorbidity	44.2% (20.8), 5% - 85%
Patient population deemed to be representative of the general population	**N (%) (N=128)**
Yes	62 (48.4%)
No	66 (51.6%)

Table 2B: Characteristics of the patient populations of goal-setting users and non-goal-setting users

	Goal-setting used (N=80)	Goal-setting not used (N=30)	Significance, p-value
Mean constitution of patient population	**Mean % (SD), percentage range**		
Elderly patients (65+)	35.6% (20.0), 10% - 75%	38.2% (22.3), 5% - 90%	0.567
Well educated patients (at least HBO)	33.3% (21.8), 5% - 95%	32.7% (20.7), 5% - 80%	0.889
Working patients (paid and voluntary)	59.5% (16.4), 20% - 95%	54.7% (15.4), 20% - 75%	0.166
Patients receiving chronic care	41.5% (19.5), 10% - 90%	47.2% (16.2), 20% - 80%	0.160
Patients receiving palliative care	13.9% (15.2), 0% - 100%	12.7% (11.1), 5% - 40%	0.693
Patients with multimorbidity	44.6% (21.0), 5% - 85%	43.3% (20.6), 10% - 80%	0.784
Patient population deemed to be representative of the general population	**N (%) (N=90)**	**N (%) (N=38)**	0.818
Yes	43 (47.8%)	19 (50%)	
No	47 (52.2%)	19 (50%)	

4.4 Familiarity with goal-setting

Of the 128 respondents, 109 respondents (85.2%) were familiar with the concept of goal-setting and 48 respondents (37.5%) received prior education on goal-setting. Results of all respondents are presented in table 3A. 41 respondents provided an explanatory open-ended answer to what they specifically learned about goal-setting. Seeing that respondents could describe multiple elements in their open-ended answer, a total of 64 distinct responses were given. 22 respondents (34.4%) stated that they learned about the importance of using an individualized approach when using goal-setting. Eleven respondents (17.2%) stated that they learned about the importance of using goal-setting in a shared-decision-making setting with the patient. Nine respondents (14.1%) learned that goal-setting can be specifically used in several specific care contexts such as elderly care and diabetic care. Eight respondents (12.5%) learned about the effectiveness of goal-setting and that it leads to better care. Table 3B provides a thematic overview of the most common open-ended answers provided by respondents on what they specifically learned about goal-setting. Results per subgroup are described in table 3C. A Chi square test of independence revealed a significant association between familiarity with goal-setting and using goal-setting, with goal-setting users more often being familiar with goal-setting than non-goal-setting users (GS 93.3% vs. NGS 65.8%, $X^2(1) = 16.01$, p<0.001). Additionally, a Chi square test of independence revealed a significant association between prior education on goal-setting and using goal-setting, with goal-setting users more often having received prior education on goal-setting than non-goal-setting users (GS 45.6% vs NGS 18.4%, $X^2(1) = 10.19$, p=0.001).

Table 3A: Familiarity with goal-setting among all respondents

N (%) (N=128)			
Prior familiarity with goal-setting		**Prior education on goal-setting**	
Yes	109 (85.2%)	Yes	48 (37.5%)
No	19 (14.8%)	No	80 (62.5%)

Table 3B: Open answers on prior education on goal-setting, thematically categorized, multiple categories possible per respondent's answer

Open answers on content of prior education on goal-setting	N (%) (N=41)
Importance of using an individualized approach when using goal-setting	22 (34.4%)
Importance of using goal-setting in a shared-decision-making setting with the patient	11 (17.2%)
Goal-setting can be used in specific care contexts	9 (14.1%)

Elderly care	*5*
Diabetes mellitus care	*2*
Chronic Obstructive Lung Disease (COPD) care	*2*
Lifestyle	*1*
Using goal-setting is effective and results in better care	8 (12.5%)
Importance of applying a holistic view when using goal-setting	4 (6.3%)
How to use goal-setting/how to set goals in practice	4 (6.3%)
Using goal-setting leads to better patient motivation	4 (6.3%)
Does not apply	2 (3.1%)

Table 3C: Familiarity with goal-setting among goal-setting users and non-goal-setting users

	Goal-setting used (N=90)	Goal-setting not used (N=38)	Significance, p-value
Prior familiarity with goal-setting	N (%)		0.000
Yes	84 (93.3%)	25 (65.8%)	
No	6 (6.7%)	13 (34.2%)	
Prior education on goal-setting	N (%)		0.001
Yes	41 (45.6%)	7 (18.4%)	
No	49 (54.4%)	31 (81.6%)	

4.5 Use of goal-setting: frequency, importance, and manner of use

Out of the 128 respondents, 90 (70.3%) made use of goal-setting in the daily clinical practice. Of the goal-setting users 81 people provided data on the perceived importance of goal-setting. Most of the respondents indicated that they perceived goal-setting to be "important" (48.1%, N=39), followed closely by "very important" (37.0%, N=30) and "extremely important" (12.3%, N=10). All results are reported in table 4. 86 out of 90 respondents who used goal-setting provided open-ended answers on how they used goal-setting in clinical practice, adding up to a total of 117 distinct answers. The most frequently mentioned answer was that goal-setting was used as part of the process of identifying and exploring the patient's "care question" (N=34, 29.1%). Other frequently provided answers were that goal-setting was used to help formulate concrete treatment plans and goals (N=31, 26.5%) and that goal-setting was a part of the work-up in specific care contexts (N=22, 18.8%), including general chronic care or fixed primary care programs (N=8), diabetology (N=7), elderly care (N=6) and chronic obstructive pulmonary disease care (N=5). All answers on how goal-setting was used are specified in table 4.

Table 4: General use of goal-setting, perceived importance of goal-setting and quantification of open answers on how goal-setting is used. Open answers are thematically categorized, multiple categories possible per respondent's answer

General use of goal-setting	N (%) (N=128)
Yes	90 (70.3%)
No	38 (29.7%)
Perceived importance of goal-setting	**N (%) (N=81)**
Extremely important	10 (12.3%)
Very important	30 (37.0%)
Important	39 (48.1%)
A bit important	1 (1.2%)
Not important at all	1 (1.2%)
Open answers on how goal-setting is used in clinical practice	**N (%) (N=117 answers (86 respondents)**
Goal-setting is used as part of the process of identifying and exploring the "care question"	34 (29.1%)
Goal-setting is used to help formulate concrete treatment plans and treatment goals	31 (26.5%)
Goal-setting is used in specific care contexts	22 (18.8%)
General chronic care or fixed primary care chronic care programs	*8*
Diabetes mellitus care	*7*
Elderly care	*6*
Chronic Obstructive Lung Disease (COPD) care	*5*
Cardiovascular risk management	*4*
Psychiatric and psychological problems	*3*
Stopping with smoking	*2*
Losing weight	*1*
Back pain	*1*
Oncological problems	*1*
Musculoskeletal problems	*1*
Goal-setting is mainly performed by the general practice nurse specialist	10 (8.6%)
Goal-setting is used as a part of the concept "positive health"	5 (4.3%)
Goal-setting is used to acquire a holistic view of the patient	2 (1.7%)
Goal-setting is used embedded within the electronic patient file	2 (1.7%)
Goal-setting is used to assess the amount of stress or loading the patient can take	1 (0.9%)
No answer or unclear answer	10 (8.6%)

4.6 Reasons for using goal-setting

79 out of 90 respondents who used goal-setting provided a total of 115 distinct comments on why they used goal-setting. The most frequent answer pertained to the notion that every patient is different and therefore has different goals and values which should be addressed (N=43, 36.4%). Other, frequently mentioned reasons for the use of goal-setting were the stimulation of patient-empowerment and control (N=20, 16.9%), that goal-setting helps to make goals more achievable (N=12, 10.2%) and that goal-setting is effective (N=9, 7.6%). Other, less frequent answers, are provided in table 4.

81 out of 90 respondents who used goal-setting reported on their perceived main benefits of goal-setting with a total of 214 distinct comments. The benefits "better patient satisfaction", "better quality of life for the patient" and "improved therapy compliance" were each selected the most, with each item being selected 50 times (23.4%). "Better patient care" was reported 41 times (19.2%) as a benefit of goal-setting and "better doctor-patient relationship" was reported 23 times (10.7%). Ten respondents also provided open-ended answers on the perceived main benefits of using goal-setting. The most frequent open-ended answer (N=3, 30%) was that goal-setting was perceived to be cost-effective and efficient. Other open-ended answers were reported twice or less. All results are presented in table 5.

Table 5: Reasons for using goal-setting, main perceived benefits of using goal-setting and open answers on perceived benefits. Open answers are thematically categorized, multiple categories possible per respondent's answer

Open answers on why goal-setting is used in clinical practice	N (%) (N=115 answers (79 respondents))
Every patient is different and has different goals/values	43 (36.4%)
Stimulates patient-empowerment and control	20 (16.9%)
Helps increase achievability of goals	12 (10.2%)
Goal-setting is effective	9 (7.6%)
Improves patient motivation	8 (6.8%)
Part of the standard-of-care in the GP-practice	8 (6.8%)
Provides clarity about the treatment goals to the patient	5 (4.2%)
Improves patient satisfaction	5 (4.2%)
Improves treatment compliance	3 (2.5%)
Identifies differences in priority-setting between patients and GP	2 (1.7%
Perceived main benefits of goal-setting	**N (%) (N=214 answers (81 respondents))**

Better patient satisfaction	50 (23.4%)
Better quality of life for the patient	50 (23.4%)
Improved therapy-compliance	50 (23.4%)
Better patient care	41 (19.2%)
Better doctor-patient relationship	23 (10.7%)
Does not apply	10 (4.7%)
Open answers on benefits of using goal-setting in practice	**N (%) (N=10)**
Cost-saving and efficient	3 (30.0%)
Higher job-satisfaction amongst GP's	2 (20.0%)
Respectful towards the patient	2 (20.0%)
Improves patient motivation and awareness	2 (20.0%)
Stimulates patient control on the treatment trajectory	1 (10%)

4.7 Domains of goal-setting use

78 out of 90 respondents who used goal-setting reported on the use of goal-setting in specific health problems. On average goal-setting was used in 51.5% (±25.5) of all health problems. When looking at specific health problems, goal-setting was most frequently used in lifestyle-related health problems (73.2%, ±23.2), geriatric health problems (71.7%, ±23.1) and oncological health problems (63.3%, ±32.1). Goal-setting was reported somewhat less frequently in mental health related problems (57.9%, ±29.4) and musculoskeletal related health problems (53.6%, ±29.5). 42 respondents provided open-ended answers on other specific health problems in which goal-setting was used. The most frequently mentioned health problems that were mentioned in the open-ended answers were diabetes mellitus (N=8, 16.7%) and chronic obstructive pulmonary disease (COPD) & asthma (N=6, 12.5%). Of these 42 respondents, 35.4% (N=17) indicated that there were no additional health care problems in which goal-setting was used, besides the ones already mentioned in the initial question. All results are presented in table 6. 75 of 90 respondents who used goal-setting provided information on general health care settings in which goal-setting was used. Goal-setting was most frequently used in palliative and terminal care (83.7%, ±19.2), followed by preventative care and lifestyle changes (71.8%, ±22.8), chronic care (66.8%, ±22.7), multimorbidity (62.5%, ±26.0) and rehabilitative care (61.3%, ±30.4). Goal-setting use in acute care was uncommon (25.3%, ±26.4). All percentages are reported in table 6.

Table 6: Use of goal-setting in specific health problems and health care settings. Open answers are thematically categorized, multiple categories possible per respondent's answer

Use of goal-setting in specific health problems	Mean % (SD), percentage range (N=78)
All health problems	51.5% (25.5), 0% - 100%
Lifestyle-related health problems	73.2% (23.2), 5%-100%
Geriatric health problems	71.7% (23.1), 0% - 100%
Oncological health problems	63.3% (32.1), 0% - 100%
Mental health related problems	57.9% (29.4), 0%- 100%
Musculoskeletal related health problems	53.6% (29.5), 0% - 100%
Neurological health problems	51.7% (29.3), 0% - 100%
Auto-immune and degenerative health problems	48.3% (28.9), 0% - 100%
Open answers on additional specific health problems in which goal-setting is used	**N (%) (N=48 answers (42 respondents))**
Diabetes Mellitus	8 (16.7%)
COPD and asthma	6 (12.5%)
Gastro-intestinal problems	3 (6.3%)
Cardiovascular disease	3 (6.3%)
Somatic unexplained physical symptoms	3 (6.3%)
Skin problems	2 (4.2%)
Addiction	2 (4.2%)
Infection and vaccination	2 (4.2%)
No other specific health problems	17 (35.4%)
Use of goal-setting in certain healthcare settings	**Mean % (SD), percentage range (N=75)**
Palliative and terminal care	83.7% (19.2), 5% - 100%
Preventative care and lifestyle change	71.8% (22.8), 10% - 100%
Chronic care	66.8% (22.7%), 0% - 100%
Multimorbidity	62.5% (26.0), 0% - 100%
Rehabilitative care	61.3% (30.4), 0% - 100%
Acute care	25.3% (26.4), 0% - 100%

4.8 Barriers and facilitators to goal-setting

75 of the 90 respondents that used goal-setting reported on the most frequent barriers and facilitators they encountered while using goal-setting in their daily practice, respectively providing 214 and 244 distinct answers. All results are presented in table 7. The most frequently reported barrier were time constraints (N=50, 22.3%). Other frequently reported barriers were the care providers limited knowledge/experience on the use of goal-setting (N=33, 14.7%), a mismatch between the patient's and the care provider's goals and expectations (N=30, 13.4%), the current organization of the primary care

system (N=29, 12.9%), patient's limited knowledge on their own disease (N=23, N=10.3%) and a lack of motivation from the patient (N=21, 9.4%). Sixteen respondents also described other barriers of which financial barriers such as inadequate reimbursement was reported most frequently (N=6, 37.5%), followed by the organization of care quality control based on strict benchmarks (N=4, 25.0%). All open-ended answers are reported in table 7. Of the facilitators to goal-setting the most frequently reported facilitator was an individualized approach to goal-setting, being selected a total of 61 times (25.0%). Other frequently reported facilitators were acknowledging the patient as an equal conversational partner in goal-setting conversations (N=50, 20.5%), a strong doctor-patient relationship (N=45, 18.4%), active involvement of the patient's social circle (N=26, 10.7%), a multidisciplinary approach to goal-setting (N=24, 9.8%) and more training and education on the use of goal-setting (N=20, 8.2%). Two respondents opted to provide open-ended answers to facilitators of goal-setting, reporting that the deployment of the general practice nurse specialist and the potential inclusion of reimbursement for goal-setting in the basic insurance package were also facilitators to using goal-setting.

Table 7: Perceived barriers and facilitators to goal-setting. Open answers are thematically categorized, multiple categories possible per respondent's answer.

Perceived main barriers to goal-setting	N (%) (N=214 (75 respondents))
Time constraints	50 (22.3%)
Providers' limited knowledge/experience on the use of goal-setting	33 (14.7%)
Mismatch between patient's and providers goals and expectations	30 (13.4%)
Current organization of the primary care system	29 (12.9%)
Patient's limited knowledge on their disease	23 (10.3%)
Lack of motivation from the patient	21 (9.4%)
Lack of insight into the additional value of goal-setting	13 (5.8%)
Provider related biases towards the patient	13 (5.8%)
Lack of motivation from the care provider	12 (5.4%)
Other open answers	16 (7.1%)
Open answers on barriers towards the use of goal-setting in clinical practice	**N (%) (N=16)**
Financial barriers (inadequate reimbursement, insurer-related barriers)	6 (37.5%)
Organisation of care quality control based on strict benchmarks	4 (25.0%)

The use of the electronic patient file	1 (6.3%)
Rigid medical protocols and guidelines	1 (6.3%)
Inadequate communication between primary care providers and secondary care providers	1 (6.3%)
Absence of a long-term fixed care-provider due to part-time work and GP-observers	1 (6.3%)
There are no barriers to the use of goal-setting	2 (12.5%)
Perceived main facilitators to goal-setting	**N (%) (N=244 (75 respondents))**
An individualized approach to goal-setting	61 (25.0%)
Seeing the patient as an equal conversation partner	50 (20.5%)
A strong doctor-patient relationship	45 (18.4%)
Active involvement of the patient's social circle	26 (10.7%)
A multidisciplinary approach to goal-setting	24 (9.8%)
More training and education on goal-setting	20 (8.2%)
Other open answers	2 (0.8%)

4.9 Stimulation of goal-setting

Finally, 108 of 128 respondents reported on potential ways to stimulate the use of goal-setting in clinical practice, with a total of 162 distinct answers. All results are presented in table 8. The most frequent answer was a need for more education and training on goal-setting, reported 40 times (24.7%), followed closely by allowing for more time during consultations, which was reported 35 times (21.6%). Other answers included proper reimbursement and financial facilitation from and by health care insurers (N=12, 7.4%), more motivated personnel (N=11, 6.8%) and multidisciplinary cooperation among different health care providers, both medical and paramedical (N=10, 6.2%).

Table 8: Open answers on how the use of goal-setting can be stimulated. Open answers are thematically categorized, multiple categories possible per respondent's answer

Open answers on how the use of goal-setting can be stimulated in clinical practice	N (%) (N=162 (108 respondents))
More education and training	40 (24.7%)
More time during consultations	35 (21.6%)
Proper reimbursement and financial facilitation from insurers	12 (7.4%)
Motivated personnel	11 (6.8%)
Multidisciplinary cooperation among different (para)medical professionals	10 (6.2%)
Better patient education	9 (5.6%)
Adaptation into professional guidelines	7 (4.3%)
Better patient cooperation and participation	7 (4.3%)
More facilitation and using supporting materials and ICT	6 (3.7%)

Making professional guidelines/protocols less strict and/or deviating from guidelines if necessary	5 (3.1%)
Using best practices from other GP's and other patients	4 (2.5%)
Goal-setting does not need to be stimulated	3 (1.9%)
Removing financial incentives from strict clinical benchmarks	2 (1.3%)
Implementation of a client's council	1 (0.7%)
No answer or does not know	10 (6.2%)

4.10 Statistical analysis: predictors associated with goal-setting

A binary multivariate logistic regression analysis was performed to identify potentially relevant characteristics that increased the chance of using goal-setting in general practice. All assumptions were checked and met prior to the start of the regression analysis. Multicollinearity analysis using VIF's revealed high multicollinearity with regard to the variable "function in the general practice", with a score of 21.1. This variable was therefore removed from the model, after which none of the predictor variables exceeded a VIF score of 2.0, ruling out any significant multicollinearity. The Box-Tidwell analysis, revealed no interaction variables with a p-value smaller than 0.05, excluding a non-linear relationship between continuous variables and the regression logit. All other relevant parameters (as described in chapter 3) have been included in the model.

The logistic regression model fit of the base model was overall statistically significant $X^2(21) = 50.75$, p<0.001, indicating that the model parameters were more accurate in predicting goal-setting being used amongst GP's, then the null model without the parameters. Here the base model is defined as the model with "time per consultation" and "experience" modelled as categorical variables. Table 9 provides an overview of the model fits of the various models. Likelihood Ratio Chi Square tests revealed that neither the model with only the predictor "time per consultation" as a linear predictor (model 2) or the model with both "time per consultation" and "experience" as linear predictors (model 3) were significantly better fitted to the data than the base model. Additionally, the base model delivered the highest values for the Nagelkerke pseudo-R^2, namely 0.535. Therefore, further analysis was based on the base model with "time per consultation" and "experience" modelled as categorical variables.

Table 9: Overview of model fits of the various models

	Model 1 (base model)	Model 2 (time as a linear predictor)	Model 3 (time and experience as linear predictors)
Likelihood Ratio Chi Square test (compared to null model)	$X^2 = 50.75, df = 21,$ $P < 0.000$	$X^2 = 48.98, df = 20,$ $P < 0.000$	$X^2 = 46.41, df = 14,$ $P < 0.000$
Likelihood Ratio Chi Square test (compared to each previous model)	-	$X^2 = 2.56, df = 6,$ $P = 0.861$	$X^2 = 1.77, df = 1,$ $P = 0.183$
Hosmer & Lemeshow test	$X^2 = 1.58, df = 8,$ $P = 0.991$	$X^2 = 1.66, df = 8,$ $P = 0.990$	$X^2 = 5.13, df = 8,$ $P = 0.744$
Nagelkerke pseudo-R^2	0.535	0.521	0.499

Analysis of the parameter estimates of the base model showed that several predictors were significantly associated with the use of goal-setting. Having having approximately 15 minutes per consultation was associated with higher odds of using goal-setting in comparison to having approximately 10 minutes per consultation, when holding all other predictors at a fixed value (β (S.E): 1.78 (0.83), p<0.05) . The OR was 5.91 (95% CI: 1.16 – 30.03), indicating that the odds of using goal-setting were 5.91 times higher if the respondent had approximately 15 minutes per consultation in comparison to approximately 10 minutes per consultation. Looking at the parameters on the patient-population, there was a significant association between the share of working patients and the use of goal-setting and the share of patients receiving chronic care and goal-setting. Having a higher rate of working patients was associated with higher odds of using goal-setting while holding all other predictors at a fixed value (β (S.E.): 0.59 (0.02), p<0.05), with an OR of 1.06 (95% CI: 1.01 – 1.11), indicating that the odds of using goal-setting are higher when the share of working patients is larger. Having a higher rate of patients receiving chronic care was associated with lower odds of using goal-setting while holding all other predictors at a fixed value (β (S.E.): -0.06 (0.03, p<0.05), with an OR of 0.94 (95% CI: 0.89 – 0.99), indicating that the odds of using goal-setting are lower if the share of chronically ill patients is higher. Other parameters on the patient population were not significantly associated with the use of goal-setting. Being familiar with goal-setting was associated with a higher odds of using goal-setting while holding all other predictors at a fixed value (β (S.E.): 2.58 (0.98), p<0.01), with an OR of 13.17 (95% CI: 1.95 – 89.05), indicating that the odds of using goal-setting are

13.17 times higher when the respondent was familiar with goal-setting. Additionally, having received prior education on goal-setting was also associated with a higher odds of using goal-setting while holding all other predictors at a fixed value (β (S.E.): 2.80 (0.98), p<0.01), with an OR of 16.41 (95% CI: 2.42 – 111.43), indicating that the odds of using goal-setting is 16.41 times higher when the respondent has received prior education on goal-setting. Looking at all significant findings, it is important to note that the 95% CI's associated with the predictors associated with the patient population are rather slim and centered around the value of one, indicating only a small effect size. Additionally, the 95% CI's of the other significant findings are rather wide, indicating a lot of uncertainty around the estimate of the OR-size. Moreover, it is also important to mention that due to the nature of the causal associations as presented in the DAG's (appendix B), the effects that are reported here are indications of the direct or partial effect of the predictor on goal-setting, seeing that mediator variables have been statistically adjusted. This is in line with sub question three, aiming to find direct associations between a certain predictor and the use of goal-setting. All other predictors were not significantly associated with the use of goal-setting by Dutch GP's. All findings regarding the predictor variables are summarized in table 10.

Table 10: Influence of predictors on the use of goal-setting by Dutch GP's

Predictors in the model	β (S.E.)	Odds Ratio, 95% confidence interval	P-value
Constant	-12.6 (5.0)		**0.01**
Age in years	0.14 (0.11)	1.15 (0.92 – 1.43)	0.23
Being female (compared to being male)	-0.64 (0.84)	0.53 (0.10 – 2.75)	0.45
Experience in years (compared to still being a GP-in-training)			
0-5	0.52 (1.32)	1.69 (0.13 – 22.4)	0.69
5-10	1.33 (1.71)	3.76 (0.13 – 107.6)	0.44
10-15	1.12 (2.04)	3.05 (0.06 – 168.1)	0.59
15-20	1.27 (2.50)	3.55 (0.03 – 472.3)	0.61
20-25	1.71 (2.99)	5.51 (0.02 – 1932.0)	0.57
25-30	-0.83 (3.52)	0.44 (0.0 – 434.0)	0.82
30+	0.61 (1.27)	1.85 (0.16 – 21.9)	0.63
Urbanity (compared to a large town)			
Small town	0.92 (0.89)	2.51 (0.44 – 14.5)	0.30
Middle town	0.81 (0.78)	2.26 (0.49 – 10.5)	0.30
Time per consultation (compared to approximately 10 minutes)			
Approximately 15 minutes	1.78 (0.83)	**5.91 (1.16 – 30.03)**	**0.03**
Approximately 20 minutes	24.09 (16036)	2.9×10^{10} (0.00 - Error)	0.99
Being familiar with goal-setting (compared to not being familiar)	2.58 (0.98)	**13.17 (1.95 – 89.05)**	**0.01**

Having received prior education on goal-setting (compared to having received no prior education)	2.80 (0.98)	**16.41 (2.42 – 111.43)**	**0.00**
Share of elderly patients in the patient population	0.01 (0.02)	1.01 (0.97 – 1.05)	0.70
Share of highly educated patients in the patient population	0.003 (0.02)	1.00 (0.97 – 1.04)	0.85
Share of working patients in the patient population	0.59 (0.02)	**1.06 (1.01 – 1.11)**	**0.01**
Share of chronically ill in the patient population	-0.06 (0.03)	**0.94 (0.89 – 0.99)**	**0.02**
Share of palliative/terminal patients in the patient population	0.01 (0.04)	1.01 (0.94 – 1.09)	0.74
Share of patients with multimorbidity in the patient population	0.03 (0.02)	1.03 (0.99 – 1.08)	0.13

Chapter 5: Discussion

5.1 Summary of findings: answer to the main question and sub questions

The aim of this thesis research was to gain a better understanding of to what extent goal-setting was used by Dutch general practitioners in their day-to-day clinical practice. In this study 128 respondents were queried on their use of goal-setting which resulted in a usage rate of 70.3% (N=90) amongst GP's and GP's-in-training. The first sub question dealt with the identification of the main reasons of using goal-setting in the general practitioners practice. This study found that the top three reasons for using goal-setting were the fact that every patient is different and has different goals and values making a uniform standardized approach unsuitable, the stimulation of patient-empowerment and control through goal-setting and goal-setting's aid in increasing the achievability of the goals that are set. The second sub question dealt with the main clinical settings and medical domains in which GP's made use of goal-setting. Based on this study, goal-setting was most frequently used in lifestyle-related health problems followed by geriatric health problems. Goal-setting was used less frequently in musculoskeletal related health problems. Besides the pre-set options, several respondents indicated that they also used goal-setting in other specific health problems, of which diabetes mellitus and COPD/asthma were mentioned most often. Looking at broader overarching health care settings, the most frequent use of goal-setting was found in palliative and terminal health care, followed by preventative care and lifestyle change, while the use of goal-setting in chronic care and multimorbidity was lower. The third sub question dealt with the identification of characteristics of GP's and/or their patient populations which were associated with goal-setting. This study showed that having a higher share of working patients in the patient population, being familiar with goal-setting, having received prior education on goal-setting and having approximately 15 minutes per consultation in comparison to 10 minutes, were all associated with higher odds of using goal-setting by GP's. Having a higher share of chronically ill patients was associated with lower odds of using goal-setting by GP's. Finally, sub questions four and five dealt with investigating the most common barriers and facilitators to goal-setting. Based on this study, the most frequently mentioned barrier to goal-setting were time constraints, followed by limited knowledge/experience of the GP on the use of goal-setting, a

mismatch between the goals and expectation of the patient and the GP and the way the primary care system is currently organized. The main facilitator to the use of goal-setting was the adoption of an individualized approach to goal-setting, followed by acknowledgement of the patient as an equal conversational partner and a strong doctor-patient relationship. To stimulate the use of goal-setting respondents most often required more education and training on goal-setting and more time during consultations.

5.2 Relevance of this study and new insights

This study provides a unique overview of goal-setting in Dutch general practices, exploring how often goal-setting is used, the main reasons why it is used, when it is used and what barriers and facilitators are encountered during use, all based on data by Dutch GP's. The main finding of this study is that goal-setting is relatively widely used amongst Dutch GP's and Dutch GP's-in-training, with more than two thirds of the queried respondents making use of goal-setting in their daily practice. At the same time, this also indicates that approximately a third of GP's does not make use of goal-setting. There is therefore still plenty of room to further stimulate the adoption of goal-setting in primary GP-care. These (and other) results can therefore be used to aid in the further implementation and facilitation of goal-setting in general practices in the Netherlands and may therefore have relevant implications for health care policy on goal-setting. This will be elaborated on in the next paragraph.

When drawing a comparison between other studies, this study positions itself on the upper end of the spectrum of the use of goal-setting as presented in the international literature, being in line with studies by Turner et al.(50) and Burt et al.(49) who respectively indicated a rate of 77% (N=77) in using patient reported outcome measures and 84% (N=2,169,718) in using care-planning. The majority of the other results are also in line with the literature on goal-setting as outlined in chapter 2. This indicates that the international literature on goal-setting is (generally) applicable to the goal-setting by Dutch GP's and GP's-in-training.

Besides the similarities in the literature, several relevant insights and striking findings stand out. First of all, GP's concretely mentioned that they used goal-setting in identifying the "care question". The identification of the care question is a standard part of every medical consultation and entails the identification of the actual question the patient has for the doctor. Examples of care questions could be: "When will I get better?", "What is my prognosis?" or "What can be done against my condition?". Seeing that the identification of the care question is an integral part of every new medical consultation, there is an opportunity to use goal-setting every new medical consultation, which is of course conditional on the willingness of the patient to engage in goal-setting. Improving patient preparation and information prior to consultations, will help make goal-setting more natural and perhaps lead to standardization over time. Secondly, in addition to the reasons for using goal-setting mentioned in the literature, GP's indicated that goal-setting was used to accommodate for the natural differences in goals and preferences between different patients. Strictly following rigid and general guidelines, may therefore not be suitable for goal-setting since this does not provide space for an individualized approach. Goal-setting thus requires a degree of freedom in the following and adherence to medical guidelines, in order to make better matching treatment plans for the individual patients. Thirdly, in this study goal-setting was used most frequently in palliative & terminal care, as opposed to chronic care or multimorbidity which would have been expected based on the literature in chapter 2. A possible reason behind this is the nature of palliative and terminal care, where quality of life, be it health-related or holistic, is often more important than medical health gains(68). Seeing that the concept of quality of life is a subjective notion, patient preferences and individual goals are paramount in guiding the process of improving quality of life. A review by Boa et al. supports this notion, indicating that the use of goal-setting in palliative and terminal care is widespread and an important component of the standard-of-care(69). In the Netherlands, the main care providers involved in the long-term follow-up of palliative and terminal care patients is the general practitioner, which explains the high rate of use of goal-setting in palliative and terminal GP-care (70). A fourth interesting finding was the negative association between chronic patients and the use of goal-setting based on the statistical model. Based on the literature on goal-setting one would expect that the more chronic patients a GP encounters, the more goal-setting is used(2, 17, 46). A possible explanation for this surprising association is the

general complexity of patients with chronic disease and the time they require for consultations. Within the rigid timeframe GP's must operate in (usually between 10-15 minutes), lengthy and complex consultations might leave less time for goal-setting, taking into account the limited time GP's have per patient. Tsiga et al. have shown that when faced with time pressure, GP's asks less questions than specified in the guidelines, conduct a less extensive physical exam and give less medical advice and explanations(71). A study by Ostbye et al. has shown that GP's often need more than 10 minutes for the management of chronic diseases per standard guidelines(72). Chronic patients might cost the GP so much time, that goal-setting is forsaken entirely, especially when the GP has limited time for consultations to begin with. GP's with less chronic patients might encounter less time pressure on their overall consultation hours and therefore more readily engage in goal-setting in comparison to GP's with more chronic patients and more time pressure. The positive effect of having working patients on goal-setting might be explicable through the fact that working people may have more work-related goals, enabling them to engage in goal-setting discussions more effectively than workless patients. When looking at the OR's related to the patient populations it is important to note that the OR's themselves and their confidence intervals are centered around the value of 1, which is the value indicating that there is no effect of the exposure on the odds of the outcome. A value centered around the value of 1, thus means that the found effects on goal-setting are minor. This might be a reflection of the small sample size of this study. The other associations are much less surprising. GP's that are familiar with goal-setting or have received prior education on goal-setting, might know more about goal-setting and its application, making it understandable that both were associated with more goal-setting use. When looking at time, having 15 minutes per consultation was positively associated with goal-setting in comparison to having only 10 minutes. Naturally, having more time per consultation provides more opportunity for GP's to engage in goal-setting conversations and apply the concept in their daily practice. An increase from 10 to 15 minutes per consultation, can already make a large impact on the use of goal-setting by GP's based on our findings. Looking at the OR's of these three variables, it is striking that they have very wide confidence intervals, indicating that despite the presence of a positive effect on goal-setting, a lot of uncertainty remains about the size of this positive association. Given the large interval, the effect could either be rather modest or very large, showcasing

this uncertainty in effect size. This uncertainty might also be a reflection of the limited sample size.

Finally, when turning to the ways in which goal-setting can be stimulated, it becomes evident that the answers provided by respondents might yield interesting recommendations for health policy. Most respondents indicated that having more time per consultation (and adequate financial compensation for that time) and/or receiving more education on goal-setting, were the main stimuli to effective goal-setting. The literature also reinstates the importance of training. Ford et al. conducted a study in which GP's were trained in goal-setting for six months and compared goal-setting conversations afterwards with a non-trained control group(2). They found that the goal-setting group conducted conversations that were more focused on what matters to the patient and that the goal-setting group needed more time for the initial conversation as opposed to the control group. Additionally, the study showed that the GP's themselves highlighted the importance of training in goal-setting. These findings support the findings of this study, indicating the importance of training and education and appropriate availability of time for using goal-setting. Other studies have also indicated that GP's require more training and knowledge to use goal-setting effectively(3) and that goal-setting is a time-intensive process, also supporting the results of this thesis(17).

5.3 Strengths and limitations

This research provides a unique overview of the general trends in the use of goal-setting by Dutch GP's, providing a quantification of the general spread of the use of goal-setting in general practices. Seeing that goal-setting and the broader notion of person-centered care are becoming more and more important, this information is very relevant because it can be used as a basis for further study and on the topic of goal-setting by GP's in the Netherlands specifically. The exploratory nature of this study is therefore one of its main strengths. Additionally, by querying about the main barriers and facilitators to goal-setting and the way goal-setting can be stimulated, this research was able to provide valuable recommendations to further the spread and implementation of goal-setting in Dutch general practices. A final strength of this study is that by carefully formulating the question-and-answer options, response bias and question-order bias were limited as much as possible, improving the validity of the

results. My own medical background may have aided in the "medical phrasing" of certain questions and explanatory paragraphs, improving survey clarity.

Naturally, this study also has several important limitations which must be discussed. First of all, it is noteworthy to say that the research design of this study does not permit for a deeper understanding of why and how goal-setting is used. In different circumstances were GP's were not as occupied with the COVID-19 pandemic and with more time available for this study, a mixed-methods design combining a survey with fifteen to twenty in-depth qualitative semi-structured interviews would have been the most preferred and most fruitful approach, seeing that it would provide a more in depth and complete answer to sub questions 1, 4 and 5. A qualitative component to this research would allow to elaborate on the most frequently reported or most striking data and therefore gain a better understanding of why a certain parameter is mentioned most frequently and what the implications are for GP's, patients and the organization of the primary health care system. The descriptive and quantitative set up does not permit for this deeper understanding of why and how goal-setting is used and why the main barriers and facilitators are what they are and what can be done to address them, but only for a quantification and description of the most frequently mentioned answers. Knowing the most frequent answers, can however be used as a starting point to guide further qualitative research on goal-setting. A second important limitation is the limited sample size. Even though 128 respondents were included (more than the original sample size calculation), a higher level of respondents would be much preferred, seeing that the statements made would more accurately represent the Dutch GP-base. Collecting responses from GP's and GP's-in-training proved particularly hard due to the COVID-19 pandemic and the increased burdens placed on general practices because of the pandemic and the subsequent vaccination campaign. During the process of data collection several GP's and GP-institutions have indicated that participation in the study was not a priority to them due to COVID-19, explaining the limited number of responses. The relatively small sample size may therefore limit generalizability of this study. The results of this thesis should therefore not be interpreted as strict truths or facts but as indications of general trends that may be used to guide further research. A third limitation pertains to the set-up of the survey questions and the possible introduction of recall bias. Some respondents and large GP-institutions that were contacted, indicated that the questions on the use of goal-setting in

specific health problems and health care settings and the questions on the make-up of the patient population were difficult to answer accurately for them in the way the questions were formulated. The presence of a sliding bar to indicate the exact percentage of use was found to be difficult to answer precisely and fairly unintuitive. Respondents may have a difficult time recalling the actual, exact answers to the questions on the composition of the patient population and the specific uses of goal-setting in distinct clinical settings and may therefore provide answers that are not a completely accurate representation of the actual patient population. Future studies could aim to adopt a 5-point Likert scale with "Never", "Seldom", "Sometimes", "Frequently" and "Always". Such a method is likely to lead to more accurate and valid responses by GP's and a higher chance of limiting recall bias. Another limitation is that the theoretical background presented in chapter 2 is based on international literature and not specifically on literature on Dutch GP's, seeing that the latter was largely unavailable. The build-up of the survey is therefore primarily based on findings in the international goal-setting literature, possibly leading to a mismatch between the contents of the survey and the practical experiences of Dutch GP's. To mitigate this, open-ended answers were allowed to cover for elements that were missing in the survey according to the respondents. Seeing that many points discussed by the survey participants matched the theoretical background, this limitation may not be so severe. Lastly, it is relevant to discuss several other biases that might have affected the results of this research. A first potential bias is that of sampling bias. GP-respondents that have affinity towards goal-setting might be more likely to participate in this research, leading to a skewed representation of data favouring the use of goal-setting. Additionally, by actively asking GP's and GP's-in-training from my own personal and medical network and making use of snowballing to distribute the survey, sampling bias may be introduced as well. GP's and GP's-in-training that have a personal or medical connection with me, might be more inclined to participate in the research in comparison to the overall population of GP's and GP's-in-training, making the distribution of the survey not perfectly equal in all groups. Seeing that responses have been recorded anonymously, there is no way to correct for this bias statistically. By aiming to distribute the survey through a variety of different networks and channels and keeping the directly asked GP's and GP's-in-training to a minimum (N=7), the effects of sampling bias were kept to a minimum. Closely related to sampling bias is the risk of non-response

bias. Participants that did fill in the survey might be inherently different from participants that did not decide to participate in this study, introducing non-response bias. This form of bias might affect the generalizability of this study and perhaps skew the data in favour of goal-setting, seeing that GP's that use goal-setting might have more affinity with the topic and may therefore be more likely to fill-in the survey. To mitigate this form of bias measures were taken to improve the response rate, including minimization of the time necessary to complete the survey, sending several reminders and presenting respondents with the option to acquire the study results afterwards. The limited sample size of 128 respondents, might not be enough to completely cover for this form of bias, however. A third potential bias is that of omitted variable bias. The statistical model that was created to identify characteristics of GP's associated with goal-setting contained several variables based on theoretical information. It may very well be possible that other variables, which have not been included in the analysis, should also have been included in the model and might therefore also have been associated with higher or lower odds of using goal-setting. The characteristics that are presented in this study are therefore examples of characteristics associated with goal-setting, but not the complete and exhaustive list of all possible characteristics associated with the use of goal-setting

5.4 Recommendations and suggestions for further research

Based on the findings previously discussed, concrete recommendations for health policy can be formulated to help further the adequate implementation and facilitation of goal-setting. Concretely, the following recommendations can be formulated:

- GP's and especially GP's-in-training should receive more education on what goal-setting exactly entails, what the rationale for using goal-setting is and how to do so effectively. Goal-setting should therefore become a regular part of the curriculum for GP's-in-training and should be taught in both a theoretical and practical manner, allowing GP's-in-training to build a solid fundament on the principles of goal-setting. Additionally, goal-setting should be discussed in refresher courses for current GP's to refresh their knowledge and learn about new insights related to goal-setting.

- GP's should be allotted more time per consultation to adequately use goal-setting in their day-to-day clinical practice. Standard consultation time should therefore be increased to at least 15 minutes per new consultation or specific goal-setting appointments should be implemented, so that goal-setting conversations may be facilitated in the general practice. Health care insurers should facilitate this by providing adequate reimbursement for these longer consultations or for specific goal-setting consultations.

- The use of goal-setting should be adopted by the Dutch GP Society (NHG) as a fixed part of current primary care guidelines relating to chronic care, palliative care, terminal care, and preventative care. These guidelines should provide a framework of when and how to use goal-setting, while simultaneously providing room for general practitioners to provide "tailor-made" care and make use of goal-setting based on the individual characteristics of the patient before them and not on strict pre-set general guidelines. Guidelines should highlight the relevance of goal-setting in exploring the patients care question and creating concrete treatment plans.

- Primary care nurse specialists should play a more central role in goal-setting conversations. In case of time constraints, a primary care nurse specialist may be the one to perform the goal-setting conversation instead of the GP. Alternatively, dedicated goal-setting primary care nurse specialists may be introduced who will guide the patient through the goal-setting and goal-implementation process after the GP has completed the initial goal-setting conversation.

- Patient should be provided with more basic information on goal-setting through patient pamphlets, patient federations and online information on the website "www.thuisarts.nl" allowing patients to prepare for and more actively engage in goal-setting discussions.

- In complex cases or discipline transcending cases, goal-setting should be tackled multidisciplinary by GP's, paramedics and relevant secondary care providers, enabling the formulation of goals that are based on the individual patient's preferences and abilities and achievable within the scope of all different disciplines involved.

- The electronic patient file should include a digital space in which goal-setting conversations can easily be written down, either as open text or using a multiple-choice system, thus facilitating the use of goal-setting in clinical practice and reminding primary care providers to use it.

This thesis research has provided several answers and recommendations on various relevant domains of goal-setting. Many questions remain however, necessitating further research to answer those. Future research adopting a mixed-methods design or a qualitative approach, making use of semi-structured interviews, will be able to answer these questions much more effectively. Such a study will add to the current knowledge on goal-setting and the findings of this study and results in a more complete understanding of goal-setting in general practices, helping to further the implementation and facilitation of goal-setting in primary care. Possibly, this future research could use the main findings and main frequencies reported by this study as a starting point for further qualitative research, investigating why several answers are the most frequent and how that information can be used to promote goal-setting. Secondly, keeping in mind the limitations of this survey, it might be very interesting to conduct a similar research through one of the large Dutch GP-institutes, such as the Dutch GP Society (NHG) or the National GP Association (LHV). Repeating this research through such an institution will likely improve survey response substantially, seeing that such institutions are able to reach nearly all GP's and GP-in-practice in the Netherlands. Additionally, by conducting the survey through such an established and well-known institution amongst GP's, GP's might be more inclined towards participation in such a study. The combination of a substantially larger sample size and the backing of a large institution might help to tackle the aforementioned limitations and reinstate the conclusions drawn in this study. Thirdly, future research could focus on why higher rates of chronic care patients are associated with less use of goal-setting. This striking finding might be attributed to a general lack of time to use goal-setting when GP's have many chronic patients, seeing that goal-setting is often limited due to time constraints. Further research might be able to shed more light on this. Fourthly, future research could focus on the economic aspects of the implementation of goal-setting. The use of goal-setting might perhaps require more time initially but might lead to more

health benefits and therefore financial savings on the long term. An economic evaluation of the use of goal-setting in the Dutch GP-setting might therefore be useful to gain more insight in the financial aspects associated with the adoption of goal-setting, possibly facilitating the increase in consultation time and its reimbursement. Fifthly, it is important to note that this study has primarily focused on goal-setting and its uses and application, while mainly ignoring the absence of the use of goal-setting. Future studies could focus on the what reasons exist that GP's and GP's-in-training do not engage in goal-setting. These findings might also be very relevant for the further implementation of goal-setting, seeing that it will allow researcher to identify barriers that GP's that do not use goal-setting might face and discover how to alleviate these possible barriers. Finally, future research could also focus on goal-setting from a patients perspective. The patient, naturally, plays the central role in goal-setting and is the one directly affected by the results of the goal-setting process. Qualitative analysis of experiences of Dutch patients who have undergone goal-setting might also identify relevant challenges which need to be addressed to further the implementation of goal-setting in primary care.

5.5 Conclusion

All in all, this study has shown that goal-setting is used frequently among GP's, with 70.9% (N=90) of respondents making use of goal-setting. The findings of this study can be used to aid health policy makers in the further implementation and facilitation of goal-setting in Dutch general practices. Additionally, this research can be used as a starting point for further (qualitative) research on goal-setting amongst GP's in the Netherlands.

Conflict of interests

The author declares that there is no conflict of interest.

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Appendix A: Search strategies used

Search 1: Goal-setting in the general practitioners practice or primary care

("General Practitioners"[Mesh] OR "general practi*"[tiab] OR "general-practi*"[tiab] OR "GP"[tiab] OR "G.P."[tiab] OR "family practi*"[tiab] OR "family doctor"[tiab] OR "family physician"[tiab] OR "general physician"[tiab] OR "GP-practice"[tiab] OR "primary care"[tiab]) AND ("Goals"[Mesh] OR "goal-setting"[tiab] OR "goal setting"[tiab] OR "goal implement*"[tiab] OR "goal establish*"[tiab] OR "objective setting"[tiab] OR "objective-setting"[tiab] OR "target setting"[tiab] OR "target-setting"[tiab] OR "setting goal"[tiab] OR "goal-attainment"[tiab]) AND ("frequenc*"[tiab] OR "prevalence"[tiab] OR "incidence"[tiab] OR "usage rate"[tiab] OR "use"[tiab] OR "percentage"[tiab] OR "field"[tiab] OR "specialt*"[tiab] OR "discipline"[tiab] OR "domain"[tiab] OR "setting"[tiab] OR "experience"[tiab] OR "view"[tiab] OR "reason"[tiab] OR "rationale"[tiab] OR "opinion"[tiab] OR "theory"[tiab])

Search 2: Barriers and facilitators to goal-setting in general health care

("Health care"[tiab] OR "healthcare"[tiab]) AND ("Goals"[Mesh] OR "goal-setting"[tiab] OR "goal setting"[tiab] OR "goal implement*"[tiab] OR "goal establish*"[tiab] OR "objective setting"[tiab] OR "objective-setting"[tiab] OR "target setting"[tiab] OR "target-setting"[tiab] OR "setting goal"[tiab] OR "goal-attainment"[tiab]) AND ("barrier"[tiab] OR "obstacle"[tiab] OR "facilitator"[tiab] OR "pro's"[tiab] OR "con's"[tiab] OR "pros"[tiab] OR "benefit"[tiab] OR "difficult*"[tiab] OR "cons"[tiab])

Appendix B: Overview of Directed Acyclic Graphs

Legend to the interpretation of the DAG's:
- Blue represents the exposure variable;
- Green represents the outcome variable;
- Red represents a possible confounding variable;
- Yellow represents a mediator variable;
- The arrows represent possible causal associations;
- The dashed lines represent a grouping of similar variables (e.g., all confounding variables or all mediator variables).

Experience as a GP

Age

Sex

Function

Urbanity

Composition of the patient population

Prior education on goal-setting

Prior knowledge on goal-setting

Time per consultation

The use of goal-setting by Dutch GP's

Experience as a GP

Age

Sex

Function

Urbanity

Prior education on goal-setting

Composition of the patient population

The use of goal-setting by Dutch GP's

Time per consultation

Prior knowledge on goal-setting

| | Age |
| Sex |
| Experience as a GP |

Function

The use of goal-setting by Dutch GP's

| Time per consultation |
| Composition of the patient population |
| Urbanity |
| Prior education on goal-setting |
| Prior knowledge on goal-setting |

Sex	
Experience as a GP	
Time per consultation	
Function	
Urbanity	
Composition of the patient population	
Prior knowledge on goal-setting	
Prior education on goal-setting	

Age

The use of goal-setting by Dutch GP's

	Experience as a GP
	Time per consultation
	Function
	Urbanity
	Composition of the patient population
	Prior knowledge on goal-setting
	Prior education on goal-setting

Sex

The use of goal-setting by Dutch GP's

Age

Appendix C: Survey sent out to the respondents

Geïndividualiseerde (behandel)doelen in de huisartsenpraktijk

Het doel van dit onderzoek is om meer inzicht te verkrijgen in het gebruik en toepassen van het opstellen van gezamenlijke, geïndividualiseerde (behandel)doelen in de huisartsenpraktijk.

In dit onderzoek zal u gevraagd worden een online enquête in te vullen. Dit zal circa 8-10 minuten duren. U deelname is geheel vrijwillig. Dit betekent dat u op ieder moment kunt stoppen met het onderzoek en op ieder moment uw toestemming voor deelname aan het onderzoek kunt intrekken, zonder opgaaf van reden. De verzamelde data zal geanonimiseerd opgeslagen worden en is dus niet naar u te herleiden.

De data zal gebruikt worden in het kader van de masterscriptie van Julian Ghobrial, laatstejaars student geneeskunde in het Leids Universitair Medisch Centrum en masterstudent Health Economics. Policy and Law aan de Erasmus Universiteit Rotterdam. Mocht u vragen hebben over het onderzoek of de dataverzameling, dan kunt u zich richten tot Julian Ghobrial via de volgende e-mailadressen: j.b.ghobrial@lumc.nl en/of 588262jg@eur.nl.
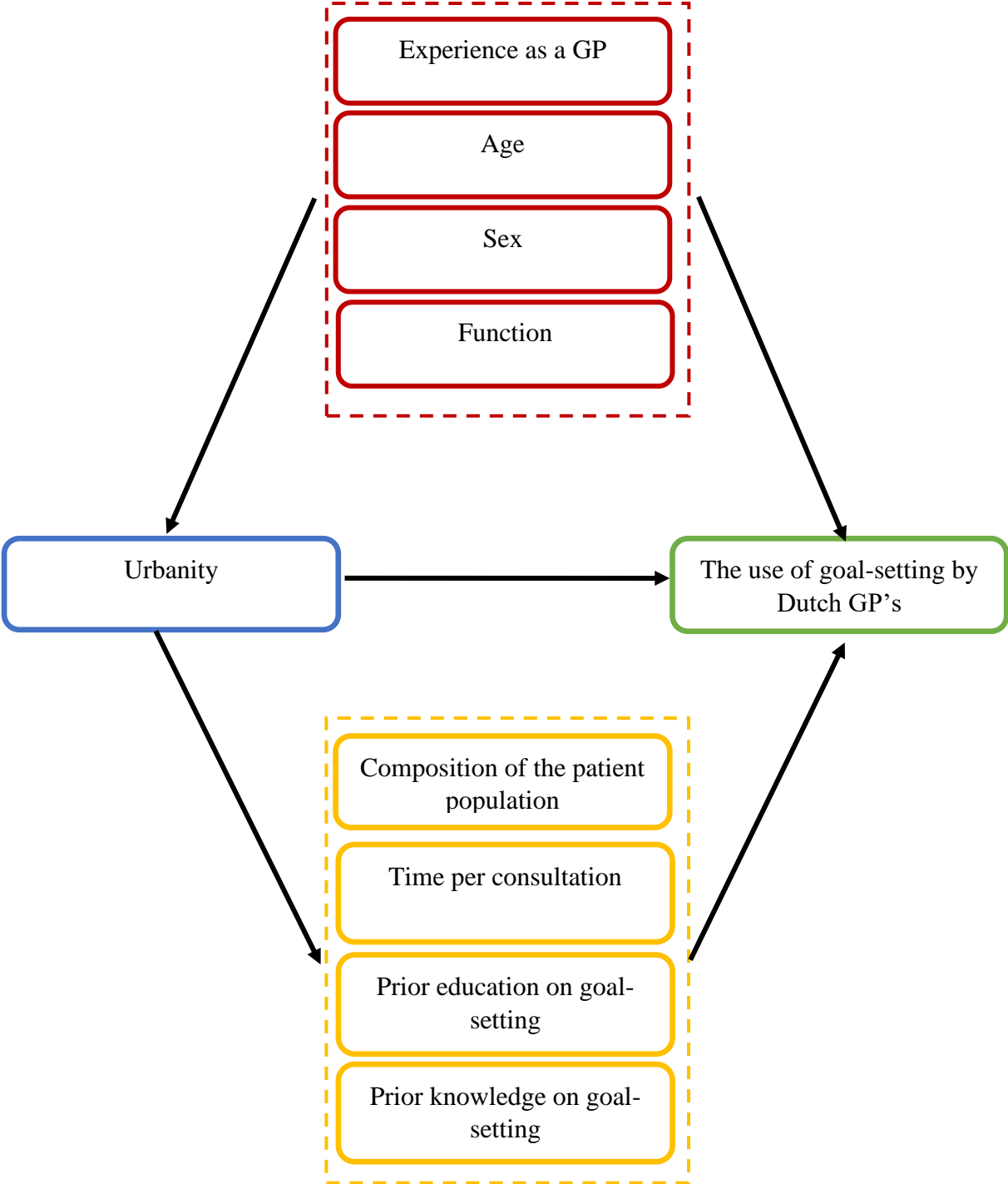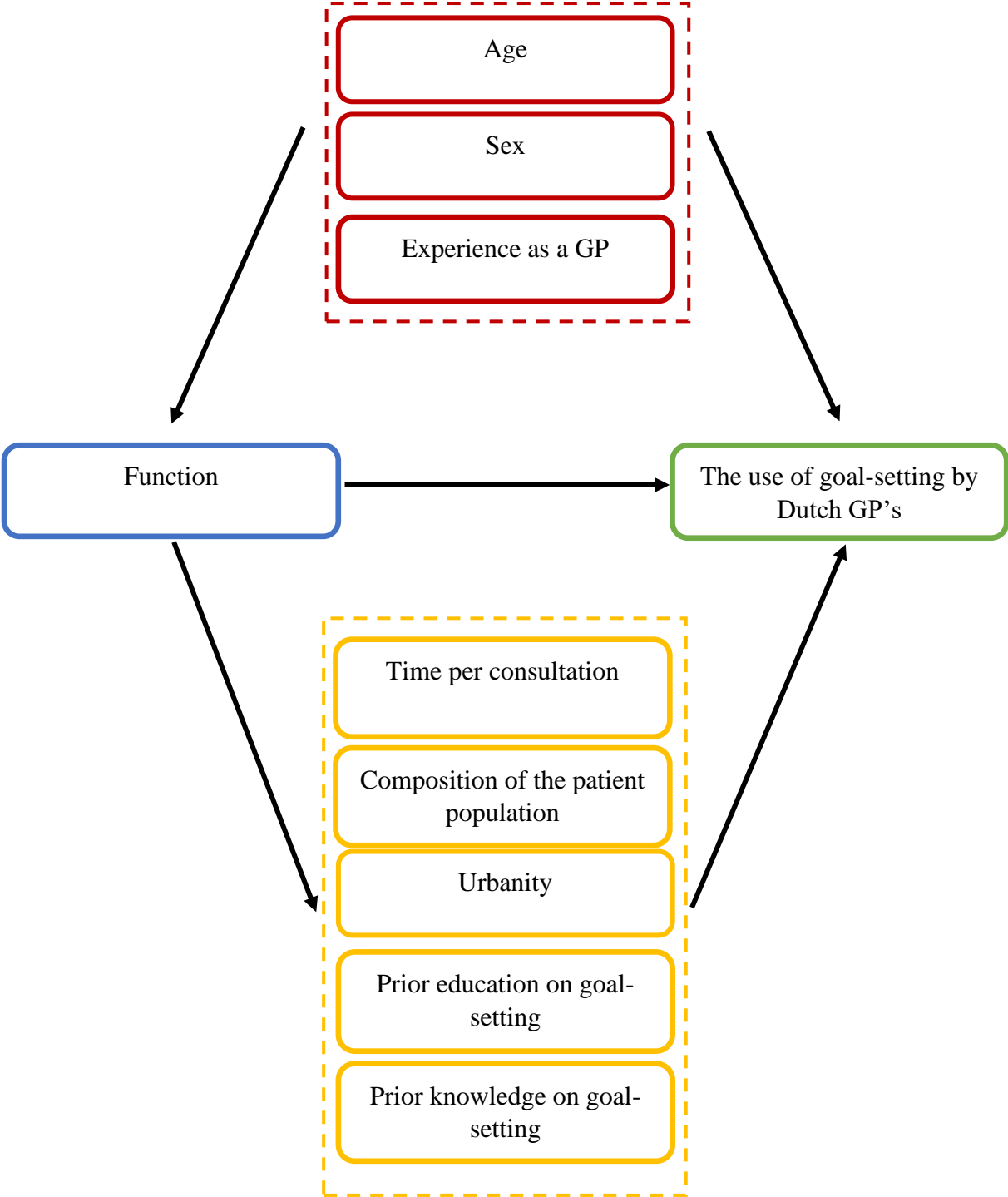
Bedankt voor uw medewerking!

Ik geef toestemming voor deelname aan dit onderzoek zoals hierboven beschreven:

◯ Ja, ik geef toestemming en wil deelnemen aan dit onderzoek (1)

◯ Nee, ik geef geen toestemming en wil niet deelnemen aan dit onderzoek (4)

Skip To: End of Survey If Ik geef toestemming voor deelname aan dit onderzoek zoals hierboven beschreven: = Nee, ik geef geen toestemming en wil niet deelnemen aan dit onderzoek

Page Break

Anno 2021 is de zorg in Nederland steeds meer gericht op gepersonaliseerde behandelingen en geïndividualiseerde behandeluitkomsten. In toenemende mate zien we dat niet alleen "biologische" uitkomsten van belang zijn voor patiënten, maar ook "geïndividualiseerde" uitkomsten en persoonlijke behandeldoelen die per patiënt kunnen verschillen. De ene patiënt met reumatoïde artritis kan bijvoorbeeld als doel hebben om het CRP en BSE zo laag mogelijk te krijgen, de andere om 10 minuten pijnvrij te lopen en de derde om weer met de kleinkinderen te kunnen voetballen. Geïndividualiseerde doelen helpen om naast de medische problemen, ook aandacht te besteden aan sociale of emotionele problemen die de patiënt door de ziekte ervaart.

Het opstellen van deze geïndividualiseerde doelen (ook wel "goal-setting" genoemd) neemt in steeds meer sectoren een belangrijke plaats in binnen het behandelplan. Met name in sectoren met veel chronische ziekten, multimorbiditeit en langdurig patiëntcontact is dit het geval. De huisartsgeneeskunde, met haar focus op generalistische, persoonsgerichte en continue zorg, is bij uitstek een specialisme waarin dit het geval is.

Page Break ————————————————————————————

Wat is uw functie?

◯ Huisarts (1)

◯ Huisarts-in-opleiding (HAIO) (2)

Page Break ————————————————————————————

Wat is uw leeftijd?

_____

Page Break ————————————————————————————

Wat is uw geslacht?

◯ Man (1)

◯ Vrouw (2)

◯ Anders (3)

Page Break ————————————————————————————

Hoe lang werkt u als huisarts?

○ Ik ben momenteel bezig met de huisartsenopleiding (8)

○ Minder dan 5 jaar (1)

○ 5-10 jaar (2)

○ 10-15 jaar (3)

○ 15-20 jaar (4)

○ 20-25 jaar (5)

○ 25-30 jaar (6)

○ Meer dan 30 jaar (7)

Page Break

 Hoe groot is de gemeente waar u werkzaam bent? *Bent u in meerdere gemeentes werkzaam? Kies dan voor de gemeente waar u het grootste deel van de tijd werkzaam bent.*

○ Groot (meer dan 100.000 inwoners) (1)

○ Middelgroot (50.000 tot 100.000 inwoners) (2)

○ Klein (minder dan 50.000 inwoners) (3)

Page Break

In welke provincie werkt u? *Bent u in meerdere provincies werkzaam? Kies dan voor de provincie waar u het grootste deel van de tijd werkzaam bent.*

○ Drenthe (1)

○ Flevoland (2)

○ Friesland (3)

○ Gelderland (4)

○ Groningen (5)

○ Limburg (6)

○ Noord-Brabant (7)

○ Noord-Holland (8)

○ Overijssel (9)

○ Utrecht (10)

○ Zeeland (11)

○ Zuid-Holland (12)

○ Ik werk buiten Nederland (13)

Page Break

Hoeveel tijd heeft u in de praktijk gemiddeld voor een regulier consult?

○ Minder dan 10 minuten (1)

○ Circa 10 minuten (2)

○ Circa 15 minuten (3)

○ Circa 20 minuten (4)

○ Meer dan 20 minuten (5)

Page Break —————————————————————————————

Is, naar uw mening, uw patiëntenpopulatie een goede weerspiegeling van de patiëntenpopulatie van de gemiddelde huisartsenpraktijk?

○ Ja (1)

○ Nee (2)

Page Break —————————————————————————————

De volgende vragen gaan specifiek over "geindividualiseerde (behandel)doelen", ook wel "goal-setting" genoemd. Dit zijn persoonlijke, individuele doelen die de patiënt samen met u als behandelaar stelt. Deze doelen kunnen dus per persoon verschillen, ongeacht de onderliggende ziekte en hoeven ook niet direct gerelateerd te zijn aan verbetering op het medische gebied.

Enkele voorbeelden van dergelijke doelen zijn: Zonder hulpmiddelen kunnen lopen binnenshuis; Weer een bepaalde sport, hobby of activiteit kunnen uitvoeren; Zichzelf zelfstandig kunnen wassen/verzorgen; Een gezond gewicht bereiken; Het aantal in te nemen medicijnen verminderen; Verminderen van angst en onzekerheid over het toekomstige ziektebeloop, etc.

Page Break —————————————————————————————

Bent u reeds bekend met het concept "geïndividualiseerde (behandel)doelen"? *Zie eventueel de inleiding voor meer verduidelijking.*

○ Ja (1)

○ Nee (2)

Heeft u vanuit de geneeskundeopleiding en/of de huisartsenopleiding onderwijs gehad over het werken met en/of opstellen van geïndividualiseerde (behandel)doelen?

○ Ja (1)

○ Nee (2)

Wat heeft u hierover geleerd?

_____

_____

_____

_____

_____

Page Break

Maakt u gebruik van geïndividualiseerde (behandel)doelen in de zorg voor uw patiënten?

○ Ja (1)

○ Nee (2)

Op welke manier maakt u in de praktijk gebruik van geïndividualiseerde (behandel)doelen in de zorg voor uw patiënten?

_____

_____

_____

_____

_____

Waarom maakt u gebruik van geïndividualiseerde (behandel)doelen in de zorg voor uw patiënten?

_____

_____

_____

_____

_____

 Hoe belangrijk vindt u het opstellen van geïndividualiseerde (behandel)doelen in de dagelijkse praktijk?

◯ Extreem belangrijk (1)

◯ Erg belangrijk (2)

◯ Belangrijk (3)

◯ Weinig belangrijk (4)

◯ Helemaal niet belangrijk (5)

Wat zijn, naar uw mening, de grootste voordelen van het gebruiken van geïndividualiseerde (behandel)doelen in de dagelijkse praktijk? *Kies maximaal 3 opties.*

☐ Het leidt tot betere zorg voor de patient (4)

☐ Het leidt tot meer patienttevredenheid (5)

☐ Het leidt tot een betere kwaliteit van leven voor de patient (6)

☐ Het leidt tot een betere arts-patient relatie (7)

☐ Het leidt tot betere therapietrouw (9)

☐ Anders, namelijk: (8) _____

Page Break

Bij welke van de volgende gezondheidsproblemen maakt u gebruik van geïndividualiseerde (behandel)doelen? *Weet u het antwoord niet, maak dan een schatting of gebruik dan het volgende schema:*
Nooit = 0%
Zelden= 25%
Soms= 50%
Vaak= 75%
Altijd= 100%

	Nooit	Zelden	Soms	Vaak	Altijd

0 5 10152025303540455055606570758085909510 0

ALLE consulten ()	
Auto-immuunziekten en degeneratieve problematiek (o.a. inflammatoire darmziekten, multipel sclerose) ()	
Geriatrische problematiek (o.a. dementie en verminderde mobiliteit) ()	
Leefstijl-gerelateerde problematiek (o.a. stoppen met roken en afvallen) ()	
Musculoskeletale problematiek (o.a. spier- en gewrichtspijn en blessures) ()	
Neurologische problematiek (o.a. status na CVA en epilepsie) ()	
Oncologische problematiek ()	
Psychiatrische/psychologische problematiek ()	
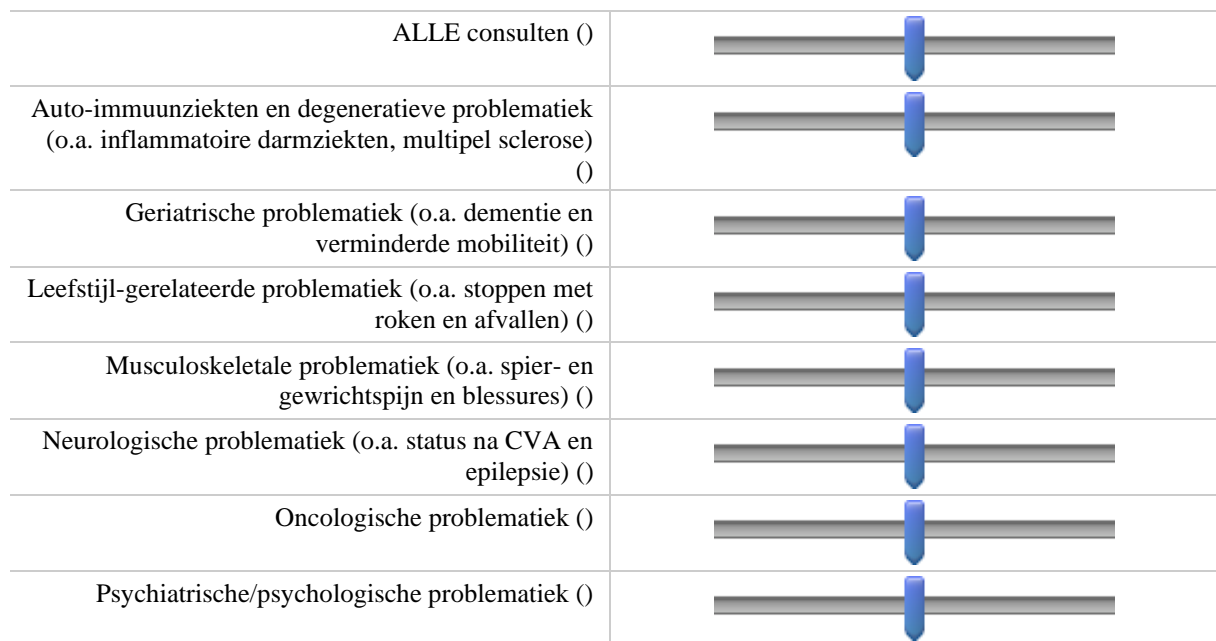
Zijn er andere gezondheidsproblemen (anders dan degene reeds vermeld in vraag 21) waarbij u gebruik maakt van geindividualiseerde (behandel)doelen? Welke zijn dit?
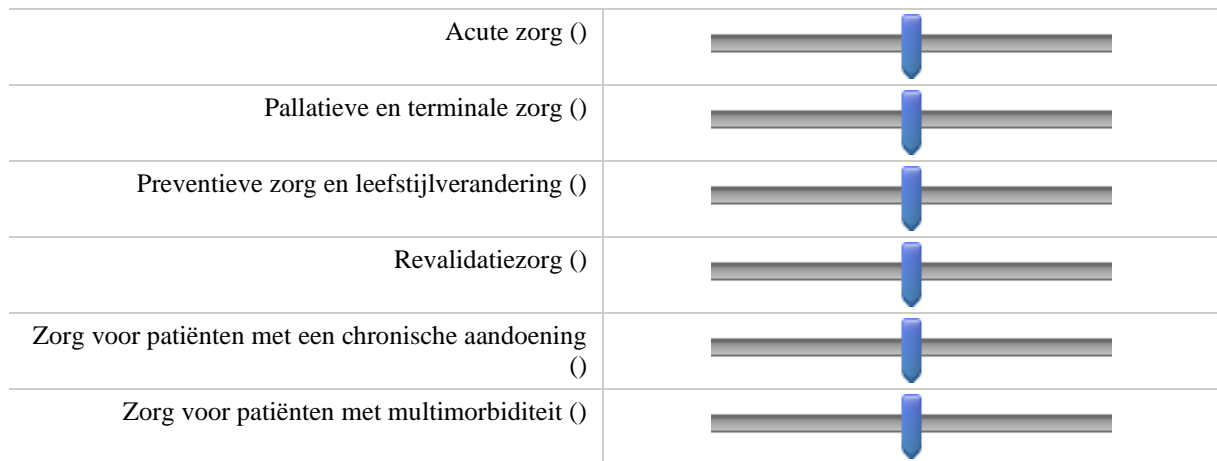
_____

_____

_____

_____

_____

 In welk percentage van de volgende overkoepelende zorgcontexten maakt u gebruik van geïndividualiseerde (behandel)doelen? *Weet u het antwoord niet, maak dan een schatting of gebruik dan het volgende schema:*
Nooit = 0%
Zelden= 25%
Soms= 50%
Vaak= 75%
Altijd= 100%

	Nooit	Zelden	Soms	Vaak	Altijd

0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100

Acute zorg ()	
Pallatieve en terminale zorg ()	
Preventieve zorg en leefstijlverandering ()	
Revalidatiezorg ()	
Zorg voor patiënten met een chronische aandoening ()	
Zorg voor patiënten met multimorbiditeit ()	

 Zijn er andere overkoepelende zorgcontexten (anders dan degene reeds vermeld in vraag 23) waarbij u gebruik maakt van geïndividualiseerde (behandel)doelen? Welke zijn dit?

_____

_____

_____

_____

_____

*

25 Wat zijn, naar uw mening, de grootste obstakels in het toepassen/opstellen van geïndividualiseerde (behandel)doelen in de dagelijkse praktijk? *Kies maximaal vier opties.*

☐   De huidige organisatie van het zorgsysteem in de eerste lijn (1)

☐   Een mismatch tussen de verwachtingen en doelen van de patiënt en de behandelaar (2)

☐   Onvoldoende tijd (3)

☐   Onvoldoende motivatie vanuit de patiënt (4)

☐   Onvoldoende motivatie vanuit de behandelaar (5)

☐   Onvoldoende kennis, training en/of ervaring van de behandelaar omtrent het stellen van geïndividualiseerde (behandel)doelen (6)

☐   Onvoldoende kennis van de patient over het ziektebeeld en ziektebeloop (7)

☐   Onvoldoende inzicht in de meerwaarde van het opstellen van geïndividualiseerde (behandel)doelen in de dagelijks praktijk (8)

☐   Vooroordelen over de patiënt vanuit de behandelaar (9)

☐   Anders, namelijk: (10) _____

Page Break

*

Wat zijn, naar uw mening, de grootste facilitatoren/bevorderaars in het toepassen/opstellen van geïndividualiseerde (behandel)doelen in de dagelijkse praktijk? *Kies maximaal vier opties.*

☐ Actief betrekken van het sociale netwerk van de patiënt (1)

☐ De patiënt zien als een gelijkwaardige, gemotiveerde gesprekspartner (2)

☐ Een sterke arts-patiënt relatie (3)

☐ Gebruik maken van ondersteunend materiaal/faciliteiten (4)

☐ Het multidisciplinair opstellen en aanpakken van geïndividualiseerde (behandel)doelen (5)

☐ Rekening houden met de wensen en behoeften van individuele patiënten, in plaats van een gestandaardiseerde aanpak (6)

☐ Voldoende onderwijs en training over het stellen van geïndividualiseerde (behandel)doelen (7)

☐ Anders, namelijk: (8) _____

Page Break

Wat is er volgens u nodig om het gebruik van geïndividualiseerde (behandel)doelen in de praktijk te kunnen stimuleren?

_____

_____

_____

_____

_____

Patientenpopulatie: De laatste 6 vragen van deze enquête gaan over de samenstelling van uw patiëntenpopulatie. Weet u het antwoord niet zeker, maak dan een schatting.

JS

Wat is het aandeel "ouderen" (65+) in uw praktijk? *Weet u het antwoord niet zeker, baseer u antwoord dan op het gemiddelde aandeel "ouderen" die u per week ziet.*

| Geen ouderen | = | Enkel ouderen |

0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100

| Percentage () | |

Wat is het aandeel hoogopgeleide patiënten in uw praktijk (HBO-opleiding of hoger)? *Weet u het antwoord niet zeker, baseer u antwoord dan op het gemiddelde aandeel "hoogopgeleiden" die u per week ziet.*

| Enkel laagopgeleid | = | Enkel hoogopgeleid |

0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100

| Percentage () | |

Welk aandeel van uw patiënten heeft werk (betaald of onbetaald)? *Weet u het antwoord niet zeker, baseer u antwoord dan op het gemiddelde aandeel "werkenden" die u per week ziet.*

| Geen werk | = | Allen werkende |

0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100

Percentage ()

Wat is het aandeel chronische zorg (zorg in het kader van een chronische aandoening) in uw praktijk? *Antwoord in percentages.*

Geen chronische zorg = Enkel chronische zorg

0 5 1015202530354045505560657075808590 95100

Percentage ()

Wat is het aandeel palliatieve zorg (niet-curatieve zorg) in uw praktijk? *Antwoord in percentages.*

Geen palliatieve zorg = Enkel palliatieve zorg

0 5 1015202530354045505560657075808590 95100

Percentage ()

Wat is het aandeel patiënten met multimorbiditeit (twee of meer actieve aandoeningen/ziektes bij één patiënt) in uw praktijk? *Antwoord in percentages.*

Geen multimorbiditeit = Enkel multimorbiditeit

0 5 1015202530354045505560657075808590 95100

Percentage ()

Zou ik u eventueel mogen benaderen voor aanvullende vragen naar aanleiding van uw ingevulde enquête?
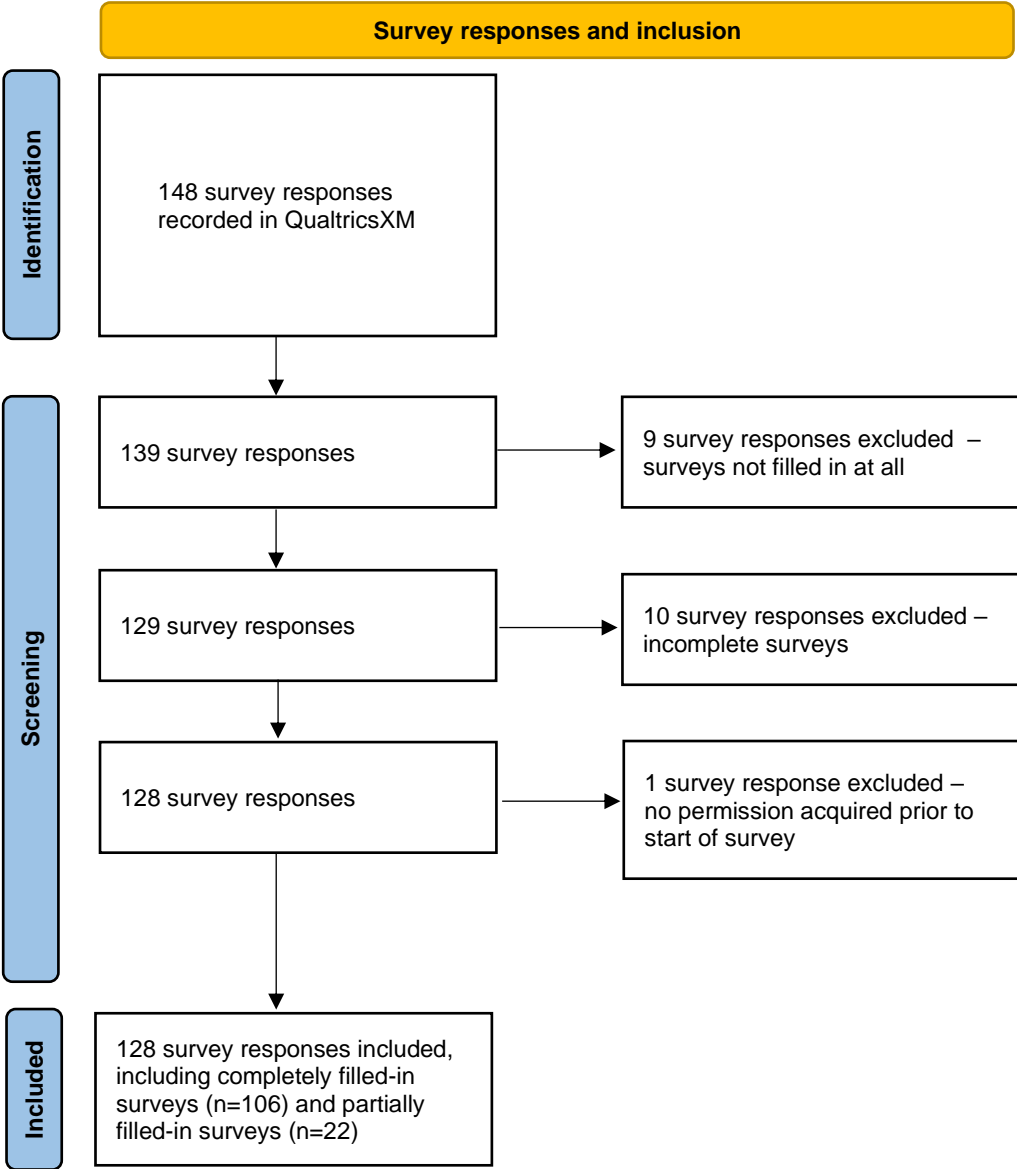
○ Ja, mijn contactgegevens zijn: (1) _____

○ Nee (2)

Wilt u te zijner tijd de resultaten van dit onderzoek willen ontvangen? Laat dan hieronder uw e-mailadres achter.

_____

End of Block: Default Question Block

Appendix D: Flow Chart survey response collection

Survey responses and inclusion

Identification

148 survey responses recorded in QualtricsXM

Screening

139 survey responses → 9 survey responses excluded – surveys not filled in at all

129 survey responses → 10 survey responses excluded – incomplete surveys

128 survey responses → 1 survey response excluded – no permission acquired prior to start of survey

Included

128 survey responses included, including completely filled-in surveys (n=106) and partially filled-in surveys (n=22)

Appendix E: List of abbreviations used

CI   Confidence interval

COPD   Chronic Obstructive Pulmonary Disease

DAG   Directed Acyclic Graph

GP   General practitioner

GS   Goal-setting

NGS   Non-goal-setting

OR   Odd's Ratio

PACIC   Patient Assessment of Chronic Illness Care

SD   Standard Deviation

SE   Standard Error

SPSS   Statistical Package for the Social Sciences

VIF   Variance Inflation Factor