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### How is depression valued?

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# Chapter 1

General Introduction



## INTRODUCTION

Depression is prevalent in the general population and it is even more common among patients with chronic somatic conditions. Various types of psychological interventions aiming to alleviate depression are available, including interventions specifically targeting depression in patients with somatic conditions and co-occurring depression. To ensure optimal health care it is important to identify the most effective interventions, taking into account their outcomes in terms of health-related quality of life (HRQoL), as well as their costs. HRQoL can be assessed by health states valuations, some specifically developed for use in economic evaluations of health care interventions. Health state valuation is increasingly applied in research on somatic conditions, but less commonly for mental health conditions, i.e. depression. This limited application of valuation in depression might be explained by the numerous related challenges. The focus of the current thesis is the application of health state valuation methodology in the case of depression, for use in future economic evaluations of depression interventions. In doing so, a number of issues arise and will be investigated in this thesis.

### Depression

Depression is a frequently occurring condition, with a reported lifetime prevalence of around 16% (Kessler et al., 2003). Projections show that depression may evolve to the second major contribution of the global burden of disease by 2020 (Lopez & Murray, 1998). Importantly, depression has been found to be more two to three times more prevalent among patients with chronic somatic conditions, compared to the general population (Moussavi et al., 2007; Noel et al., 2004). More severe levels of depression have been reported among patients with diabetes (Ali, Stone, Peters, Davies, & Khunti, 2006; Knol et al., 2006), cancer (Fann et al., 2008; Reich, Lesur, & Perdrizet-Chevallier, 2008), heart disease (Rutledge, Reis, Linke, Greenberg, & Mills, 2006), chronic obstructive pulmonary disease (Mikkelsen, Middelboe, Pisinger, & Stage, 2004) and renal disease (Kimmel, Cukor, Cohen, & Peterson, 2007).

Depression is characterized by depressive episodes. During a depressive episode, a person can feel sadness, loss of interest, guilt, low self-esteem, affected sleep and appetite, and cognitive disturbances. Depressive episodes can be classified as mild, moderate or severe, based on the number of symptoms present and their severity (American Psychiatric Association, 2013). During a severe episode of depression the functioning of the individual is severely hampered.

Depression may substantially burden a person's daily functioning (in work, school, in the family) and HRQoL (Kruijshaar, Hoeymans, Bijl, Spijker, & Essink-Bot, 2003; Papakostas et al., 2004; Ustun, Ayuso-Mateos, Chatterji, Mathers, & Murray, 2004).

In the case of patients with somatic disorders, co-occurring depression can be an additional burden obstructing daily functioning, worsening medical outcomes and hampering HRQoL (Katon, 2003; Katon, Lin, & Kroenke, 2007).

Effective treatments are based either on pharmacotherapy or on psychological therapy (Barth et al., 2013; Cuijpers, van Straten, van Oppen, & Andersson, 2008; Jakobsen, Hansen, Simonsen, Simonsen, & Gluud, 2012), with pharmacotherapy not being the first line of treatment for treating mild depression (World Health Organization). Psychological interventions are specifically developed and offered to patients with chronic conditions aiming primarily to treat depression (Beltman, Voshaar, & Speckens, 2010).

Given the burden of depression, the plethora of available interventions, and the scarcity of resources for (mental) health care it is becoming increasingly relevant to evaluate the available interventions with the aim to identify the most beneficial ones. Economic evaluations are needed to study the balance between the costs and the effects of interventions, with the aim to facilitate rational decision making. Decision makers have to assess and compare the various types of available interventions. To enable comparability, a generic measure of health (i.e. as compared to a disease specific, such as recurrences) is most feasible. One specific type of cost-effectiveness analysis that supports comparability is called "cost-utility" analysis. In this type, utilities, or health state valuations, or preferences are used as an outcome in the composite outcome measure of cost-effectiveness. That is because they rely on a generic HRQoL index that allows the comparison between different types of interventions for different types of health conditions (Drummond, Sculpher, Torrance, O'Brien, & Stoddart, 2005).

Health state valuations represent preference for health states on a scale anchored by 0 (dead) and 1 (full health) (Gold, Siegel, Russel, & et al., 1996). Standard methodology to obtain health state valuations first involves a description of the health state of interest. Index instruments are used for this purpose. Such indexes include several HRQoL domains so that the health state is identified in terms of symptoms / functioning in each of the domains.

Once the health state is identified, the next step is to elicit individuals' valuations for this state. Standard techniques are used for this purpose, such as the time-trade-off (TTO), the Standard Gamble (SG), or the Visual Analogue Scale (VAS) (Green, Brazier, & Deverill, 2000). In the SG participants are asked to choose between two options. The first option is the health state to be valued – a certain outcome. The second option is a probability (p) of perfect health and a probability (1 – p) of death. The probabilities at which participants are indifferent between the two options represent the valuations for this state. In the TTO, participants are also asked to choose between two options. The first option involves living in the health state

under valuation for a certain amount of years. The second option concerns living in perfect health, but for less years. The number of years for which participants are indifferent between the two options is used to assign the valuations. In the VAS procedure, participants are asked to value the health state in a scale from 0 (death) to 1 (perfect health).

Generic preference based measures are commonly used for indirect health state valuations. These measures comprise of generic health state classification systems including multiple HRQoL domains to describe the health state of interest and of standardized value sets used to assign the 0-1 value to each state possibly generated by the classification system. Scoring algorithms to attach values to health states have been derived from studies in which the general population was asked to directly value a number of health states derived from the classification system and then statistical techniques were used to generate values for the remaining health states.

In the field of mental health in general and depression in specific, the use of health state valuation is scarce (Barrett, Byford, & Knapp, 2005; Mohiuddin & Payne, 2014; Pirraglia, Rosen, Hermann, Olchanski, & Neumann, 2004). Methodological challenges related to obtaining depression valuations have previously been recognized (Chisholm, Healey, & Knapp, 1997). One of the major issues is that the suitability of the commonly used generic-preference based measures, such as the EQ-5D (Rabin & de Charro, 2001) remains debated. Particularly, the generic HRQoL domains included in their classification systems, for example mobility or pain, are less relevant for depression (Flood, 2010). Currently, the McSad is the only depression-specific classification system available for the purpose of depression valuations (Bennett, Torrance, Boyle, Guscott, & Moran, 2000). However, there is no scoring algorithm available used to assign indirect values to health states generated by the classification system. A depression-specific preference-based measure with an accompanying scoring algorithm will thus be a valuable tool for use in evaluating psychological interventions. However, before developing such a measure there are a number of issues that need to be addressed.

The first of these issues concerns how well the health state to be valued, i.e. depression, is described. Clearly only when depression is appropriately described can the valuations be considered valid to capture the benefits of a depression intervention. The McSad depression-specific classification system has demonstrated good properties in describing depression for valuation purposes (Bennett, Torrance, Boyle, & Guscott, 2000). However, there is currently no Dutch version available. Besides, it is not known whether it is appropriate to describe depression also among patients with somatic conditions. Finally, its psychometric properties have not been

directly compared to the properties of generic classification systems, to prove that it indeed outperforms in case of depression, and thus justify its use.

The second issue concerns whether valuations for depression are elicited appropriately. Certain techniques, such as the time-trade-off have been widely used to elicit valuations for somatic conditions (Green, Brazier, & Deverill, 2000). TTO has been rarely applied in mental health, where difficulties have been reported (Koenig, Guenther, Angermeyer, & Roick, 2009). Moreover, to our knowledge it has not been applied to value depression when it co-occurs with a somatic condition. The TTO is a relatively complex task, whereas the nature and course of depression are less objective; besides, difficulties are entailed in the aim to value depression when co-occurring with a somatic condition. Therefore, before using the TTO to elicit valuations for depression, we need to ensure that it is a valid technique for this purpose.

The third issue concerns who to ask to value depression. Official guidelines suggest the use of the population perspective in health state valuations (Gold, & et al, 1996). However, there is evidence that when members of the general population are asked to value hypothetical states, they value them less favourably than patients who experience these exact states (Peeters & Stiggelbout, 2010; Ubel, Loewenstein, Schwarz, & Smith, 2005). This implies that the choice of perspective can have policy implications, as more favourable conclusions can be found for a somatic condition intervention when the population rather than the patient perspective is employed, as the population values the condition more negatively.

Understanding the underlying mechanisms is important to inform the choice of perspective. Factors such as patients' adaptation to their conditions, or the general population's attention to the negative aspects of the condition have been suggested, among others, to explain such discrepancies (Stiggelbout & de Vogel-Voogt, 2008). There is some evidence, though, supporting that the opposite holds for depression, that is that the general population value depression more favourably than people who experience depression (Gerhards, Evers, Sabel, & Huibers, 2011; Pyne et al., 2009). However rigid conclusions are difficult to draw, due to methodological drawbacks of the studies. Besides, discrepancies were observed between individuals without depression and specific subgroups of individuals with depression. Additionally, there is no research addressing or explaining such observed discrepancies in depression valuations between individuals with and without depression.

The fourth concern is whether depression is valued the same when it is a solitary condition and when it co-occurs with a somatic conditions. This is important to know, because if differences do exist, then the effect of the somatic condition should be taken into account when using depression valuations to evaluate interventions for depression in patients with somatic conditions.

## PURPOSE & OUTLINE OF THE THESIS

The main objective of this thesis was to develop a depression-specific preference-based measure, available as a HRQoL outcome for future studies evaluating psychological interventions.

In Chapter 2 we describe the first of a series of empirical studies, focusing on the description of depression for valuation. We describe how we developed the Dutch version of the McSad depression-specific classification system and how it was tested in a population of patients with somatic conditions, testing its validity and comparing its performance to the classification system of the most commonly used preference based measure, the EQ-5D.

In Chapter 3, we try to answer whether the most commonly used technique, the time-trade-off task is also appropriate for valuing depression. Again, we focus on using the TTO to value depression not only as a solitary condition, but also when co-occurring with a somatic condition.

In Chapter 4, we investigate the issue of whose perspective should be used for depression valuations. Inspired by previous studies, we try to assess discrepancies in valuations of depression, employing a more rigid methodology. We take a step further to be the first study to empirically investigate the mechanisms underlying such discrepancies.

In Chapter 5, we are trying to answer the question of whether depression is valued the same when it is a solitary condition and when it is co-occurring with a somatic condition. This is not only conceptually interesting, but also important in determining whether the same depression values are appropriate for evaluating benefits of psychological interventions when these interventions are offered to individuals who cope with chronic somatic conditions.

In Chapter 6, we are developing a scoring algorithm to generate a value set to accompany the McSad depression-specific classification system, and thus provide the first depression-specific preference-based measure.

In Chapter 7, we discuss and compose the outcomes of these studies, draw the overall conclusions and discuss the theoretical and practical implications. We comment on the methods of the study. Finally, we look into what is learned, what is still missing, what new questions have been raised and make recommendations for future research.



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